GEOLOGICAL SOCIETY NEWS LETTER

Volume 8, 1942

SUBJECT INDEX FOR VOLUME 8, 1942

by Joyce B. Priestaf

AUTHOR INDEX FOR VOLUME 8, 1942

by Fred W. Tisdel Jr.

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These indexes should be removed from this issue and included with Volume 8, 1942, of the News-Letter.

GEOLOGICAL NEWS LETTER

OFFICIAL PUBLICATION OF THE

VOL. 8 NO. 1 PORTLAND, OREGON January 10, 1942

GEOLOGICAL NEWS-LETTER
Official Publication of the
Geological Society of the Oregon Country
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THE GEOLOGICAL NEWS-LETTER
Official publication of the
GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

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Date . . . . . .

I, ...(please print full name) do hereby apply for membership (junior membership) in the Geological Society of the Oregon Country, subject to the provisions of the By-Laws.

Home Address . . . . . Phone . . . . . .

Business Address . . . . . Phone . . . . . .

Occupation . . . . . Hobbies . . . . . .

I am particularly interested in the following branches of geology: . . . . . .

. . . . . .

I enclose $ . . . for the year's dues, March 1 to March 1. (Checks payable to the Society).

. . . . . Sponsored by . . . . . .
(signature) (member)

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Friday Jan. 9 THE TULE LAKE PETROGLYPH: an interpretation of what it signifies.
Speaker: Horace J. Smith, Salem.

This petroglyph is so extensive and so remarkable that it was made a National Monument. What it represents has been the subject of much research without arriving at satisfactory conclusions. Mr. Smith has studied it intensively for several years, and has developed a solution of the enigma which is startling, yet rings true. The subject will be fully illustrated with lantern slides. It is not often we have lectures on the original research of one of our own members, so reserve this date and participate in an event of outstanding interest.

Sunday Jan.11 Trip: Charleton Laboratories, 2340 S. W. Jefferson St.
Leader: A. D. Vance.

Meet at S. W. Front and Yamhill, 10:00 a.m. The management has kindly invited the group to make a two hour inspection of their analytical plant. Among the many interesting things to be observed is a modern Diffraction Grating Spectograph, an instrument for accurately testing ores and minerals, the first of its type to be seen in Oregon. Dont miss this. In the afternoon several interesting exposures along the Skyline Road and Rock Creek will be observed.

****

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TRIPS: On the Sunday following the regular monthly lecture; caravan starting from Waller Hall (State St.) at time specified.
WORK NIGHT: First Tuesday of each month; Willamette museum; 7:30 p.m. Members are urged to bring in specimens of interest.
LUNCHEONS: One of the alcoves in the main dining-room of the Argo Hotel will be available for members of the G.S.O.C. and their friends.

Thursday Jan. 22 Subject: ARCHEOLOGY OF THE NEAR EAST.
Speaker: Dr. Carl Sumner Knopf, President, Willamette University, Salem.

Many have expressed the hope that we might have the new President of our local University speak to us at one of our regular meetings. His subject is one of particular interest at this time, as it deals with the Iranian Plateau, the area extending from Palestine to the Persian Gulf. He will discuss modern methods of excavation and the location and importance of the sites of some of the great archeological finds in that region, as well as the geological aspects of the materials comprising the records in stone. Dr. Knopf is a dynamic speaker and widely recognized as an authority on the subject of his lecture, so we are assured an evening of exceptional interest.

****

SALEM NEWS NOTES

As Chairman of the Service Committee, Mr. F. L. Davis is able to procure the Government topographic maps for .06¢ each, provided not less than 50 maps are ordered at one time. These maps may include any mapped quadrangle in the United States. He has "key sheets" indicating these mapped areas and members desiring such maps should see Mr. Davis at once.

**

The Secretary of the Salem Chapter, Miss Dorothy Rice, has stepped into a new and greater field. On New Year's Day she was married to Mr. Felix G. Wright of Stayton at the First Presbyterian church of Portland. Following their return from their wedding trip they will be at home in Stayton. Congratulations, Mr. Wright; your gain is our loss.

**

Owing to the limitations on gas and tires, the status of future field trips is problematical. All members will be notified by postcard of trips as scheduled. In the meantime, keep your eyes open for the geology of your own locale; you may find it more interesting than you had thought.

**

Note: (The date of the January lecture is one week later than the regular meeting night).

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THE PORTLAND EARTHQUAKE OF DECEMBER 29, 1941

by

John Eliot Allen

A sharp earth shock, lasting less than a second, although one of the strongest ever felt in Portland, occurred at 10:37 a.m. in the morning on December 29, and was reported from towns throughout the lower Willamette Valley. On the seismograph in Spokane it was recorded as a very slight tremor, and it was not recorded at all in Seattle. A very light shock was reported from the southern portion of the city at 3 p.m.

From numerous reports of damage done, the tremor is quite easily classified on the modified Rossi -- Forell scale of effect, as having an intensity of 3 throughout most of the area which almost reached 4 in downtown and the northwest parts of Portland, especially in the higher buildings.

This scale is as follows:

I. Barely perceptible.

II. Felt by few only. Duration or direction not appreciable.

III. Strong enough for duration and direction to be perceptible.

IV. Perceived by persons in motion. Doors and windows creak. Hanging objects swing.

V.-VI. Felt by everyone. Objects moved. Sleepers awakened. Plaster cracked.

VII. Moveable objects overthrown. Windows broken. Chimneys cracked.

VIII. Some chimneys fall, some buildings damaged.

IX. Buildings destroyed. Fissures open in ground. Landslides occur.

The movement was quite definite, although it lasted little more than a second. Tall buildings swayed back and forth for longer intervals. Pictures, lamps, and hanging objects were moved in many places. One window was reported cracked and a bird cage was knocked off a table. There were numerous reports of broken dishes. Some sound accompanied it; in places a roaring sound was heard.

Causes of earthquakes can be listed as being due to volcanic eruptions, collapse, and faulting.

The first can be dismissed for the Portland quake, since no eruptions occurred nearby, and this type of quake only occurs close to the outburst. The second origin, collapse, results from cave-ins in limestone country, or in coal mining regions. It is also thought to result from large landslides. None of these seem to apply to the Portland tremor.

The third or tectonic origin is generally accepted as being the cause of nearly all earthquakes. Many lines of evidence point to this; the fact that nearly all "epicenters" or points of greatest damage lie along known fault lines being the most universal, and the fact that actual movement has occurred along fault lines during earthquakes (San Andreas fault in San Francisco quake) being the most conclusive.

Portland is known to be in the circum-Pacific earthquake belt. A northwest trending fault fronting along the Portland hills has been suggested by various geologists but evidence for it is largely physiographic and not conclusive. A slight movement along this fault would apparently satisfy all conditions of the Portland quake.

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THE COLUMBIA RIVER BASALT QUESTION

by
Claire P. Holdredge

For many years there has been a question and somewhat of a controversy regarding the scientific status and propriety of the use of the formational name "Columbia River Basalt".

Quoting from "Lexicon of Geologic Names of the United States", U.S.G.S. Bulletin 896, pt. 1, p. 495 (1938): "The U.S. Geological Survey at present recognizes Columbia River basalt as a convenient blanket term, covering basalts of Eocene, Miocene and Pliocene (?) age in the broad region described by Russell. Some geologists restrict the name to the Miocene basalt (Yakima basalt)." In part 2, p. 2380 of this publication, the Yakima basalt is defined as "Miocene: Central and southern Washington, northern Washington and eastern Washington". An examination of quotations in this publication concerning these formational names brings out some pertinent and interesting facts.

I. C. Russell, in 1893 (U.S.G.S. Bull. 108) seems to have been the first to propose the use of the name Columbia lava. In this publication LeConte is quoted but it is not stated that he used the name. The name was applied because "the region it occupies is drained almost entirely by the Columbia River." Russell's report covered most of Yakima, Kittitas, and Douglas Counties in central Washington. Apparently no definite type section for the formation was designated but a geological map was included. In 1900 (U.S.G.S. 20th Annual Report, part 2) Russell again discussed the Columbia lava but in the discussion there is some confusion as to the stratigraphic units included.

In 1901 (U.S.G.S. W.S.P. 53, p. 28, footnote) Russell says "Columbia River lava - In previous reports this formation has been termed Columbia lava, but to avoid confusion with Columbia formation of Atlantic States it has been thought best to change the name to Columbia River lava." In that same year (Univ. Calif. Pub. Bull. Dept. Geol. v. 2, No.9), J. C. Merriam in discussing Columbia lava in the John Day Basin says, "There are several distinct horizons of Columbia lava, separated by important formations, belonging to different geological periods." He then proposes to confine the name to that horizon "which lies between the John Day and Mascall", and "which has the greatest lateral extent, forming probably the greatest lava field in the world and one of the most important formations on the continent."

Also in 1901, George Otis Smith (U.S.G.S. W.S.P. 55) applied Yakima basalt to the Miocene part of Columbia River basalt, which he stated included basalts of Eocene, Miocene and post-Tertiary age. "(He also applied the name Wenas basalt to a younger flow, 20 to 200 feet thick, interbedded in the Miocene Ellensburg formation)".

I. C. Russell, in 1900 (U.S.G.S. Annual Report, pt. 2, pp. 100-137) appears to have been the first to give the name Ellensburg formation to fresh-water sandstones, conglomerates, and sheets of volcanic lapilli and white volcanic

dust 800 to 1,000 feet thick, containing fossil plants and forming the floor of the Kittitas Valley. In 1901 Smith (U.S.G.S. W.S.P. 55) gave the name Yakima basalt "to the basalt underlying the Ellensburg formation" and extended the thickness of the Ellensburg to 1600 feet. In 1903 Smith (U.S.G.S. Ellensburg Folio No. 86 and U.S.G.S. P.P. 19) named the lava flows interbedded in the lower part of the Ellensburg (as defined by him) Wenas basalt.

In 1927 (U.S.G.S. P.P. 140) J. T. Pardee and Kirk Bryan described the Latah formation in the vicinity of Spokane, Washington, and defined it as older than lavas that are younger than Yakima basalt, but concluded that the Latah sediments were of upper or middle Miocene age. In 1929, Virgil R.D. Kirkham and M.M. Johnson (Jour. Geol. Vol. 37, No. 5) say "The Latah formation at Spokane, Washington, by definition, occupies a position underlying the Columbia River basalt instead of being inter-stratified with the lava." They evidently refer to the description by Pardee and Bryan. They then proceed to describe beds in Benewah, Latah, and Nez Perce Counties, Idaho, which differ little lithologically from the type Latah and "which contain plant fossils that indicate their Latah" and "which contain plant fossils that indicate their Latah age". They further state that this series of beds "appear to be more commonly a series interbedded with lava flows of Columbia River basalt...The various members of the Latah series as found in Idaho appear to occur within a range of 800 feet....The greatest measured thickness of any one member in Idaho is 350 plus or minus feet."

Consideration of the foregoing shows that Russell's original name Columbia Lava was unsatisfactory because his definition included rocks both younger and older than Miocene and because of the prior use of Columbia as a formational name in the Atlantic states. His correction of the latter error by substituting Columbia River lava helped, but did not correct the error of definition. Merriam's corrections of definition are not entirely adequate but they limit the term to lavas of Miocene age.

The term Yakima basalt as defined by Smith, is applied only to Miocene basalts underlying the Ellensburg. His Wenas basalts are defined as "interbedded in the lower part of the Ellensburg formation". Thus Yakima basalt and Wenas basalt are both unsatisfactory because neither is comprehensive enough. These two formations are lithologically identical and when either is used away from the type locality - for example, in such places as the Spokane area, the Blue Mountains, the Columbia Gorge, central Oregon, etc. - it is impossible to distinguish between them. In some places in the Yakima Valley there are two or more interbedded sedimentary horizons in the basalts. This condition suggests comparability with that in Benewah, Latah, and Nez Perce Counties, Idaho, where the Latah beds are interbedded with the basalts.

Hodge in 1938 (G.S.A. Bull. Vol. 49, p. 847), speaking of these rocks in the Columbia Gorge, says "Williams (1916) (Oregon Bureau mines, vol. 2, No. 3) appears to have been the first to refer to these lavas as the Columbia River basalt formation. He was correct in giving a formation name to this important

group of lavas, and the shortened form 'Columbia River basalt' as now generally accepted, will be used in this paper as the formation name".

The work done on the various rocks involved in this problem show that we are dealing with a thick series of basaltic lava flows of phenomenally wide lateral extent and considerable thickness, and that there are occasional interbeds of sediments at various places. In view of the fact these rocks underlie a large part of the Columbia River drainage basin, that the principal occurrences are within this drainage basin, and that they are best exposed in the canyons and gorges of the Columbia River it is felt that the name Columbia River should be retained. Since Williams' first use of the term Columbia River basalt in 1916 it has been used by many workers and writers until it has become ineradicably established in the literature. As most commonly and most appropriately used it includes both the Yakima and Wenas basalts and minor sedimentary interbeds, although the latter have not been specifically designated.

The evidence at hand indicates that the name Columbia River Basalt is the most suitable name so far proposed and used and that can be used with absolute propriety to designate the series of basaltic lavas of Middle Miocene age occurring in the Columbia River Basin.

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A NEW FOSSIL LOCALITY

Wallace D. Lowry, graduate student at the University of Rochester, New York, reports a new fossil locality, found while completing field work, subsidized by the State Department of Geology and Mineral Industries. The results of this work will be used in his doctorate thesis.

The fauna is of considerable interest, consisting of the nearly complete section of a left manus of a large mammoth, fragmentary portions of the left pes, the claw of a ground sloth tentatively ascribed to one of the megalonichid groups, the astragulus of a camel, the fragmentary portion of a rhinoceras jawbone, cusps of mastodon teeth, and numerous fragmentary bones of the mammoth and rhinoceras. These bones were compared with material now on exhibit at the California Institute of Technology and at the Los Angeles County Museum. Paleontological evidence would indicate these bones were of Mascall age.

The fossil bones were discovered on a southern shoulder of a long ridge some one and one-half miles north of the small town of Unity, Oregon, located in the Blue Mountains region about fifty miles southeast of Baker in northeastern Oregon. This ridge is made up of a series of sedimentary beds several hundred feet in thickness, and consist of cream and buff-colored tuffaceous siltstones and sandstones, diatomaceous earth deposits, and volcanic ashes. The attitude of these beds is characterized by a NNW strike and a strong dip to the northeast, sometimes as much as 30°. The beds as a whole are but sparsely fossiliferous and the discovery was the result of careful search.

Measurements, photographs, descriptions of the bones, and other determinations are being made by Miss Jean Bowman formerly with the Department of Geology at Oregon State College in Corvallis, and now associated with the State Department of Geology.

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GEOLOGICAL NEWS LETTER

OFFICIAL PUBLICATION OF THE

VOL. 8 NO. 2 PORTLAND, OREGON January 25, 1942

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Friday Jan.23 Subject: THE COLUMBIA ICE FIELDS
Speaker: Ray Atkinson.

The talk will be illustrated by slides, and reports from those who have seen some of the pictures are very enthusiastic as to the beautiful mountain scenery shown. Mr. Atkinson's ability as a photographer is well-known. This fact and because this talk represents a resumption of lectures after a long period should make for a large attendance.

Friday Feb.13 Subject: THE TULE LAKE PETROGLYPH: an interpretation of what it signifies.
Speaker: Horace J. Smith, Salem.

This petroglyph is so extensive and so remarkable that it was made a National Monument. What it represents has been the subject of much research without arriving at satisfactory conclusions. Mr. Smith has studied it intensively for several years, and has developed a solution of the enigma which is startling, yet rings true. The subject will be fully illustrated with lantern slides. It is not often we have lectures on the original research of one of our own members, so reserve this date and participate in an event of outstanding interest.

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*****

PORTLAND LUNCHEON NOTES

January 15

Some interesting side lights on the chromite mining situation in Oregon were presented by Mr. Nixon, as well as a few of the problems faced by the Oregon State Department of Agriculture in this connection.

The U.S. Department of Agriculture Year Book for 1941, a copy of which was shown by Mr. Bates, is now obtainable. This imposing looking volume (paper bound) gives a very complete analysis of the effect of climate on man's activities and each state is given a chapter, with maps, etc. The price is $1.75, but anyone desiring to obtain a copy without charge might do so by writing one of our congressmen, who have a certain number of copies for free distribution.

A visitor today and prospective member, the guest of John Allen, was Miss Jean Bowman, now with the State Department of Geology and formerly associated with Dr. Packard at Oregon State College. Miss Bowman is a geologist and paleontologist, having obtained her master's degree in the former subject, and should be a valuable addition to our Society.

The only specimens exhibited were some geodes containing quartz crystals in amethystine coloring from a quarry near Paterson, New Jersey, and a box of "pebbles" resembling Columbia River Basalt. The latter were brought from British Columbia by Miss Hughes, who suggested that they might be identified by tasting. The few brave souls who took her advice discovered a "high-grade" of Canadian candy.

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Received by the Library:

Report of committee on glaciers, 1940-41, Transactions, American Geophysical Union.

Navigation on the Columbia River, Corps. of Engineers, U. S. Army.

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Nobody will ever know anything about Biology, except in a dilettante "paper-philosopher" way who contents himself with reading books on botany, zoology, and the like; and the reason of this is simple and easy to understand. It is that all language is merely symbolical of the things of which it treats; the more complicated the things, the more bare is the symbol, and the more its verbal definition requires to be supplemented by the information derived directly from the handling, and the seeing, and the touching of the thing symbolized: -- that is really what is at the bottom of the whole matter. It is plain common-sense, as all truth, in the long run, is only common- sense clarified.

-- Thomas H. Huxley, 1876

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Thanks are due to Dr. Don Lawrence and the Mazamas (through Ken Phillips) for permission to reprint the following paper on Mt. St. Helens.

*****

THE "FLOATING ISLAND" LAVA FLOW of MT. ST. HELENS

BY DONALD B. LAWRENCE
Botany Department
University of Minnesota

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 till 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 (see map, Fig. 1). 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 the blocky lava, literally "floated" along on top of the slowly moving semifluid stream. As the lava moved along, its surface assumed striking irregularities or flow lines which are roughly transverse to the long axis of the flow, crescentic in form, and convex in the downhill direction. In the vertical aerial photo (Fig. 2) these flow lines appear much like those that gradually form in an asphalt street laid on a steep hill. Actually the flow lines are so gigantic that their regularity and nature are not even suspected by a person on the lava. Since the till masses were floating on top of the lava they naturally assumed the same major surface irregularities as those that formed in the lava upon which they were being carried. After the lava stream had moved down the glacial valley until its tip was about 3 miles from its source, and had spread

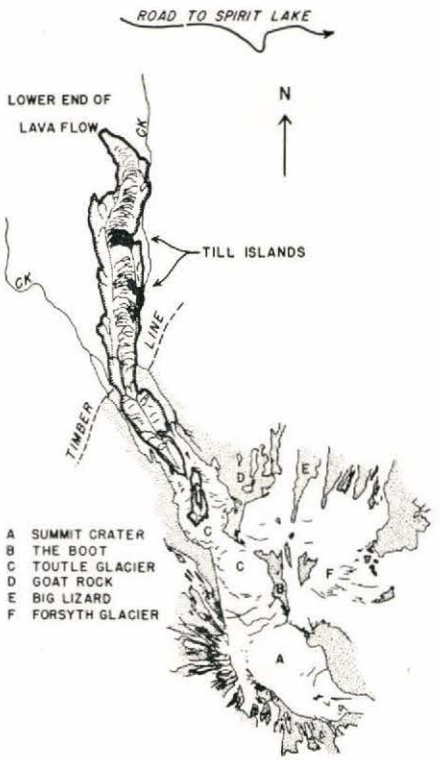

Fig. 1. Map traced from vertical photographs showing the summit and northwest slope of Mt. St. Helens with the "floating island" lava flow and its source of origin under Toutle Glacier.

*Verhoogen, Jean—Mount St. Helens, a Recent Cascade Volcano. Univ. of Calif. Press. 1937.

Reprinted from Mazama, December 1941.

Fig. 2. Vertical aerial photograph of the lower part of the "floating island" lava flow. Central light area is blocky andesite lava, light area at right is part of the Goat Rock volcanic deposit, dark area is conifer forest. July 1939.

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 the melt water from the glacier must run along the east and west flanks of the lava flow instead of in its former course down the center of the valley.

Although as far as we know, no one watched the progress of this flow, yet we can tell from the rough blocky character of the surface, and from

Fig. 3. Leaning stump of Douglas fir is pushed part way over by the lava. East edge of the lava flow. July 1940.

actual observations in Hawaii of similar flows in action, that throughout its journey from source to final resting position, the movement was slow. Had anyone had the opportunity of watching it in the daytime he would hardly have believed its surface was hot at all unless it was raining, in which case steam would have been rising from it everywhere. At night he would have readily noticed that behind the tumbling surface boulders there was a ruddy gleam such as one sees in a partly cooled heap of slag recently dumped from a blast furnace.

An interesting effect of the great heat of the lava may be seen at the margins of the till islands. The normal color of the till is light gray, but where it has been heated by contact with the hot lava blocks its color is a bright pink.

The heat of the rocks at the very edges of the flow was slight. Even today the bark of large Douglas fir trunks that were pushed part way over by the flow (Fig. 3) can be seen uncharred by contact with the blocks of cooling lava. Atlhough the heat radiated by the flow after it ceased moving was not sufficient to cause a forest fire, it was sufficient to kill all trees growing within a distance of about 40 feet of the steep edge, and at least one of these ancient snags still stands today where it was when the heat killed it (Fig. 4). 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 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.

As can be readily seen from the aerial photograph (Fig. 2), the till islands that make the flow so unique now stand out in striking contrast, very dark against the gray blocky andesite lava upon which they rest. This is true because they are densely clad with coniferous forest, while the lava is still completely barren except for occasional minute plants. Undoubtedly the old cone-bearing trees that stand just beyond the edges of the flow both to the west and the east have supplied thousands of seeds each year since the flow came to rest, and these have been carried to all parts of the flow by wind. It is probable also that seeds have germinated on all parts of the flow, but seldom has one grown beyond the seedling stage. Only those seeds that germinated on the till patches have had a chance to attain tree size, and even there the fine textured till surface probably required about 25 years of enrichment by minute algae, mosses, lichens, bacteria, and fungi before tree seedlings could grow very successfully on it. 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.

The forest of healthy young trees now growing on the till islands has its own story to tell concerning the age of the flow. All of the trees are standing erect, indicating that they were not already growing on the till before the lava picked it up; they began life only after the flow had come to rest. Of the largest trees growing on the largest till island, when sample cores of wood were collected from them in 1939, the oldest, a lodgepole pine 14 inches in diameter, was 101 years old at the 1-foot level above the soil. Other old trees, white pines up to 22 inches

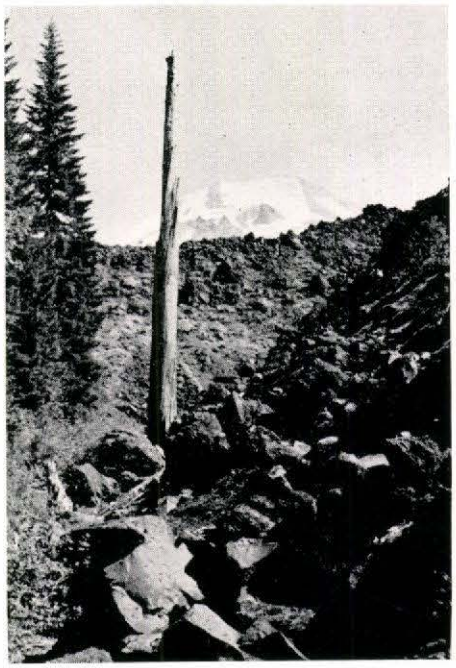

Fig. 4. Erect snag of a tree killed by the heat of the lava over a century ago. Northeast edge of the lava flow.
Photograph by John Marr, July 1941.

in diameter, were 84, 92, and 93 years of age, also at the 1-foot level. Naturally the oldest of these is the most important, for it indicates that the flow must have occurred before the year 1838, and surely not as recently as 1854, the date tentatively set by Verhoogen.

Another observation of interest is the presence of volcanic ash, probably emitted in the observed eruption of 1842, on some lava blocks of the flow that are sufficiently cup-shaped to have retained it against action of wind and water.

That the flow can not have occurred many decades before 1838 is indicated by several facts: (1) the absence on the flow of a general layer of the pumice deposit ejected in about 1802 and described in my previous paper (**Mazama**, December, 1939); (2) the youthful character of the forest on the till islands (no very large living trees, no large decaying stumps or logs); (3) the good state of preservation of trunks of trees killed at the time of the

flow but still standing today along its margin; and as already mentioned (4) the number of consistently thin growth layers produced by old trees, still living, that were made ill by the close proximity of the hot lava flow (about 40 feet) and which although still alive, have not even yet regained the normal uniform growth rate that they had before the lava came.

Strangely enough Verhoogen (on p. 273 of the article referred to above), and I also at first, thought that the forested till islands were true **kipukas** (hills of the earlier topography completely surrounded by lava, such as the fine examples to be seen at the summit of McKenzie Pass). It was the stereoscopic aerial photographs taken for me in July 1939 by Mr. Brubaker through a grant from the Graduate School of the University of Minnesota that finally revealed with striking clarity the true "floating" nature of the till islands. (A set of these photographs is on file in the Mazama Library.)

The peculiar straight north-south line which runs across the west rim of the summit of Mt. St. Helens and which may be seen in the map (Fig. 1), is possibly in some way related to the volcanic activity that produced the flow that I have been describing, since the source of the lava is exactly at the northern end of this line. Just how the line was formed I do not yet know. While on the summit last summer we examined the rocks along the line for evidences of faulting; but the rocks there are so broken up that we could come to no conclusions. All the rock fragments along the line are highly colored in red, yellow, and orange, probably indicating that hot gases have moved up between them.

This lava flow of Mt. St. Helens is not the only one known to have carried materials along on top of itself. Stearns*, in his study of the Craters of the Moon in Idaho, found that a portion of a cinder cone crater wall had been floated along on top of a flow where it can still be seen today. Others have seen trees carried along on lava flows. In the northeastern corner of Lassen National Park is a lava flow which, I believe (having examined it hastily in July 1939) broke out from the base of Cinder Cone and underran a flat deposit of light-weight cinders, heaping up the cinders over itself into dozens of mounds. Finally it emerged carrying cinders along on its back as did the St. Helens flow with its till. The general color of the cinders is yellowish gray, but the tops of the cinder mounds are bright red where apparently the hot lava came closest to the surface.

The unique thing about the St. Helens flow is its intimate association with a glacier and glacial debris. Iceland is probably the only other region of the world where a somewhat similar combination of volcanic and glacial activity has been known to occur within the past century and a half.

*Stearns, H. T.—Guide to Craters of the Moon Nat. Mon., Idaho, 1930. See Plate V, A.

ABSTRACTS OF SCIENTIFIC PAPERS ON OREGON

Strategic Nickel Mountain Deposit Studied

On Nickel (Piney) Mountain, 5 miles northwest of Riddle, Douglas County, Oregon, an irregularly distributed surficial blanket of weathered rock contains discontinuous boxwork veinlets of quartz and garnierite, a hydrous magnesium-nickel silicate. The deposits richest in nickel are underlain by unserpentinized peridotite and are located with one exception on terraces or gentle slopes between the summit of the mountain (3,535 feet) and a conspicuous terrace (2,000 feet). The weathered blanket has a top brick-red soil layer a few feet thick, an underlying limonitic layer containing boxwork veins, and deep roots of weathered rock in unweathered rock. The quartz-garnierite boxwork veins fill fractures in weathered and unweathered rock.

The ore mineral is pale yellow to dark green, brittle and unctuous when dry, pasty when wet, and contains 2 to 36 per cent of nickel. Chemical analyses, optical studies, and X-ray photographs indicate that garnierite is a nickel-rich deweylite. Garnierite has a deeper color shade, higher refractive index, and less magnesium than deweylite, and is intimately associated with quartz in the same vein. Deweylite is colorless to greenish yellow and is commonly free of quartz.

The nickel and magnesium are believed to have been derived essentially from weathering of olivine in the unserpentinized peridotite under climatic conditions existing in the geologic past, presumably before the dissection of the pre-Pleistocene 2,000 feet terrace. Under present climatic conditions the deweylite (nickel-poor garnierite) is chemically attacked by surface waters, causing nickel enrichment of deweylite in place to form garnierite, precipitation of SiO_2 to form quartz, and supergene deposition of garnierite itself in open fractures.

(Pecora, W. T. and Hobbs, S. W., Geology of the Nickel Silicate Deposit near Riddle, Oregon: Economic Geology, Vol. 36, no. 8, p. 841, Dec. 1941)

**

Gastroliths Are Fakes

That the famous dinosaur "gizzard-stones" of the Wyoming area may be a myth is suggested by W. Lee Stokes of Princeton University. Highly polished stones found in certain "dinosaur beds" have been classed as gastroliths by many students. While many genuine gastroliths have been found, Dr. Stokes feels that these particular "gizzard-stones" of the Morrison formation, are portions of a normal conglomerate.

He states, --"The field relationships suggest that the 'gastroliths' were originally stream or pediment gravels and that the high polish was superimposed by the action of wind-blown dust on surfaces already smoothed and rounded by other agencies". He found that at the Dinosaur National Monument, near Jensen, Utah; at the Malcolm Lloyd Jr. quarry near Cleveland, Utah, and at the Como Bluff and Bone Cabin quarries in southern Wyoming there is no unusual concentration of "gastroliths". Where enormous quantities of fossil bones are found, no "gastroliths" were observed; and quantities of them occur where there are no fossil bones.

He suggests that the name "Morrison stones" be used for these pseudo gastroliths, in a sense analogous to the "Gobi stones" of China.

These findings are evidence of the extreme care that should be used in identifying material. "Gastroliths" have been reported, even from the general Portland area. Quantities of Indian relics are identified as true relics, such as pestles, shoe lasts, etc. Extreme caution and careful observation are the price of scientific advancement.

(Stokes, W. Lee, Some field observations bearing on the origin of the Morrison "Gastroliths": Science, ns. vol. 95, no. 2453, pp. 18-19, January 2, 1942)

RCT

TREE RINGS IN LAVA

More than a score of basaltic flows were very recently extruded from a fissure several miles long near Bend, Oregon.

Several thousand lava trees and tree molds have been found on these flows, indicating that the flows ran into a dense forest. The molds of trunks, branches, roots, and root mats are common. The molds of the trunks are as much as 50 feet long and 4 feet in diameter, and a root mat was found which was nearly 10 feet across. Many of these trees were growing in loose pumice, some of which, having been melted and fused together by the heat of the basalt or the burning log, was found in a root-mat mold. Large rock fragments, around which the roots of these trees grew, have also been found in root-mat molds.

The molds are often empty, although many are partly filled with secondary lava. This lava forms stalactites, stalagmites, columns, miniature flows, and shelves. Some of it ran into and onto charcoal logs,for both charcoal and coke have been found on its surface as well as completely surrounded by it. Tree-ring impressions are common in this secondary lava, and specimens with more than 150 tree-ring impressions have been found.

The burning logs probably produced some of this secondary lava, although much of it may represent lava from the main body of the flow which ran into the molds through cracks in the solid shell of lava which formed around the logs.

(Author, Robert L. Nichols: G.S.A. Bulletin Vol.52, No.12, part 2, p. 1926- Dec.1, 1941).

****

WORK OF WIND IN NORTHERN LAKE COUNTY, OREGON

Deflation on the floor of an extinct Pleistocene lake in the Fort Rock-Christmas Lake-Fossil Lake basin of northern Lake County, Oregon, has developed several basins in the lake sediments having depths of tens of feet and lengths of several hundreds of feet. Part of the material removed is piled up on the leeward rims. Post-lacustrine pumice, probably in part at least the eastward extension of the Crater Lake pumice field, has also been piled up in long transverse dune ridges. In the Fossil Lake sector lake beds have been wind-cut over an extensive area, and a leeward train of dunes of varying forms has been blown across country as much as 12 miles.

(Author, Ira S. Allison: G.S.A. Bulletin Vol.52, No.12, part 2, p. 1943--Dec.1, 1941.)

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STRATIGRAPHIC SETTING OF THE FOSSIL LAKE FAUNA

Mammalian fossils from the Fossil Lake locality of northern Lake County, Oregon, found mainly on the surface as deflation residuals, occur in place near the top of the main body of Pleistocene lake sediments and are associated with a minor unconformity, flat-pebble conglomerates, disturbed bedding, and other shallow-water features. The animals evidently had access to the area after the lake level had declined more than 200 feet. Beds above the principal mammal horizon yield numerous bones of birds and fish.

(Author, Ira S. Allison: G.S.A. Bulletin Vol.52, No. 12, part 2, p. 1979--Dec.1, 1941.)

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GEOLOGICAL NEWS LETTER

OFFICIAL PUBLICATION OF THE

GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

VOL. 8 NO. 3 PORTLAND, OREGON February 10, 1942

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THE GEOLOGICAL NEWS-LETTER
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MEMBERSHIP APPLICATION
GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

Qualifications and Dues: Applicant must be sponsored by a member and recommended by the Membership Committee. A knowledge of geology is not a requisite. There is no initiation fee. A Member shall be over 21 years of age; or a husband and wife and all children under 18 years of age. The dues are $3.50 per year, payable in advance, which includes one subscription to the Geological News-Letter. A Junior is an individual between the ages of 18 and 21. Dues are $1.50 per year, payable in advance, and include one subscription to the Geological News-Letter.

Date . . . . . .

I, ...(please print full name) do hereby apply for membership (junior membership) in the Geological Society of the Oregon Country, subject to the provisions of the By-Laws.

Home Address . . . . . Phone . . . . . .

Business Address . . . . . Phone . . . . . .

Occupation . . . . . Hobbies . . . . . .

I am particularly interested in the following branches of geology: . . . . . .

. . . . . .

I enclose $ . . . for the year's dues, March 1 to March 1. (Checks payable to the Society).

. . . . . Sponsored by . . . . . .
(signature) (member)

PORTLAND CHAPTER ANNOUNCEMENTS

LECTURES: On 2nd and 4th Fridays of each month at the Auditorium (3rd floor) of the Public Service Building, 920 SW 6th Ave., at 8:00 p.m.

TRIPS: On Sundays following lecture meetings, or as otherwise arranged. Meeting place at Public Market, Front and Yamhill.

LUNCHEONS: Every Thursday noon, in the banquet room of the Treasure Island Restaurant, 815 SW Broadway (50¢ minimum). A table is also reserved every day except Thursday and Sunday for the men of the Society in the "Barnyard", 8th floor, Lipman Wolfe & Co.

Friday Feb. 13 — Subject: THE TULE LAKE PETROGLYPH: an interpretation of what it signifies. Speaker: Horace J. Smith, Salem.

This petroglyph is so extensive and so remarkable that it was made a National Monument. What it represents has been the subject of much research without arriving at satisfactory conclusions. Mr. Smith has studied it intensively for several years, and has developed a solution of the enigma which is startling, yet rings true. The subject will be fully illustrated with lantern slides. It is not often we have lectures on the original research of one of our own members, so reserve this date and participate in an event of outstanding interest.

Friday Feb. 27 — Annual Meeting

Friday Mar. 13 — Annual Banquet

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PORTLAND LUNCHEON NOTES

January 22

An attendance of 32, making a full table with an overflow. Now that Old Man Winter has relaxed his grip, geologists too seem to be circulating more freely.

Several magazines containing noteworthy articles were passed around, including a copy of Natural History, submitted by Dr. Jones, depicting graphically in colors the family tree of dinosaurs; the December issue of the Mazama Magazine containing an article by Ray Atkeson on the Columbia Ice Fields in the Canadian Rockies, also an article by Kenneth Phillips on the Fumaroles of Mt. St. Helens and Mt. Adams; and a copy of the Ford publication in which is described some subsidiary craters in the vicinity of the large meteoric crater in Arizona, to which Mr. Stanley called attention.

Some outstanding specimens also were shown; A group of large calcite crystals on a bed of small crystals, brought by Donald O'Connell; a good sized slab of Carboniferous limestone containing literally hundreds of tiny fossils of various kinds, really a prize specimen, from the vicinity of the Ford plant on the Mississippi near St. Paul. This was shown by Miss Hughes. Others were a sedimentary pre-Cambrian rock from the Blackfoot River in Montana, found by Mr. Ruff, and by Mr. Miner a piece of pink chalcedony colored by iron oxide, from below Pilot Rock, together with two attractive fragments of petrified wood which he had hand-polished; the latter from a log near Hood River, location known only to himself. (Perhaps he will lead us on a trip there sometime, tires permitting.)

Guests today were Mr. Lyman Huff, a member of the Geological Survey, introduced by Mr. Taylor, and Mr. W. M. Elman, a consulting mining engineer in Portland, presented by Mr. Libbey.

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Charlie McCarty says that coal gets better the older it is--"There's no fuel like an old fuel."

*****

BUILDING STONES IN PORTLAND

by

L. N. Dunihue

(In the December 25 issue of the News Letter - Vol. 7, no. 24, pp. 216-218 - Mr. Dunihue described stones found in some forty-five buildings in Portland. The addition of the following brings the total up to about sixty buildings listed. The editor feels that we are very fortunate in being able to profit by Mr. Dunihue's experience.)

INDIANA LIMESTONE

Standard Buff: Commonwealth, Inc.: "stone set on edge" (grain parallel to face).
Equitable Savings and Loan: "stone set on edge" (grain parallel to face).

GRANITES

Georgia: Yeon Building: entrance.
British Columbia: Y.M.C.A.: base.
Norway: Equitable Savings and Loan: entrance, trimmings around windows, coping "Emerald Pearl".
Rhode Island: United States National Bank: base course, from Westerly, R. I.
Idaho: Custom House: from quarry on Snake River (a very beautiful hand-cut job).

TRAVERTINES

Montana: Artisan's Building: elevator lobby.
Italy: Yeon Building: floor of elevator lobby, large tile Roman and small tile Sienna.

IMITATION MARBLE

First National Bank: columns on the second floor are "Scagliona", not marble.

MARBLES

Alaska: Woodlark Building: office hallways.
Bedell Building: rest rooms.
Italian: American Bank Building: banking room, "Pavonazzo".
Public Service Building: elevator lobby, "Galena Sienna".
Selling Building: elevator lobby, "Escalette".
Bank of California: exterior, "Escalette" (Compare this with Selling Building. "Escalette" is strictly an 'interior' marble, and this building shows the effect of weathering.
First National Bank: interior, "Botticino".
Medical-Dental Building: elevator lobby base, "Red Levanto".
Wilcox Building: elevator lobby, "Skyros".
France: American Bank Building: elevator lobby, "Bois Jourdan".
Yeon Building: elevator lobby, "Rouge de Autumn".
Medical-Dental Building: wainscot, "Napoleon Grande Melange".
U.S.National Bank: interior, "Hautville".
Hungary: U.S.National Bank: border and inserts in floor, "Hungarian Red".
Tennessee: First National Bank: floors.
Vermont: Dean Witter: face, gray, with "stone set on edge" (grain vertical and at right angles to face).
Equitable Savings and Loan: exterior panels below windows, "Royal Red".

The State Capitol Building has such a great variety that it should be described separately:

Exterior marble: Vermont "Royal Danby".
Interior marble:
floors and stairs, Missouri "Napoleon Gray".
wainscot base: Vermont "Radio Black".
wainscot: Montana travertine.
toilet and rest rooms: Alabama white.

AGE OF THE DALLES FORMATION

by

Ralph W. Chaney

The Dalles formation, exposed east of the Cascades in northern Oregon, was originally assigned to the Pliocene by Condon in the 1860's. Subsequently it has been referred to Cenozoic horizons ranging from Upper Eocene to Pleistocene. The position of these volcanic sediments above the Columbia River lavas restricts them to an age younger than Middle Miocene. Their structure as commonly interpreted indicates that they were deposited before the Cascade uplift. Mammalian remains are few, suggesting an early Pliocene or late Miocene age. Plant fossils definitely indicate an age not earlier than Lower Pliocene. When these are compared with a larger flora from the Ellensburg formation of Washington, in which mammalian remains are also well represented, the contemporaneity of the Dalles formation is readily established, and the age of both formations may be indicated as Pliocene.

(G.S.A. Bulletin, Vol. 52, No. 12, part 2, December 1, 1941, page 1945)

PLEISTOCENE LAKE SEDIMENTS OF NORTHERN LAKE COUNTY, OREGON

by

Hollis M. Dole

Lake sediments of Pleistocene age from the Fort Rock-Christmas Lake-Fossil Lake basin of northern Lake County, Oregon, obtained mainly from the sides of wind-excavated hollows, have been subjected to petrographic analysis. The bulk of the material consists of altered pumice and diatoms. The pieces of pumice range from fine dust to pebbles. The pebbly pumice resembles the Newberry type more than the Crater Lake type, but both sources may have contributed pumiceous material. Phenocrysts are mainly andesine, labradorite, and hypersthene. Induration and cementation have been slight.

(G.S.A. Bulletin, vol. 52, No. 12, part 2, December 1, 1941, page 1947)

TRACHYTOID NEPHELINE SYENITE FROM LINCOLN COUNTY, OREGON

by

Austin F. Rogers, Henry V. Howe, and Lloyd W. Staples.

A prominent landmark known as Table Mountain in the Siuslaw National Forest of Lincoln County, Oregon, and about 15 miles southeast of Newport, consists largely of a small intrusive mass of nepheline syenite. This was identified by Howe some years ago and has been confirmed by petrographic study of an extensive suite of specimens and a chemical analysis of one of them.

The rock is a nepheline syenite showing trachytoid texture with prominent phenocrysts of nepheline in a groundmass of albite. Other minerals are aegirine, aegirine-augite, riebeckite, a dark-brown amphibole, deuteric analcime, and minor accessories. The specimens show little variation in either mineralogy or texture.

The nepheline syenite occurs in an area of sandstone, probably the middle Eocene Tyee formation. The age of the intrusion is tentatively given as post-middle Eocene.

(G.S.A. Bulletin, vol. 52, No. 12, part 2, December 1, 1941, page 1955)

CORRELATION OF THE JURASSIC OF SOUTHWESTERN OREGON AND CALIFORNIA

by

H. L. Taliaferro

The generally accepted correlations of the Jurassic of southwestern Oregon and California are as follows: Galice and Mariposa, Dothan and Franciscan, Myrtle and Shasta. The Dothan is stated to be younger than the Galice. On the other hand it has been stated that the Dillard, the lower part of the original Myrtle, is the equivalent of the Franciscan. Since the Dillard unconformably overlies Dothan and Galice, it is clear that one or the other of these correlations must be erroneous. Evidence is presented to show that the Dothan is older than the Galice and cannot be of the same age as the Franciscan. The Dillard, as originally defined, includes Knoxville (Upper Jurassic) sediments and possibly infolded Lower Cretaceous, but the great bulk of the Dillard is to be correlated with the Franciscan. The Myrtle, as mapped and defined, includes beds of both Upper Jurassic and Lower Cretaceous age and at least one important unconformity; the Myrtle either should be redefined and restricted or the name abandoned.

The Nevadan orogeny took place in the late Kimmeridgian and uplifted the Sierra Nevada and depressed the belt now occupied by the Coast Ranges. In the geosyncline thus formed the Franciscan and Knoxville were deposited. There is no unconformity between the Franciscan and Knoxville; these groups were deposited during the Portlandian and Tithonian.

There is a widespread unconformity at the base of the Lower Cretaceous. The diastrophism which closed the Jurassic is called the Diablan orogeny.

(G.S.A. Bulletin, vol. 52, No. 12, part 2, December 1, 1941, page 1957)

ADDITIONS TO THE VERTEBRATE FAUNA OF ASTORIA FORMATION OF OREGON

by

E. L. Packard

The lower beds of the Astoria formation contain marine mammals wherever they occur between Waldport, Lincoln County, and Astoria in Oregon, and even in Washington. Heretofore, only mammals have been reported, the list being Desmostylus hesperus Marsh, Desmatophoca oregonensis Condon, and Cephocetus oregononsis Packard and Kellogg. Since the last form was described, much cetothere material has been accumulated at Oregon State College.

This list of mammals may be increased by a small porpoise, known from parts of five skulls collected over a period of years, but none of which is probably describable. Sharks' teeth occur, but systematic collections are lacking. Many isolated fish vertebrae having diameters of at least 10 centimeters are recorded. Classification awaits additional material and investigation.

The skull of a gigantic chelonian discovered about 2 years ago is in the Oregon State College Museum. Recently a carapace fragment was obtained. The skull is well preserved, and most of the bones can be identified. It is clearly referable to the Dermochelyidae but differs generically from the modern leatherback turtle. Since this is the first fossil skull belonging to this family, comparisons cannot be made with two known Tertiary genera. The carapace comprises about 26 small polygonal bony plates and includes a row with a definite ridge, which indicates location along one of an unknown number of lateral ridges, comparable to those possessed by Dermochelys. Comparison with descriptions of Psephophorus von Meyer and Cosmochelys Andrews, both based upon bony plates, indicates closer resemblance to species of Psephophorus than to the Eocene genus Cosmochelys.

Differences between unoriented portions of carapaces may have little significance, but the Oregon skull and bony plates are questionably referred to Psephophorus and described as a new species.

(G.S.A. Bulletin, vol. 52, No. 12, part 2, December 1, 1941, pages 1981-1982)

*****

REPORT OF THE NOMINATION COMMITTEE

Dec. 28, 1941

Mrs. K. P. Mahony, Secretary,
Geological Society of the Oregon Country,
Box 148, Oakgrove, Oreg.

Dear Mrs. Mahony:

We, the members of the Nominating Committee appointed by the Executive Committee of the Society to prepare a ticket of nominees for the offices to be vacated at the close of the current society year, hereby submit the names of the following of the following members for the offices set opposite their respective names, for the year beginning in March 1942.

For President..... H. Bruce Schminky

For vice-president.. E. N. Bates

For Secretary..... Mrs. K. P. Mahony

For Treasurer..... Miss Helen Iverson

For Director..... Winford E. Richardson

Respectfully submitted,

Mrs. Amza Barr

Geary Kimbrell

W. A. Reeves

O. E. Stanley

Dr. A. C. Jones, Chairman

*****

CHANGE IN ADDRESS

Mr. & Mrs. Lincoln V. Doney	We 1588	6222 N. Montana Street, Portland, Oregon
Miss Helen C. Brady		1354 Monroe St., N.W., Washington, D. C.
Mr. Harry L. Deits, Jr.		3135 N.E. 18th Avenue, Portland, Oregon
Mr. Randall E. Brown		702 Woodlark Building, Portland, Oregon
Mr. Richard K. Meade		Dept. Mining Engineering, Oregon State College, Corvallis, Oregon
Mr. John Carl Johnston		c/o Guy Johnston, Azalea, Oregon
Mr. John A. Anderson		3006 S. E. Woodward St., Portland, Oregon.

*****

ACKNOWLEDGEMENTS

Thanks are due to the following for gifts to the Society:
Miss Myrtice Fowler for contour map of Yoho Park
Miss Ada Henley for many back issues of the News Letter.

*****

THE "SPOT TEST" METHOD OF SEMI-MICRO CHEMICAL ANALYSIS IN MINERALOGY

The "spot test" method of chemical analysis has been developed to its present degree of efficiency only within the last fifteen years and owes much of its popularity to the detailed and comprehensive study of the subject by Professor F. Feigl, "Spot Tests" (Nordemann Publishing Company, New York, 1937). As the translator says, due to the "rapidity, neatness, and elegance of the tests. . . . they are being widely incorporated, especially as identification tests in the teaching and practice of qualitative analysis".

The "spot tests" depend upon reactions made on filter paper, or in hollows in porcelain plates. Probably the best known "spot test" is the general use of litmus paper for the rapid detection of the alkaline or acid condition of a solution. Feigl has worked out a great number of rapid identification tests using the reaction of a drop of test solution with a drop of reagent or solid reagent, usually brought together with a drop of water on porcelain or a piece of filter paper. The various colors and combinations of colors developed are frequently highly sensitive and specific.

Spot analysis has been devised to afford the greatest possible economy of material, time, space, and labor. The methods may be described as semi-micro (using small amounts of reagent and sample) and the amounts of material identified are micro (sensitivities are up to the order of one part of a million).

The ingenius apparatus especially designed for spot analysis require only material available in every laboratory, most of which can be very easily made. Nearly all the apparatus is made from glass.

For economical reasons, the spot method is to be recommended even when a sufficient sample is available to carry out an analysis in test tubes, but it is most urgently needed when only a very small amount of solution or solid is available for analysis. In most cases only half a c.c. or a few milligrams of a sample are all that is needed for the identification of compounds using a large number of spot tests. Thus, it is possible to identify an unknown mineral when only very small crystals of the mineral are to be seen in the rock. These can be dug out with the end of a pin and be identified by "spot test" methods.

Disadvantages and limitations of the "spot test" method lie in the fact that the reagents are mostly organic and are frequently unavailable or hard to get. The method also is not as well-known as it should be and therefore is not sometimes acceptable.

The advantages, however, are many and seem to outweigh the disadvantages of the method; "spot testing" being much superior to any other method in speed, specificness, reliability, in the small amount of reagents and samples required, in the possibility of group tests with a systematic analysis, and finally, spot tests are quantitative inasmuch as the intensity of color and the rapidity of reaction may serve in measuring "how much". --J.E.A.

*****

SALEM CHAPTER ANNOUNCEMENTS
(Received too late for front page)

Thursday Feb. 19. ANNUAL MEETING - not of the proverbial routine, dry-as-dust type, but one sizzling with interest!! Matters of exceptional importance concerning the future of this Chapter will come up for discussion and all members should make a special effort to be present. There will also be a review of our activities during the past year and a few, brief, snappy reports from the committee chairmen.

Following these few business matters, the meeting will take on a more geological color, as it is being arranged to show one or two talking movies of an educational nature in the field of geology. The subjects of these films are being selected by Prof. Clark.

*****

GEOLOGICAL NEWS LETTER

OFFICIAL PUBLICATION OF THE

VOL. 8 NO. 4 PORTLAND, OREGON February 25, 1942

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LUNCHEONS: Every Thursday noon, in the banquet room of the Treasure Island Restaurant, 815 SW Broadway (50¢ minimum). A table is also reserved every day except Thursday and Sunday for the men of the Society in the "Barnyard", 8th floor, Lipman Wolfe & Co.

Friday Feb.27 — Subject: ANNUAL BUSINESS MEETING; election of officers, and filing of committee reports. Following the business meeting pictures will be shown and described by Geary Kimbrell.

Friday Mar.13 — Subject: ANNUAL BANQUET, GRAND BALL ROOM, MULTNOMAH HOTEL. (Tickets $1.35; See Leo Simon, 531 S. W. Washington, or phone At. 0438).
Speaker: Dr. Ira S. Allison. "Geology of the Fort Rock, Christmas Lake, Silver Lake and Summer Lake Area", or "Ancient Lakes & Fossils of South Central Oregon."
Also stunts by Portland and Salem Chapters.

***

SALEM CHAPTER ANNOUNCEMENTS

LECTURES: Third Thursday of each month, 8:00 p.m.; Willamette Campus (either in Collins Hall or the Chapel, as stated below).

TRIPS: On the Sunday following the regular monthly lecture; caravan starting from Waller Hall (State St.) at time specified.

WORK NIGHT: First Tuesday of each month; Willamette museum; 7:30 p.m. Members are urged to bring in specimens of interest.

LUNCHEONS: One of the alcoves in the main dining-room of the Argo Hotel will be available for members of the G.S.O.C. and their friends.

Thursday Mar. 19 — Subject:- GEMS AND THEIR OCCURRENCE IN THE NORTHWEST
Speaker:- Dr. H. C. Dake, Editor of "The Mineralogist", Portland.

Few, if any, persons are as qualified as Dr. Dake to speak on the subject of gem stones of the Oregon Country. He has hunted them and studied them, and lectured and written about them for many years, and is widely known as an authority concerning them. He will tell us, not only where various gems may be found, but will deal also with the process of their origin and formation, which is an indication of why certain kinds occur in certain places. He will illustrate his lecture-not with pictures - but with specimens from his extensive and valuable collection.

***

Change of Address

Mr. & Mrs. Ray E. Mackenzie 7737 S. E. Reed College Place Portland

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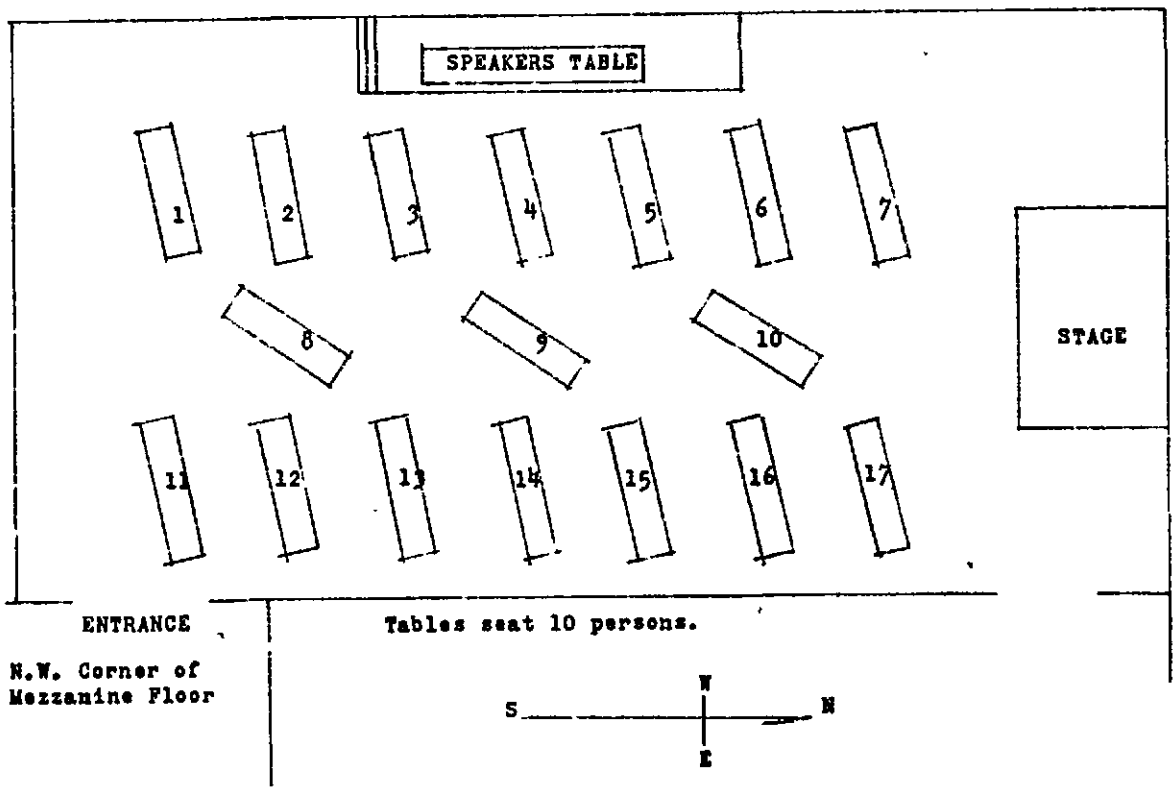
SEATING PLAN FOR G.S.O.C. BANQUET
MULTNOMAH HOTEL
N.W. 4th Avenue



DATE: Friday, March 13
at 6:30 p.m.

Tickets now on Sale: $1.35: RESERVE YOUR TABLE
See Leo Simon: 531 S. W. Washington or phone At. 0438

FOSSIL LOCALITIES

The research committee of the Geological Society expects to publish lists of Oregon fossil localities from time to time. The index system proposed is subdivided by counties and is designed so as not to conflict with any existing fossil locality lists. The numbering system is divided into three parts of which the first is the symbol for the designated county. The second part is the serial number for that county, and the third part is a reference symbol indicating whether the fossils are invertebrate, vertebrate or plant (paleobotanical). The following list is from Multnomah County.

Mh-1-P NE¼ of Section 11, Twp 1 S., Range 4 E.
Buck Creek leaf locality in the Troutdale. Pliocene(?). Boring quadrangle.

Mh-2-P NW¼ Sec. 10, Twp 1 S., Range 4 E.
Camp Collins leaf locality from the Troutdale Pliocene(?). Located in road cut above Sandy River near Y.M.C.A's Camp Collins.

Mh-3-I Near south ¼ corner of Sec. 2, Twp 2 N., Range 2 W. Oligocene(?) marine shells in the bed of a tributary to an unnamed creek which flows past Wildwood Golf course.

Mh-4-P Sections 29,30,31 - Twp 1 N, Range 7 E. In railroad and highway cuts between McCord and Moffet Creeks. Fossil wood and leaves from the Oligocene or Lower Miocene, Eagle Creek formation. Additional data may resolve this location into several.

The research committee welcomes new additions to the list and one of its representatives will either record the information or furnish blank forms on request.

***

LIBRARY NOTES

The library is cataloged and ready for use by the society. The books and periodicals on the shelves appear but the nucleus of a library to be, but an examination of the card catalog reveals that this small young library offers quite an extensive range of subject material of special interest to our membership.

On the shelves :- The periodicals are arranged in sets in alphabetical order. The numbered books are placed in numerical order. Each book is labeled with its book number.

The card catalog:- This catalog is based on the general principles of dictionary card cataloging with such modifications as necessary to meet the needs of a small, specialized, SELF SERVICE library. The author, title, subject and other cards are in alphabetical order.

Circulation:- The circulation card is in the pocket on inside of back cover of each numbered book and each copy of the periodicals. Suggested rules for borrowers to follow are on the outside of circulation card file. Observation of these simple rules is necessary to keep the library in orderly running condition.

Received by library:-

Fossil Woods of the Far West. Dr. G. F. Beck, editor. Twelve issues of the publication and twenty-four prints of photomicrographs. Published by Central Washington College.

Guidebook for the Identification of Woods used for Ties and Timbers. By Arthur Koehler. Published by the U. S. Department of Agriculture, Forest Service, 1917. Recommended by Dr. Beck for use with "Fossil Woods of the Far West."

Gifts - acknowledged with the sincere thanks of the society:

Mazama Yearbook, 1941. Courtesy of Mazama Society.

See Your West. Issued by the Standard Oil Company of California. From Dr. and Mrs. Courtland Linden Booth. A set of sixty colored photographic pictures of the outstanding scenic spots of the west with a descriptive sketch of each. The collection was compiled by Dr. Booth and presented to the society in a beautifully bound volume. It will be held as one of the greatest treasures of the library by the members of today to be passed on for the enjoyment of their successors through the years to come.

Climate and Man. Year book of Agriculture, 1941 - From Dr. C. L. Booth by courtesy of Senator Charles L. McNary. Published by United States Department of Agriculture, Washington, D. C.

M.M.H.

***

WATER STORED IN THE FORM OF SNOW COVER ON THE DRAINAGE BASINS IN OREGON AS OF FEBRUARY 1, 1942

The outlook for Oregon 1941 water supply ranges from barely fair in the central Cascade area to very good or better in the northeastern part of the State. As usual, prospects lack uniformity, but in general, due chiefly to magnified reservoir storage, are considered slightly better than at this time last year.

This information is a result of snow surveys and irrigation water forecasts for Oregon as of February 1, 1942, by the Division of Irrigation, Soil Conservation Service, U. S. Department of Agriculture and Oregon Agricultural Experiment Station, Medford Branch cooperating. Other cooperating agencies are the Oregon State Engineer, the U. S. Forest Service, the National Park Service, and other federal, state, and local organizations.

Snow stored water at most locations above 5,000 feet elevation showed less than usual January increase and the increase was even less at lower elevations. By February 1, both above and below the 5,000 foot elevation, snow stored water averaged materially less than last year, and less than three years ago (1939). Snow stored water is now approximately twice that of February first two years ago, but it should be recalled that the snow cover then was exceedingly shallow, and on many snow courses contained the least water for that calendar date of snow survey history.

Watershed soils are mostly unfrozen and generally very well wetted, thus favoring maximum sustained run-off from whatever snow pack may be accumulated at the beginning of the run-off season.

Total water stored in all reservoirs very materially exceeds that of last year and is the greatest of any recent year except 1939. Similarly, the number of reservoirs half full or better is the greatest, 1939 excepted, for several years.

Precipitation accumulated in Oregon valleys since October 1 is generally greater than for the same period last year, and averages above normal in all geographical sections of the State except the Blue Mountain area. In that section, it is only slightly below normal.

The following table shows the snow cover on February 1, 1942, in inches of

water and as a percent of that on the corresponding date in previous years.

Drainage Area	Average water depth in snow cover (inches)(1942)	1942 Snow Water Depth (inches) as percent of that in 1941	1940	1939
Owyhee River	6.6	78	--	--
Malheur River	4.7	55	134	100
Burnt River	5.3	69	196	108
Powder River	6.9	68	138	85
Pine Creek	15.3	63	158	87
Grande Ronde River	10.5	67	114	78
Walla Walla River	7.0	50	119	50
Umatilla River	4.7	64	138	69
John Day River	5.3	72	196	98
Deschutes River	9.4	83	154	69
Crooked River	4.2	64	210	108
Sandy River	13.2	87	210	62
Clackamas River	6.2	138	194	64
Willamette River	9.0	88	209	50
Harney Basin	3.8	73	200	106
Warner Lake	5.5	62	183	102
Guano Lake	5.5	117	250	--
Umpqua River	6.0	66	250	61
Upper Rogue River	9.0	76	194	96
Applegate River	12.6	62	200	135
Illinois River	7.0	46	259	90
Klamath Lake Basin	6.2	67	173	102
Goose Lake Basin	5.5	83	393	115

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CHEMULT QUADRANGLE PUBLISHED

CHEMULT QUADRANGLE; topography by E. P. Davis, F. A. Nuopio, F. H. Purdy, and W. L. Thomas. Latitude, 43° to 43°30'; longitude, 121°30' to 122°. Scale, 1:125,000 (1 inch=nearly 2 miles); contour interval, 50 feet. Price, 10 cents.

Map of part of Klamath County and a small part of Douglas County, in southwestern Oregon. The area includes parts of the Klamath Indian Reservation and the Fremont, Deschutes, Rogue River, and Umpqua National Forests. That part of the Cascade Range in and near the Western part of this quadrangle is not very rugged. As indicated by the contour lines on the map the highest point shown, 7,470 feet above sea level, is on the crest, 1 to 2 miles north of Miller Lake. The eastern flank of the range is gashed by several notable gorges. Farther east is a nearly flat plain, ranging in altitude from 4,500 to 5,500 feet. Above this plain rise several ridges and large and small buttes, some of which are volcanic cones with craters in the top. The jagged contours on Black Rock Butte, 8 miles east of Crescent Lake, represent the irregular surface of recent lava flows. The plain is largely, if not wholly underlain by lava flows, and most of the surface is coated with 4 or 5 feet of coarse, granular volcanic material, or pumice, which was probably deposited during an eruption in the Crater Lake region to the southwest. The lowest altitude, about 4,310 feet is near the northeast corner. Glaciers heading on the Cascade Range during the ice age scoured out some of the gorges. Crescent Lake, in the northwestern part, is impounded by the notable terminal moraine formed by one of these glaciers. In gorges farther south are Miller Lake and Big Marsh. On the plain in the southeastern part is the northern part of Klamath Marsh. Much of the drainage of this quadrangle is northward to the Deschutes River. The streams have accomplished very little erosion of the flat tracts. There is some stock raising, but no farming because of lack of water. The Dalles California Highway (U. S. 97), which traverses the area from north to south, is joined by the Diamond Lake and the Willamette State Highways. The Southern Pacific Rail-

way (Cascade line) also runs from south to north through the quadrangle, and a branch of the Great Northern Railway runs southward to the small village of Chemult. The area is heavily wooded.

*

The Dalles Quadrangle has been reprinted without revision.

***

NEED MAPS?

An order for U. S. G. S. topographic quadrangle sheets will be sent away in a few days by F. L. Davis of the Salem Chapter. Anyone wishing to use this opportunity for ordering maps please contact John Allen or Lloyd Ruff on or before the date of the annual meeting. Wholesale price of these sheets is 6 cents each. This applies only to U. S. G. S. quadrangle sheets. Those published by the engineer department are not available yet for general distribution.

***

THE JUNIPER

I'm dubbed the poor relation of the trees
My home's a rocky hillside, arid, bare,
But summer cannot sear nor winter freeze
The coat of argent green I always wear.
Where others will not grow I strike my roots,
My aliment would starve less sturdy stock.

Some of my prouder kin bear luscious fruits
Or tasty nuts. My clustered berries mock
Any who'd eat of them. Grim nature's hand
Fashioned me rudely without grace of form
Or stately stature in a barren land
And chastens me with lightning and the storm.
I will not rail at fate. My life's well spent,
For I adorn my bleak environment.

W. C. McCulloch

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GEOLOGICAL NEWS LETTER

OFFICIAL PUBLICATION OF THE

GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

VOL. 8 NO. 5 PORTLAND, OREGON March 10, 1942

GEOLOGICAL NEWS-LETTER
Official Publication of the
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THE GEOLOGICAL NEWS-LETTER
Official publication of the
GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

The Geological News-Letter is issued semi-monthly on the 10th and 25th.
Yearly subscription: $2.00 Single copies: $0.15
Communications and material for publication should be sent to the Editor. Change of address and subscriptions are required 30 days in advance of date of change, and should be sent to Emily M. Moltzner, Morgan Building.

MEMBERSHIP APPLICATION
GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

Qualifications and Dues: Applicant must be sponsored by a member and recommended by the Membership Committee. A knowledge of geology is not a requisite. There is no initiation fee. A Member shall be over 21 years of age; or a husband and wife and all children under 18 years of age. The dues are $3.50 per year, payable in advance, which includes one subscription to the Geological News-Letter. A Junior is an individual between the ages of 18 and 21. Dues are $1.50 per year, payable in advance, and include one subscription to the Geological News-Letter.

Date . . . . . .

I, ... (please print full name) do hereby apply for membership (junior membership) in the Geological Society of the Oregon Country, subject to the provisions of the By-Laws.

Home address . . . . . Phone . . . . . .

Business Address . . . . . Phone . . . . . .

Occupation . . . . . .Hobbies. . . . . .

I am particularly interested in the following branches of geology: . . . . . .

. . . . . .

I enclose $. . . for the year's dues, March 1 to March 1. (Checks payable to the Society).

. . . . . Sponsored by . . . . . .
(signature) (member)

PORTLAND CHAPTER ANNOUNCEMENTS

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Friday Mar.13 Subject: ANNUAL BANQUET, GRAND BALL ROOM, MULTNOMAH HOTEL. (Tickets $1.35; See Leo Simon, 531 S. W. Washington, or phone At. 0438).

Speaker: Dr. Ira S. Allison. "Ancient Lakes and Fossils of South Central Oregon".

This will have special reference to Fossil Lake, but the relations to the pumice fields of Crater Lake and Newberry Crater, to Dr. L. S. Cressman's studies of early man in Oregon, and to the former climates will be indicated. The ramifications of the subject certainly are wide enough to strike a point of interest on the part of a considerable number of people of varying interests and backgrounds.

Also stunts by Portland and Salem Chapters.

Sunday Mar.15 Trip to Lawton Creek and Vicinity.

Leader: Dr. A. K. Harris. Examine gravel deposits containing fossil wood, spherulites, (thunder eggs) banded agates and rhyolites, and also other interesting features along the Washington side of the Columbia River.

Friday Mar.27 Speaker: Dr. Lester Proebstel.

Subject: AS MALAYA FACES THE ADVANCING JAPS.

After graduating from Willamette University in 1914 Dr. Proebstel sailed for the Orient and did not return until 1939. For 12 years he was principal of a mission school in Ipoh, the world's richest tin-mining city. He then taught in Kuala Lumpur, the rubber center of the world, and in Penang. Dr. Proebstel is one of the foremost authorities on Malaya and will present a graphic picture of the country and its people before being over-run by the Japanese.

Friday Apr.10 Speaker: Dr. Edwin T. Hodge.

Subject: STRATEGY OF NATURAL RESOURCES DURING AND AFTER THE WAR.

Dr. Hodge's qualifications as a speaker and as an authority on mineral economics are so well known that it is not necessary to point them out. The subject is one of outstanding interest to all.

***

Friends of Emma Nordgren are saddened by news of the recent death of her father, August George Nordgren of 4936 North East Going Street.

*

President H. Bruce Schminky took a day off on March 3, to welcome a new member of the Society, Miss (Blank) Schminky. The (blank) to be filled in later by Carol Ann who had only names for boys on hand when the new sister arrived.

***

Fellow Members:

I wish to express the thanks of each of your officers for the honor bestowed on us in the recent election. We know that the society is facing a critical period, and that our activities may have many disruptions. It was only because of our faith in the continued cooperation of all the members that we agreed to undertake the responsibilities of our officers if you desired to have us fill them.

So far as conditions will allow, we will carry on the activities of the society as in the past. Meetings will continue on our regular nights or until members themselves desire a change.

Our field trips must of necessity conform to the tire situation of the present, or the gas regulations of the future. This will mean more walking with trips limited to localities on bus lines or railroads, and more time spent at these localities in true study periods.

We will endeavor to make our bulletin the real binding unit of the society. Lectures and trips may have to be cancelled many times, but we will try to keep the bulletin on its regular publication dates. We hope that the material received for publication will be of such nature as to make the bulletin better than ever.

As your pay to us, we ask that you do these simple things:

First: Accept and work on any committee on which we may ask you to serve.
Second: Keep the secretary informed of any change in address or telephone numbers.
Third: Give the society functions preferred places on your social calendar as far as possible.
Fourth: Pay your dues promptly.

The second item in this list of things to do is really most important. It may save each of you several useless trips in case of lecture or trip cancellations if we can get you promptly by phone or post card. It also saves the society money, as we have to pay return postage on all bulletins that go to wrong addresses.

Again I thank you in behalf of all your officers for the cooperation that I know you will give us during the coming year.

Sincerely,

H. Bruce Schminky

PRESIDENT

***

The Society thanks Mr. & Mrs. Henderson for the donation of one year of back numbers of the News Letter.

*

- Only one week left to get your banquet tickets! -

THE ANNUAL MEETING

The annual meeting of the Society held on February 27, 1942 in the Public Service Auditorium was well attended, and although no wild enthusiasm was noted, the business of the evening was transacted with "neatness and dispatch" under the leadership of President Kenneth Phillips.

Reports of committee chairman were brief and to the point. John Allen, editor of the News Letter reported 24 issues averaging four pages each had been sent to the membership.

Mr. Allen also reported for Lloyd Ruff, chairman of the Research Committee that three projects had been studied, two of which were practically completed.

Trip Committee chairman A. W. Hancock said that in the 17 official trips during the year, 2500 miles had been covered. It is anticipated that there will be less mileage during the coming year and perhaps more pick and shovel work when the caravan arrives at its point of attack.

Historian, Mrs. Barr, reported a slight falling off in the number of photographs received for the Album, and that many of the trips were not photographically recorded. Something should be done about this, it would seem, for an inspection of the album serves to bring happy memories to mind, and most of us can stand more of such recollections as an offset to the news in the daily papers.

Miss Margaret Hughes has completed the task of cataloging the library thus making it more readily available to the membership. She was assisted in this work by Mrs. Richards, now of Salem, formerly a member of the Portland Public Library staff. Few of us, in thumbing through a library catalog have a proper appreciation of the hours of painstaking labor that have gone into the job of speeding up our efforts to find what we are looking for.

The membership committee, Leo Simon, chairman, reports 119 senior members and 4 juniors at the close of the year, an increase of 10 members.

The Museum Committee, J. C. Stevens, Chairman, seems to have "dug in for the duration" which is about all that can be done.

Reports of the committees on Program, Publication, Publicity and Service, and those of the Secretary and Treasurer will, we hope, be given in more detail in a later number of News Letter.

At the request of the Salem Chapter, the return of its charter was accepted with regret and the Salem Geological Society is now free to go its own pace, which may be so greatly accelerated that we will have to be on our toes to keep within hailing distance. Our best wishes for the success of the Salem Geological Society are expressed herewith, but frankly, we don't see how it is going to get along without the News Letter.

- Don't forget to reserve your banquet table! -

Geary Kimbrell, for the board of tellers, reported the following officers elected for the coming year:

President	H. B. Schminky
Vice President	E. N. Bates
Secretary	Kathleen Mahony
Treasurer	Helen Iverson

Upon motion, the annual business meeting adjourned to see the Kodachrome pictures of Oregon photographed by Geary Kimbrell and his daughter and presented by Mr. Kimbrell.

After the meeting the editor heard the remark: "I wish Mr. Kimbrell had shown all the pictures he has. I would have been glad to look at them another hour or more."

*

- This years banquet will be bigger and better! -

***

"CONE-BEARING TREES OF THE PACIFIC COAST"

By Nathan A. Bowers B.S.,C.E.,Ph.D., a recently published addition to the Whittlesey House "Field Guide Series" has been received by the editor.

This book has been made for actual use. It is 5½ x 8 inches, bound in imitation leather, and its 167 pages are packed with well-arranged data for use in the field. It slips easily into the coat pocket and should be of great help to the geologist who wishes to identify the conifer which stands guard over his favorite fossil bed.

John A. Lee, Past President Mazamas has this to say of the book: "This manual offers a ready means of identifying the conifers native to the Pacific Coast. The easily applied keys that Dr. Bowers has developed and his convenient arrangements of distinctive trails of each tree of the species enable this book to fill a real need". Mr. Lee supplied the author numerous ideas and special methods of identification which had not hitherto been published.

The publishers' blurb includes the statement that: "This book is distinctly different from others in the field. It presents a complete summary of data from Authoritative botanical works, arranged in the form of a field manual with appropriate keys which permit the average layman readily to identify the cone-bearing species."

In the preface we are told that "O.E. Stanley made search through 'high places' of the Northwest for a suitable frontispiece subject and made the color photograph from which the frontispiece is reproduced". This view was made from the top of Mt. Revelstoke, B. C.

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We are particularly fortunate this month to have an article on "Fumeroles of Mount St. Helens and Mount Adams, reprinted from MAZAMA, December 1941.

***

FUMAROLES *of* MOUNT ST. HELENS *and* MOUNT ADAMS

BY KENNETH N. PHILLIPS

A MOUNTAINEER climbing Mt. Hood, Mt. St. Helens, or Mt. Adams for the first time can hardly fail to be impressed by the fact that these mountains are geologically very young. One sign of their extreme youth consists of the fumaroles or gas vents, sometimes called "the hot rocks", which discharge hot water vapor and other gases, surface evidence of the slowly dying heat in the heart of each mountain.

The fumaroles of Mt. Hood lie on the most common climbing route, and hence are well known to climbers. They have been described[1], and their chemical[2] nature has been studied.. For the purposes of comparison, it is sufficient here to repeat that they lie at an altitude of about 10,000 feet; that they have a maximum temperature of 194 degrees F. (boiling point) ; and that the gas consists essentially of 98.7% water vapor, 1.2% carbon dioxide, 0.03% hydrogen sulfide, and traces of methane and atmospheric air.

The fumaroles of Mt. St. Helens and Mt. Adams are not so well known. They do not lie on any usual climbing route, and few mountaineers have ever seen them. Hence it may be worth while to record the fragmentary data available on these little known but interesting phenomena.

Mt. St. Helens

Although rumors of "hot rocks" on Mt. St. Helens have for many years been current among mountaineers, there are but few climbers who have seen the fumaroles, and fewer still who have left a record of their findings. The earliest (almost the only) reference to them known to the writer is that by Hazard[3], who, in describing a climb of the peak by the north slope, says: "The climb up The Boot . . . is safe but slow. There are hot spots upon it, where the internal heat of the cone breaks through." [4]Lawrence cites a Mr. Crum as authority for the statement that steam issues from vents near the summit in at least two places, one area being on the southwest side of the peak, a short distance below the summit, and the other at the base of a rock cone about halfway up The Boot, and at its western edge.

A search was made for fumaroles in both these areas on July 13, 1941. The party consisted of Don and Elizabeth Lawrence, Dr. L. M. "Larry" Gould, John Marr, Louis Oberson, Carl Richards, and the writer. In order to allow time and energy for a search of the mountain slopes, we had camped on top of The Dog's Head late on July 12. After a surprisingly comfortable bivouac there, we completed an easy climb and divided into small groups to search for fumaroles.

The area to the west and southwest of the summit was explored rather thoroughly for a distance of about 600 feet below the top of the mountain. In several places here the brilliantly colored volcanic rocks have been badly decomposed, suggesting hydrothermal action; but no hot rocks or steam vents could be found. Possibly we did not look far enough down the side of the mountain; or surface evidence may have been obliterated by slides. Momentarily, we were as depressed as mountaineers can well be on a perfect day in such exhilarating surroundings.

Our spirits were raised, however, by an examination of the north slope. Fumaroles were found there almost

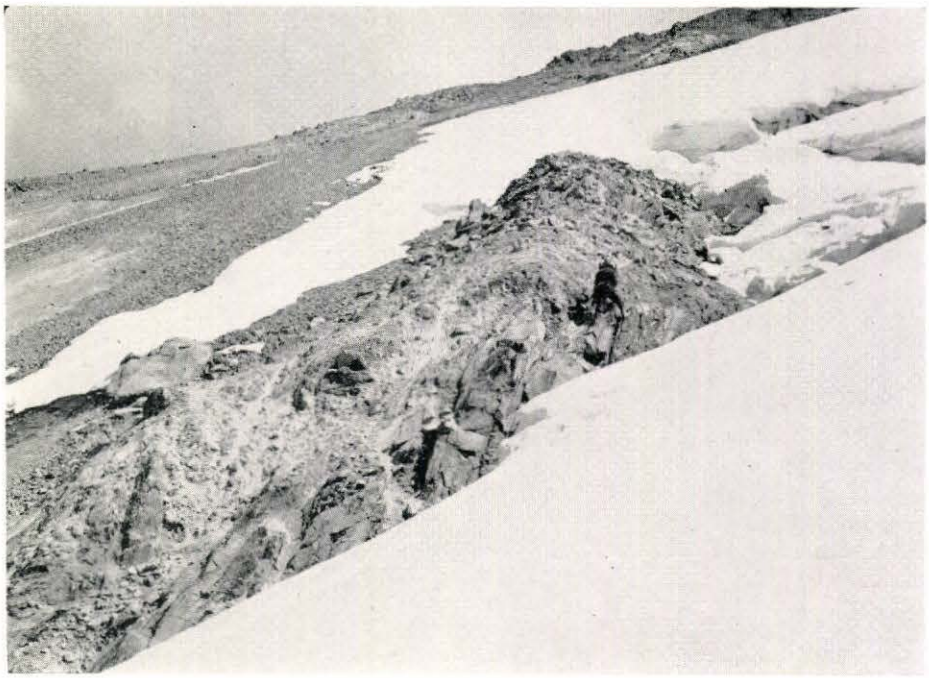

Fig. 1. Fumaroles of Mount St. Helens are found on the rock outcrop in the foreground, center to lower left. View is to the southeast, the Boot (ridge) in background.
John Mair photo, July 13, 1941

exactly as described by Mr. Crum. A small outcrop of bedrock lies at the base of the western slope of the rubbly ridge known as The Boot, just east of the snowfield that feeds Toutle Glacier, at an altitude of about 8,900 feet, or some 800 feet below the summit. This rock outcrop covers an area perhaps 50 feet wide and 150 feet long, the greater dimension running down the slope of the mountain. Tiny jets of steam issue quietly from crevices in the bedrock, and rather large areas of the rock are distinctly warm even where there is no apparent discharge. There is no hissing or rushing noise, as at Crater Rock on Mt. Hood. The odor of hydrogen sulfide, so conspicuous on Mt. Hood and Mt. Adams, is here entirely lacking. The largest fumarole seen has an opening not over 3 inches in diameter. A climbing party might pass within one hundred feet of the vents without noticing them.

Don Lawrence's attention was immediately attracted to small clusters of grayish fungus, about $\frac{3}{8}$-inch in height, and patches of bright green moss which were growing in warm and moist places on the rock. These plants do not generally grow at this elevation; in fact, there are no other known plants of any kind, except lichens, above the top of The Dog's Head. Specimens of the gill-fungus taken for laboratory study by Lawrence and others proved to be immature, and could not be positively identified; but are thought to belong to the genus **Naucoria.** The moss was identified by William C. Steere, of the Department of Botany, University of Michigan, as Pohlia annotina (Hedw.) Loeske. A greenish alga was also observed on the rocks here.

Temperatures of the steam being discharged from the crevices were observed with a maximum-registering thermometer. Some of the crevices were so small that the thermometer could be inserted only 2 or 3 inches; readings on these may be slightly affected by the proximity of the outside air. Beginning at the lowest active vent and

Fig. 2. Noting temperatures at vent No. 3, Mount St. Helens. View is to the west, across neve' fields of Toutle Glacier. *Don Lawrence photo, July* 13, 1941.

progressing uphill, temperatures were found as noted below:

Vent 1—178 degrees F.
Vent 2—180 degrees F.
Vent 3—190 degrees F. Very small, ¼-inch opening.
Vent 4—188 degrees F. Triangular hole 1″ x 3″, largest found.
Vent5—142 degrees F. In slide material wetted by snow melt; not a fair test.

Carbon dioxide is undoubtedly present in small amounts. A rough test with lime water showed a slow reaction ascribed to carbon dioxide, much less rapid than for similar tests of the fumaroles on Mt. Hood. The gas is believed to be almost entirely water vapor. It appears that the fumaroles are of a more decadent type than those of Mt. Hood, although it is known that Mt. St. Helens has been in active eruption at least twice during the nineteenth century[4]. However, it is worthy of note that the gas discharged is very nearly as hot as that found on Mt. Hood, and not far below the boiling point for that altitude.

Mt. Adams

The existence of fumaroles on Mt. Adams has been common knowledge among mountaineers for many years. In fact, under favorable weather conditions, it would be a rare climber indeed who could reach the summit without becoming aware of the "bad egg" odor of hydrogen sulfide gas, as it is wafted up the western slope by the prevailing westerly winds. Yet very few climbers have ever seen a fumarole on Mt. Adams; and one may search in vain through the literature of mountaineering and geology for technical data regarding them, with the single exception of a paper by Fowler[5], mining geologist, quoted in part below. The writer's personal knowledge is so sketchy that it would not be worthy of record except for an unexpected element of drama which transformed a routine inspection into an exciting discovery.

The date was August 17, 1941. The Mazama party of 25 climbers, led by Charles Whittlesey and Randall Kester, had climbed from Bird Creek Meadows and had reached the summit uneventfully. From the summit we could see the broad, smooth snowfield in the depression, sometimes known as the crater, lying to the north of the summit and feeding Adams, Lava, and Lyman Glaciers. Near its center, perhaps a quarter of a mile away, there appeared a buff-colored island in the snow, a patch about 50 feet wide and 150 feet long. I set off to examine it, accompanied by Harry S. Mosher, formerly instructor in chemistry in Willamette University. As we picked our way down the icy slopes, we speculated upon the possibility of finding some of the known deposits of sulfur, and of locating the hot fumaroles and recording their temperatures with the thermometer brought for the purpose.

The island proved to be much more fascinating for us then the summit. It did not take a chemist to see at a glance that its surface was largely composed of sulfur, practically pure in places, varying in texture from micro-crystalline to coarsely crystalline. Around its margin we noted several test pits, about 3 feet in width and depth, which had been excavated by sulfur prospectors. The remains of some mechanized drilling equipment lay scattered about on the sulfur surface, some of it obviously the victim of a fire which left it as stains of black and purplish metallic sulfides. But everywhere the surface was cool. We saw no steam jets, though occasionally a variant breeze would bring a strong odor of hydrogen sulfide. At last we found a natural opening in the sulfur crust, about a foot across at the surface but a little larger underneath. In the little cavern formed by the overhang of the crust we could see tiny fragile stalactites and stalagmites of pure crystalline sulfur, the larger ones being about half an inch thick and about 3 inches long. Still, there was no steam being discharged.

"Take a whiff of this", said Harry.

The pungent odor of hydrogen sulfide in dilute form could not be mistaken. We both noted, however, that if we drew a deep breath directly from the vent, the odor was different—something choking, not recognizable to us, but strongly repellent. Probably it was merely concentrated sulfide of hydrogen, or a mixture of that gas and carbon dioxide, both of which are heavier than air and could readily collect in concentrated form in such a pocket. The typical odor of hydrogen sulfide is not apparent in strong concentrations.

I reached into the opening and felt around the edge of the little cavern. It was slightly warm, but apparently less than the 100-degree mark at which point my thermometer started. No temperatures were taken. With an alpenstock we broke off some chunks to enlarge the opening.

"Look", said I, "there's a dead bird in the hole!"

"And another!" said Harry.

"There's a third."

"And a fourth."

We looked at each other, sensing the drama of the situation. It was obvious that the little fumarole, with its slightly warm effluent gas, had afforded an apparent sanctuary to these little alpine birds during some snow storm or storms on the peak, and that the feathered refugees had quickly succumbed to the concentration of poisonous gas. Almost reverently, we wrapped two of them in a bandanna, and reluctantly yielded to calls to return to the summit and begin the descent to camp.

As we descended the mountain, others in the party told of seeing a flock of small birds flying about the summit during the hour of our absence. From meager descriptions, it is presumed that they were arctic horned larks. It is very unusual to see any kind of birds at this altitude (12,307 feet). Rusk[6] states that in his many climbs of the mountain he had never seen birds flying above the summit.

Identification of the two specimens by Stanley Jewett, regional biologist for the U. S. Fish and Wildlife Service, adds measurably to our knowledge of alpine birds. One was a Hepburn's rosy finch, an arctic or alpine species, frequently seen on peaks of the Cascade

Sulphur "island" in the crater snowfield of Mt. Adams. In the foreground are remains of drilling equipment burned by a sulphur fire. Harry Mosher stands beside fumarole where the bird carcasses were found.
Kenneth Phillips photo, August 17, 1941

Range as far south as the Three Sisters, but seldom so high as found here (11,800 feet). It was in winter plumage, a fact which suggests that death occurred in March or April. Presumably the lack of air in the gas pocket had permitted the carcass to remain in a fair state of preservation. (When found, the carcasses had no objectionable odor.) The other was an arctic horned lark in summer plumage somewhat different from known types, indicating perhaps a new sub-species or geographic race. It was a female with a prominent incubation patch (feathers plucked from its breast for nest lining), indicating that it died during the nesting season, during June or July. The species had never before been observed so far south, according to Jewett, and seldom, if ever, so high in the United States. To find any kind of a nesting bird at this elevation is, to say the least, unusual. The bodies of both birds were black, presumably owing to the effect of hydrogen sulfide (or carbon dioxide?) upon the blood.

Such natural death traps have been observed elsewhere. There is a ravine in Yellowstone National Park which is known as Death Gulch, because of the fact that in 1898 the carcass of a grizzly bear and several skeletons of bears were found there, in a spot where the odor of hydrogen sulfide suggested that poison gas was the cause of death. [7]"One place on the terraces at Mammoth Hot Springs contains sufficient carbon dioxide to cause the death of numerous birds that roost on the lower branches of some shrubs and trees near the springs. It is known as the Poison Springs". Several years ago Father Bernard Hubbard reported finding birds which had been similarly killed in volcanic areas in Alaska. Because of their rapid respiration and small blood capacity, birds are particularly sensitive

to poison gas, and have long been used to detect it in mines.

Very likely there will be many repetitions of such avian tragedies, on other mountains as well as on Mt. Adams. Mountaineers can perform a service to science by searching out the bodies of these victims of the fumaroles and bringing them down for examination by some competent ornithologist.

The weak solfatara in which the bird carcasses were found is of course not the only fumarole on Mt. Adams, and probably its low temperature is not typical. Judge Fred W. Stadter, who took part in a memorable climb of the west side of Mt. Adams in 1924, noted at that time a group of steam vents west of the summit and less than a thousand feet below it, in a canyon to the south of the so-called west summit and above White Salmon Glacier. He reports that these are very difficult of access, and no one is known to have reached them. Puffs of steam seen by Stadter suggest that the gas is near the boiling point. These vents are probably the chief source of the odor noticed by climbers. No fumaroles have been observed by Everett L. Darr in his numerous climbs around The Castle and other parts of the east face of the mountain. Fred McNeil reports having observed fumaroles with a strong odor of sulfur on the rocks at Klickitat Glacier ice fall.

"[5]At the present time, steam and hydrogen sulphide gas are issuing from vents in and around the margins of the ice-filled crater. Steam was observed at only one place, a fumarole on the south crater wall. Hydrogen sulphide issues from every crevasse bounding the crater. At times, when weather conditions are favorable, the odor of hydrogen sulphide gas can be detected 6 miles from the mountain top. The gas is ex pelled as the lava down inside of the volcano is cooling and solidifying into rock. Mount Adams is in the very last stages of its long history of volcanic activity.

"In the crater of the mountain are extensive sulphur deposits. The sulphur ore lies directly beneath the ice and the extent of the field is not known, its extremities not having been found. That portion of the crater which has been explored, about one-third, covers over seventy acres. At four places the ore crops out through the ice and lies exposed during the summer. Sulphur ore was seen in four crevasses. In the seventy acres bounded by the outcrops and crevasses, sixteen test holes, totalling 2300 feet, were drilled with a diamond drill. About 360 feet of test pits were dug. It was found that sulphur ore existed beneath the ice over the area prospected.

"The sulphur ore is light, in places porous, but in the main compact. It consists of fragments of lava, volcanic ash and cinders, cemented with sulphur. Even the vesicles of the lava fragments are filled with sulphur. The color of the ore varies greatly. The clear crystalline sulphur has a metallic appearance. Much of the ore contains a high proportion of sulphur, nearly pure, but the average runs between fifty and sixty per cent. Thicknesses as high as 27 feet have been measured.

"As to origin, the sulphur deposits on Mount Adams are unique. Hydrogen sulphide gas issuing from vents in the lava rocks into the mantle of volcanic ash, cinders and scoria, all loosely compacted and porous, was broken up, the hydrogen uniting with oxygen to form water, the free sulphur being deposited in the pore spaces of the rocks. The cold ice aided in the deposition of the sulphur. Eventually, as the pores of the rock became filled with crystalline sulphur, the resultant sulphur ore became impervious to gas, forming an effective seal. This seal spread from the numerous vents, finally uniting, so that at present, the crater floor is covered with the ore. With continued expulsion of gas, sulphur was deposited beneath the seal, thus thickening the deposit. Even over fissures in the outside of the crater rim, sulphur was deposited."

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MEMBERSHIP APPLICATION
GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

Qualifications and Dues: Applicant must be sponsored by a member and recommended by the Membership Committee. A knowledge of geology is not a requisite. There is no initiation fee. A Member shall be over 21 years of age; or a husband and wife and all children under 18 years of age. The dues are $3.50 per year, payable in advance, which includes one subscription to the Geological News-Letter. A Junior is an individual between the ages of 18 and 21. Dues are $1.50 per year, payable in advance, and include one subscription to the Geological News-Letter.

Date . . . . . .

I, ... (please print full name) do hereby apply for membership (junior membership) in the Geological Society of the Oregon Country, subject to the provisions of the By-Laws.

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I am particularly interested in the following branches of geology: . . . . . .

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I enclose $. . . for the year's dues, March 1 to March 1. (Checks payable to the Society).

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PORTLAND CHAPTER ANNOUNCEMENTS

LECTURES: On 2nd and 4th Fridays of each month at the Auditorium (3rd floor) of the Public Service Building, 920 SW 6th Ave., at 8:00 p.m.

TRIPS: On Sundays following lecture meetings, or as otherwise arranged. Meeting place at Public Market, Front and Yamhill.

LUNCHEONS: Every Thursday noon, in the banquet room of the Treasure Island Restaurant, 815 SW Broadway (50¢ minimum). A table is also reserved every day except Thursday and Sunday for the men of the Society in the "Barnyard", 8th floor, Lipman Wolfe & Co.

Friday Mar.27 — Speaker: Dr. Lestér Proebstel.
Subject: AS MALAYA FACES THE ADVANCING JAPS.

After graduating from Willamette University in 1914 Dr. Proebstel sailed for the Orient and did not return until 1939. For 12 years he was principal of a mission school in Ipoh, the world's richest tin-mining city. He then taught in Kuala Lumpur, the rubber center of the world, and in Penang. Dr. Proebstel is one of the foremost authorities on Malaya and will present a graphic picture of the country and its people before being over-run by the Japanese.

Friday Apr.10 — Speaker: Dr. Edwin T. Hodge.
Subject: STRATEGY OF NATURAL RESOURCES DURING AND AFTER THE WAR.

Dr. Hodge's qualifications as a speaker and as an authority on mineral economics are so well known that it is not necessary to point them out. The subject is one of outstanding interest to all.

***

The NEWS LETTER has been advised of the birth of a son to Mr. and Mrs. Robert Campbell (Ruth Hickman), at Emanuel Hospital. Their home is 631 S. E. Morrison Street.

*

Many of the floral decorations which were so lavishly displayed at the Annual Dinner were furnished by the North West Florist's Association. The G.S.O.C. has a streak of luck once in a while, doesn't it?

*

A cheering letter of approval of the NEWS LETTER as edited by John Eliot Allen was recently received by Mr. Allen from J. C. Cleghorn of Klamath Falls. If we can get a few more like it perhaps we may be able to persuade Mr. Allen to take up the editorship again.

***

THE ANNUAL DINNER

A hundred and twenty members and guests of the Geological Society of the Oregon Country met in the grand ballroom of the Multnomah Hotel Friday evening, March 13 to celebrate the end of the seventh year of the Society's interesting career.

There may have been more than the ten-dozen mentioned above, or there may have been one or two less than that number; the reporter is unable to state, for

before the count was complete he received a shock from which he has not yet fully recovered. The announcement had been publicly made that dinner would be served at six-fifteen. After attending various public dinners in Portland for at least thirty years, the reporter naturally knew that such a statement had been made only to get the crowd assembled before seven o'clock. But Chairman Ray McKenzie and his committee achieved the impossible, and at the exact minute specified a column of waitresses filed into the room and began placing food before the astonished guests. After that, the wonder is that we were able to get any record at all of what happened subsequently.

The outside covers of the menu are so outstanding that they are made a part of this issue of the NEWS LETTER.

The menu itself was such as only a seasoned geologist could cope with. It tasted better than it reads: "Paleobotanical agglomerate, Hexacoralla slices on Cryptozoon, Pure Pennsylvanian, Polished jasper sections with orbicular overlay, Gallic dreikanter, Pleistocene malachite nodules, Concretions and mud flow, and Intraformational breccia." After having disposed of this geological repast we turned to the real work of the evening.

President Kenneth Phillips, in his delightful lighter vein welcomed the members and guests and introduced Toastmaster A. W. Hancock, who, though still smarting from the effects of alleged neglect of publicity for his year's achievements at the hands of the NEWS LETTER acquitted himself splendidly, although perhaps too generously, in the task that had been assigned to him by the Committee. Mr. Hancock's knowledge of geology and his refreshing wit combine to fit him for a brilliant future as toastmaster.

After joining in singing "De Re Geologica", led by Dr. Arthur C. Jones, we met some of the guests and newer members of the Society, among whom the reporter mentions: Phil Brogan of Bend, Judge Stadter, Mr. and Mrs. John A. Lee, Mrs. Christine Morgan, Miss Nellie M. Fisher, Dr. Warren D. Smith, Commissioner Ormond Bean, and our first president, Dr. Edwin T. Hodge who gets a grain of comfort from the tire and gasoline situation in the fact that the very best way to study geology is on foot.

Members of the Oregon Agate and Mineral Society occupied a full table. Mr. and Mrs. Franklin Davis of Salem were seen but not heard.

A geological pick was presented to the retiring president, Kenneth Phillips, who hadn't made up his mind to mar its beauty by using it in the field before he was called upon to present a copy of "The Two Islands" by Dr. Condon to the new president, H. Bruce Schminky. And Mr. Schminky's pleasure on receiving this treasured volume was not a little jarred by the receipt of a telegram from his daughter, Alice May, wishing him a successful term of office.

Dr. Ira S. Allison, professor of geology at Oregon State College gave an illustrated lecture on "Ancient Lakes and Fossils of South Central Oregon". Due to the great interest of the reporter in the lecture(he was too busy listening to make any notes), we are not able to give a satisfactory account of the talk. We can only hope that Dr. Allison may be persuaded to brief it for a future issue of the NEWS LETTER.

The work of the Time Machine, which carried the program from this point, is described in a separate article to which you are referred.

It was a splendid entertainment and reflects credit upon the committee: Mr. and Mrs. Ray E. McKenzie, Mr. and Mrs. J. Dean Butler, Mr. and Mrs. Leo Simon, Dr. & Mrs. A. C. Jones, Mr. & Mrs. L. E. Kurtichanof, Mr. & Mrs. Leslie W. Bartow, Mr. & Mrs. John Eliot Allen, Mr. & Mrs. Louis E. Oberson, Mr. & Mrs. Clarence D. Phillips , Mr. & Mrs. H. Bruce Schminky, and the Misses Mella C. White, Clara A. Nelson and Dorothea Minar, Mr. & Mrs. A.D. Vance, Mr. & Mrs. Lloyd L. Ruff.

***

THE TIME MACHINE

The date is 2935 A.D. The occasion is the Millenial meeting of the Geological Society of the Oregon Country and Los Angeles. The inventors and operators of the machine are Dr. Digga N. Delve and Dr. Iguess Twasso. The reader of the script (written by Mr. Butler) is the Honorable President of T.G.S.O.C.&L.A., Dr. J. Cyprian Stevens. The volunteer traveller to ancient times is Dr. A. C. Jones, emerging from the machine in the person of Lotus Simon disguised as a monkey. Leo Simon furnished the photography, without which the machine could not have been understood by ordinary humans. As for the machine itself, no description can be made understandable to geologists so no attempt will be made.

The voice of the President is heard intoning:

We're glad to have you here tonight
That all of you may see
The forward strides that we have made
In Paleontology.

We'll take you on our wonder road
To the far Triassic stage
When lizards grew to dinosaurs
In a dim and distant age.

*

The air was warm
And the reptile swarm
Was stupid and sluggish and slow
But they left their bones
In the ancient stones
That the man of today may know.

*

And the plants were lush
And streams would gush
From the forested mountain sides
And wind their way
Through the silent day
To blend with the torrid tides.

The marshes were wide
And never were dried
And there was the dinosaur's home
In the wierd white light
Of a Jurassic night
Those masters of old would roam.

*

Now mammals come to tread the paths
Where dinosaurs had gone
And the mammal brain has made a gain
As the epochs have rolled on.

*

We leap lightly over several millions of years and several pages of interesting script to:

The dawn of the Miocene;
While mountains grew
From the molten spew
To the form that man has seen.

A troubled time
A changing clime
As the Cascades came to be.
The humid breeze
Brought out the trees
On the slope beside the sea.

*

The land was green
In the Pliocene
Where the mountains had spent their ire
And plants now grew
In the sun and dew
In the land of recent fire.

And from the void
An anthropoid
With skillful use of hand
Great stones had hurled
At the rest of the world
And they fought for a place in the land.

They found a cave
Near a lapping wave
For a shelter from the storm;
They walked upright
The better to fight
And they grew to manly form.

*

They continued to grow
From atlatal to bow,
They developed a creed and a dance;
Their hopes were set
With an alphabet
And they learned how to wear their pants.

Now they feast and they fight
With savage delight
As 'twas in cro-magnon days;
They speed and they fly
On tracks, in the sky,
But damned if they've changed their ways.

Here we make another great leap and bring our story up to within the last thousand years.

Now our final page
Is the psychic age
Where homo notso sapiens dwell,

And we are the group
Have manned the sloop
From the time I now will tell.

It was ten hundred years ago
In the shade of Tabor's height
That a hardy lot an idea got
To see the early light.

*

They studied the lavas, the quartz and the hills
Obsidion, fossils and tuff,
They were aided by Allen, Treasher and Smith,
By Allison, Nixon and Ruff.

Now Hancock was a fossil Hound,
His list would cover pages,
And his basement came to be
The graveyard of the ages.

They studied old Tyrannosaurus
His teeth and his tail and his feet,
And the size of his jaws surprised us because
We wondered how much he would eat.

Phil Brogan was the geologist
From out on the Des Chutes
His paper carried all the tales
Of all the ancient brutes.

*

But those were the days of the yesteryear
The days of long ago
Before they had seen the time machine
And this intellectual show.

Calls for volunteers to take a trip into the bygone ages were slow in bringing a response, but finally Dr. Jones stepped forward, waved his hand jauntily to his wife whose eyes sent back a long farewell, and was helped to the platform. He was provided with a knapsack filled with concentrated food tablets, a neutron machine-gun for his protection, an enduro clock and a transmitting set, and disappeared from view. From his transmitting set we heard:

I am going to float to the Eocene
For a view of that wonderful time;
To vision the foliage that clothed the land
And to live in its languorous clime.

I'll tarry a time in the Oligocene---
O, the limits of space are far;
I'm holding my breath in a dream of death,
(Here, a shiver from Mrs. Jones.)
As I ride on a falling star.

I'll meteor back to the Miocene
In vapors of wonderful hues.
O, to see and to sense a seething land
Is to waken the heart of the muse.

I am planning to pause in the Pliocene
O, to vision the limitless plan!
On an arrowed beam I will feel the dream
Of the hopes of primeval man.

O, plat me a place in the Pleistocene
On a ray of the setting sun.
It's only a trice in the age of ice
And the time of the age is run.

The psychic age is a puzzled age
For measure, and mammal, and man;
I have sensed the gleam of a doubtful dream
Of the end of a limitless plan.

I've journeyed a trail that is ever new,
I have visioned a view sublime;
The echoes of eons are dying away
And there's nothing eternal but time.

At this point the Time Machine went distinctly "hay-wire" and we could hear only the faint voice from the doctor's transmitting set coming into the darkness of the great ballroom. A monkey skittered across the stage and out of the room. Was that all that was left of our kind-hearted doctor who had so gallantly risked his life in the interests of science?

It was a delightful evening for everybody (with the possible exception of the Jones family), and the committee that worked out the details of the entertainment has reason to be proud of the job.

***

EXTENSION OF THE LOWER OKANOGAN LOBE INTO LOWER GRAND COULEE

by Dr. George F. Beck
Professor of Geology
Central Washington College of Education

Several years ago while fossil prospecting on Blue Lake, Grand Coulee, Washington, a party from Central Washington College of Education discovered what appears to be polished faces on the basalt bluffs over-hanging Jasper Horn. This feature suggests that a tongue of living ice had come down into lower Grand Coulee and had been partially diverted into Jasper Coulee. This concept further suggests that the "channel bar" against which Jasper Horn abutts may have had an origin connected directly with moving ice. The imperfect degree of polishing on the upright and slightly overhanging bluff at this point is not entirely convincing so we have looked for other and better evidence.

Undoubtedly polished bedrock was found last week on the top of what we may call McCann Point between Jasper Horn and the upper extension of Blue Lake. Since Blue Lake, last week, was partly frozen over, we were obliged to take the old trail around "the horn". Fortunately, out on the Point (I don't know why we never noted this before) we encountered polished surfaces broadly grooved into the exposed basalt columns. These are directed southeastward towards Parker Horn and are developed upon the several levels of rimrock as they are now weathered out. The polished faces have been spalling off but still constitute nearly fifty percent of the bedrock surface.

This must mean that an ice tongue occupied this portion of lower Grand Coulee in the latest phases of the Pleistocene. It not only raises questions concerning the exact origin of the Jasper Horn gravel bar, but of all others in the Coulee above and below. Are these all to be attributed to the presence of ice-- as a whole or in part? Did living (rather than stagnant(?))ice play a part in the formation of gravel bars below Chelan on the Columbia?

I have seen what seems like morainal material to me at Vantage, and on down to Priest Rapids on the Columbia. An even more convincing exposure of possible morainal debris is to be seen extensively developed at Roxboro in Lind Coulee.

We have reason to believe, at least, that a moving tongue of ice from the Okanogan lobe reached as far southward as Blue Lake, in the closing phases of the glacial period.

***

VIGNETTES OF STRATEGIC MINERALS

by

Ray C. Treasher and R. G. Bassett

Chromite

Chromite is the principal ore of the metal chromium. As found in nature it consists of a complex mixture of the oxides of chromium, iron, aluminum, and magnesium in varying proportions. Theoretically, chromite can contain a maximum of 68 per cent chromic oxide, and 32 per cent iron oxide. This theoretical condition is seldom, if ever, found in nature and a chromite ore that assays 55 per cent chromic oxide, Cr_2O_3, is considered very high grade.

Chromite is associated with serpentine and peridotite. Peridotite is a very dark greenish to almost black rock in which individual crystals may be seen. The occurrence of chromite is so definitely associated with these rocks as to make it unwise to prospect for the mineral in areas not underlain by the above mentioned rocks. The chromite may occur as masses of the mineral, called kidneys by the miner. These masses seldom are large. They vary in size from that of a walnut to kidneys of several hundred tons.

In other places, grains of chromite may be scattered or disseminated throughout the serpentine or peridotite. These ores usually are low-grade and sometimes it is feasible to crush the rock and concentrate the chromite grains.

Both kidneys and disseminated chromite ore are found in southern Oregon. A "kidney" is easier to mine as the ore may be shipped directly as mined. Disseminated ore requires a mill to crush the rock and concentrate the chromite grains, so that the grade will meet specifications.

Most of the chromite kidneys are found in the mountains west of the Redwood Highway where there are large bodies of serpentine and peridotite. Other kidneys are reported from the Graves Creek area, and in the area west of Ashland. Along the Coast, chromite is found in the mountains east of Brookings, Gold Beach, Port Orford, and Bandon; near Powers and Agness.

Another chromite occurrence that should not be overlooked is in the black sands of the Coast. These black sands may contain up to 20 per cent chromite, and

frequently average 10 per cent. The chromite is concentrated to a point where it can meet specifications. Utilization of the black sands as a source of chromite is a project which was sponsored largely by the Department.

The 3 principal uses of chromite are:

1. Manufacture of ferro chrome, a chrome-iron alloy in steel manufacture;
2. Refractory purposes, lining of high temperature furnaces, etc; and
3. chemical uses, for chemical compounds, etc.

Each use has its own specifications. For the manufacturing of ferro chrome, the grade must be high and iron must be low; for refractory uses, the chromite and iron are not as important as is a high alumina content; for chemical purposes, the chrome may be low, the iron high.

Identification of Chromite

Prospectors frequently ask for chrome analysis of rocks that contain fifty times too little of the metal to be of any value. Time spent in sampling and analyzing such specimens is wasted. Thus it is desirable that everyone prospecting for chromite familiarize himself with its tests and properties.

Chromite is easy to recognize in the field. Crystals are small and rare. It is about 1.7 times as heavy as quartz, its specific gravity being 4.6. A knife blade is of about the same hardness. The luster may be metallic to submetallic, and the color is iron-black or brownish black. The streak or very fine powder of chromite is dark brown. These properties and tests -- specific gravity, hardness, luster, color and streak -- are usually sufficient to distinguish the mineral in the field. Never, however, should one depend on only one or two of these qualities to determine chromite. Magnetite is black but gives a black streak instead of brown; manganite, an ore of manganese, is black and gives a brown streak but occurs in radiating or columnar masses of crystals in contrast to the small and rare crystals of chromite. Many basic igneous rocks have been mistaken for chromite by local prospectors. The visible presence of no minerals other than quartz, feldspars, micas, amphiboles and pyroxenes should preclude the mistake to the careful and conscientious observer. A hammer blow on a chromite specimen will leave a brown spot; and, on many igneous rocks a gray spot at the point of impact. In the laboratory, chromite is best tested for by obtaining the yellow chromite of lead in acetic acid solution. Proceed with the test as follows: grind one part of the mineral with five parts of sodium carbonate and two parts of sodium nitrate. Fuse a number of beads of this mixture in a platinum wireloop over a burner, adding all the beads to some water in a glass container. After 15 minutes pour off the clear solution to a clean glass vessel and add hydrochloric acid until all bubbling stops. Then add some lead acetate solution. A bright-yellow precipitate or insoluble formation indicates the presence of chromium.

(This article will be continued in the next issue)

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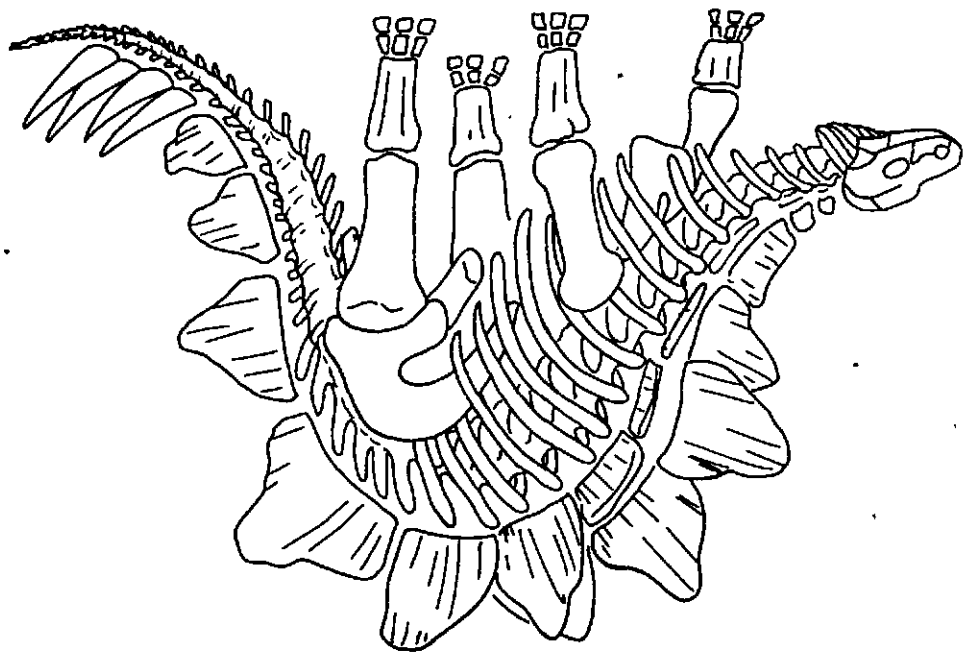

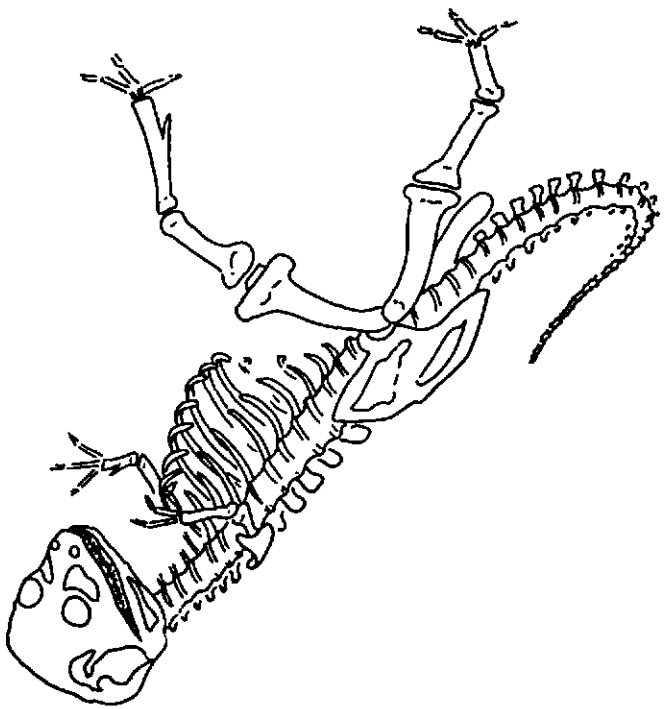

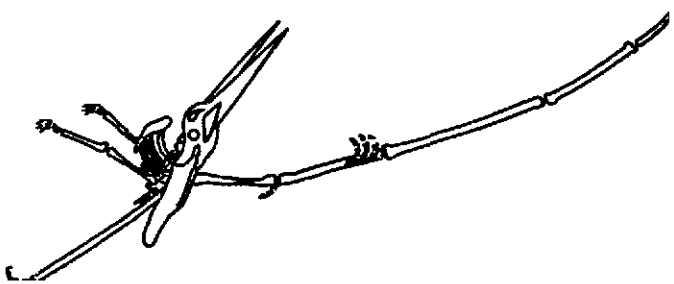


Seventh Annual
Banquet
March 13, 1942.
G.S.O.C.
DOROTHEA
MINAR

GEOLOGICAL NEWS LETTER

OFFICIAL PUBLICATION OF THE

VOL. 8 NO. 7 PORTLAND, OREGON April 10, 1942

GEOLOGICAL NEWS-LETTER
Official Publication of the
Geological Society of the Oregon Country
344 U.S. Courthouse, Portland, Ore.
POSTMASTER: Return Postage Guaranteed

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Date . . . . . .

I, ... (please print full name) do hereby apply for membership (junior membership) in the Geological Society of the Oregon Country, subject to the provisions of the By-Laws.

Home address . . . . . Phone . . . . . .

Business Address . . . . . Phone . . . . . .

Occupation . . . . . .Hobbies. . . . . .

I am particularly interested in the following branches of geology: . . . . . .

. . . . . .

I enclose $. . . for the year's dues, March 1 to March 1. (Checks payable to the Society).

. . . . . Sponsored by . . . . . .
(signature) (member)

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TRIPS: On Sundays following lecture meetings, or as otherwise arranged. Meeting place at Public Market, Front and Yamhill.

LUNCHEONS: Every Thursday noon, in the banquet room of the Treasure Island Restaurant, 815 SW Broadway (50¢ minimum). A table is also reserved every day except Thursday and Sunday for the men of the Society in the "Barnyard", 8th floor, Lipman Wolfe & Co.

Friday Apr.10 Speaker: Dr. Edwin T. Hodge.
Subject: STRATEGY OF NATURAL RESOURCES DURING AND AFTER THE WAR.

Dr. Hodge's qualifications as a speaker and as an authority on mineral economics are so well known that it is not necessary to point them out. The subject is one of outstanding interest to all.

LUNCHEON NOTES

Reported by Mary Ada Henley

March 19: Only sixteen present *** Dr. Booth brought an attractive specimen of snowflake obsidian from Utah, so called because of the obsidian crystals resembling snowflakes scattered in the typical flow of obsidian. He also had a section of red seam agate from Utah. (It looked like petrified bacon to us)*** Mr. Vance showed some agates from Spencer creek *** Doctors Booth and Jones indulged in a scientific discussion on the pathological effects of the infra-red rays of flourescent lamps on the human hide. (Too technical for the layman to grasp.)

March 26: Donald O'Connell had a very pretty specimen of quartz crystals containing green colored stalactites. Clever boy to get them inserted so neatly. *** John Allen showed, and delivered to purchasers, Ray Treasher's "Geologic map of the Portland Area" which should be in the hands of every person interested in local geology. *** Lloyd Ruff had a piece of iron from Iron Mountain, Idaho, and a chunk of pyrite from the Wolf Creek highway tunnel which, from weight and color, might easily have been mistaken for a piece of ore from the "brass-mine" said to have been eagerly sought for recently by the O.P.M. *** Mr. Calef had a shell from St. Petersburg, Florida, and a photograph of a mound of shells from which it came. The mound is said to have been built by Indians. *** Elen James exhibited a specimen of copper from Gullivan's Lake, upper Peninsula, Mich. ***Tom Carney had a box of pieces of geodes in which the quartz crystals were tinted red--thought to be caused by nearness to the Horse Heaven cinnabar mines. Tom generously gave the exact location of the find as being a small spot not more than a hundred yards square, about 20 miles from the mine. *** Mr. Vance introduced his two guests, Hal Wyatt and Howard Ennor, of the Bureau of Municipal Research. *** Mr. Minar had a piece of very hard, greenish rock known to the marble trade as scotch hone. It was formerly used to produce the final polish on marble and granite.

April 2: Lloyd Ruff brought a fossil limpet of rather large size, found on the Wolf Creek highway west of the tunnel. Considerable very careful work was required to get the fossil from its long resting place and into shape to attend this luncheon meeting.*** Glenn Paxson of Salem was present with his guest,

Mr. Stephenson. He reported that the Salem Geological Society in a recent trip to the Dallas limestone quarry had found two casts of nautaloids of the genus Aturia. *** J. C. Stevens had left Washington, D. C. at 5:00 o'clock Wednesday evening by plane to be present at this Thursday luncheon. If the plane had not been late, he said, he would have arrived in Portland early enough to have shaved before noon--Going some! *** Mr. Bates, he of the mathematical mind, wanted to know how fast Mr. Stevens would have had to fly to arrive in Portland before he started, and J.C. had the answer: "A thousand miles an hour"; just like that. *** Hy Wood, after an absence of about a year was with us again.

***

Resolutions adopted at the Annual Meeting of the Geological Society of the Oregon Country on February 27, 1942 expressed the deep appreciation to the Oregonian and the Oregon Journal for their "Courtesies and interest" in the Society; to the management of the Public Service Building for use of the Auditorium for evening meetings and to the employees of the building for kindness and many courtesies shown to the Society; and to the Audobon Society of Portland for use of its projection equipment for evening meetings during the year.

***

RETROSPECT AND PROSPECT

by

Kenneth N. Phillips

At the close of our fiscal and administrative year, it is customary to expect some statement from the outgoing president, a "report on the state of the union", as it were. Possibly the newer members even expect these remarks to be golden words of wisdom. However, I feel that anything I can say must be very weak and ineffectual as a means of portraying the work of the Society, compared to the matter-of-fact statements and statistics of the reports of our various officers and committees. The work done by these officers and committeemen has earned the lasting gratitude of the Society, as well as my personal appreciation.

Let us together glance back briefly over the year just ended, and consider for a moment what the new year may hold for us. The year ending February 28, 1942, the seventh year of our Society's life, has been a most eventful one. Some of those events have been most distracting, and some may have disquieting portents for the future. In spite of these distractions, we have in general had a successful year, a year of worthwhile accomplishment. .

The treasurer's advance report indicates a sound financial condition with a present net worth perhaps a little greater than a year ago. In times like the present, when there are so many calls upon our personal assets, we can feel pride in the fact that our Society remains a solvent concern; it should continue to do so, with your lasting loyalty and support.

Perhaps the activities which most vitally concern a great number of our members are the lecture programs, field trips, and the News Letter. The lectures during the year just past have in general been well attended, and the keen interest shown has been the natural result of the high quality of education and entertainment offered. The field trips have made it possible for our members and their friends to become more intimately acquainted with the geology and natural history of the Oregon Country, thus accomplishing a prime purpose of the Society. The News Letter has provided a medium for the circulation of both geological and personal information of interest to our members. It has functioned, and will con-

tinue to function, as a medium of expression for our members to record their own geological observations. It must be remarked that far too few members avail themselves of this privilege.

The Research committee has, in my opinion, the most important function of any arm of our geological body. Organized only last spring in its present form, that committee has made worthwhile progress in recording data of value to science and of lasting interest to many of our members. The systematic recording and publication of geologic data is one of our major purposes, one which has not received sufficient attention. Too many of us are content with personally locating a fossil or mineral locality, or discovering some geologic fact of interest, and do not take proper steps to file that information for the use of others. It is to be hoped that this Society will always have an enthusiastic nucleus of members fired with zeal for systematic recording of geologic data, and that the work which the committee has so well begun will be assiduously carried on from year to year.

In glancing back over the work of the year just past, I find only one cause for regret. It will be recalled that at the time of our annual meeting in 1940 the Society confirmed the action of its executive committee in granting a charter for the establishment of a chapter at Salem. I regret to record that that arrangement has not proved satisfactory to a considerable number of members of the Salem chapter. Several joint meetings of the two executive committees failed to arrive at any solution that offered promise of being approved by both the parent society and the chapter. As a result, the Salem chapter at its annual meeting February 19, 1942, voted to discontinue its affiliation with our Society, and to form an independent organization with similar aims and ideals. While this separation has been a source of personal disappointment to me, I feel that it does not mean the end of harmonious and cooperative relations between our two groups. There will still be opportunities for mutual help, for cooperation in research. The Salem Geological Society will continue to have our best wishes for its success as an independent organization; and we hope to be able so to conduct our Society as to merit their support and good will.

On Dec. 7, 1941, our country was plunged into war. It is not necessary to recount the circumstances of the dastardly attack at Pearl Harbor on that day, nor to dwell upon the swift march of events since that time. It is sufficient to say that the war has already profoundly affected our personal lives in many ways, and that it is certain to produce changes in the regimen of our Society affairs before many months have passed. Some of the possibilities call for our serious consideration. The suggestions here made are intended only to stimulate your thought, to the end that our Executive committee may have the advantage of your opinions before it is necessary for them to take action.

It seems certain that some of our members will be called upon soon to leave the Oregon Country to serve in the combat forces of our nation. It is my suggestion that some adjustment of Society dues would be in order for such members, possibly a complete waiver of dues during active military service.

Restrictions upon sale of tires, with possible rationing of gasoline to follow, is almost certain to have an adverse effect upon attendance on our field trips. Some areas where we have enjoyed profitable trips in the past are now closed to all but military travel. No doubt such restrictions will be extended. It is quite possible that all forests may be closed to pleasure travel during the fire season. Some changes in the conducting of our field trips seem necessary. It has been

suggested to me by one member that with the extra hour of afternoon daylight given by War Time we might plan every other trip as a half-day trip to start at 1 or 1:30 p.m. This would leave 6 to 8 hours of daylight during much of the year, and would give those of our number who wish to do so an opportunity to attend church services before the starting hour. Let the committee on field trips know what you think of such a suggestion, or give them such other suggestions as you wish. And before we leave the subject of tires, let us bear in mind that rubber is like a resilient mind; wise and moderate use is better for it than complete rest. Don't let your tires rot unused; and don't let your interest in our field trips lag.

Many of our members are already active in various phases of home defense work. These activities will no doubt take ever larger portions of our spare time for the duration of the war. It is to be hoped that our Society affairs can be so planned as to make the least possible conflict with duties of our members relating to war and defense.

In that connection, it has been suggested that an effort be made to change our semi-monthly meeting night from Friday to Thursday. We would of course have to arrange for the use of the present lecture hall or a satisfactory substitute, and arrange with the Oregon State Department of Higher Education to avoid conflicts with extension courses in earth sciences. Dr. Hodge has assured me that having geology classes meet on Friday would be satisfactory with him, if that is more agreeable to the Society. Avoidance of Friday for our lectures would make it possible for members to attend who now are drawn to the Audobon meetings, high school and grade school events, and meetings of defense groups now held largely on Friday. Each year of our existence we have had one meeting in conflict with the Eugene Gleemen. Other conflicts on Friday nights will come readily to your mind. On the other hand, a Friday evening meeting offers some incentive for visiting lecturers who may wish to spend the following weekend in the city and who would not feel able to get away on some other evening. The advantages must be weighed against the disadvantages. If you have any preference, state your wishes to some member of the Executive committee.

Perhaps some parts of what I have just said may sound a bit somber, overly serious. These are times for serious thought; but with your wholehearted support, with united action, the Society need have no fear of the future. And in spite of the many calls upon our time and energy, none of us will have to undergo the hardships of a certain amateur geologist, who explored our Oregon Country without the benefit of tires, gasoline, car, or paved roads; who had no association with a local group of kindred spirits, such as our members, no maps, no textbook, no benefit from the work of predecessors. I refer, of course, to Dr. Thomas Condon, who, in spite of these handicaps, left to us the rich heritage of a life spent in service to the spirit and the mind of man. As a Society, it is our duty and our pleasure to carry on as best we can his study of geology of the Oregon Country, so beautifully expressed in his historic volume, The Two Islands, as it is now my duty and pleasure to hand our Society's treasured copy of that work into the custody of our new president, Mr. H. Bruce Schminky.

***

There will be an exhibit on the Tertiary period of Oregon in the glass case in the lobby of Central Library April 13th to 26th. The fossils and pictures are Mr. A. W. Hancock's, and the exhibit is being arranged by Miss Agnes B. Jones of Central Library.

***

GEOLOGICAL NEWS LETTER

OFFICIAL PUBLICATION OF THE

VOL. 8 NO. 8 **PORTLAND, OREGON** April 25, 1942

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Friday Apr.24 Subject: VIEWING OREGON AND IDAHO WITH A COLOR CAMERA.
Speaker: Al Monner- photographer for the Journal.

Mr. Monner's wide experience in photography and his fine collection of color pictures promise a very entertaining evening.

Friday May 8 Subject: "LAVA CAST FOREST OF OREGON".
Speaker: Robert L. Nichols, Tufts College, U. S. Geological Survey.

For those of us who have studied the recent lavas of Central Oregon, this illustrated talk will be of especial interest. Dr. Nichols has made a detailed study, not only of the lava casts, but of other physiographic forms of lava in this and other areas. He is now engaged in a survey of the clays of Castle Rock, Washington for the U. S. Geological Survey.

Sunday Apr.26 Field Trip: Scappoose Iron Ores.
Leaders: John Allen and Preston Hotz. The United States Bureau of Mines has for the last three months been actively exploring the iron deposits near Scappoose. This is a good chance to see how a mine is made from a prospect, how ore is proven and the showings opened up and tonnage developed. The tentative itinerary is as follows:

Leave Public market at 9:00 a.m.		0.0 miles
Arrive and assemble at "Scappoose Feed Mills" (left hand side of highway, north city limits of Scappoose) at 9:40 a.m.		23.0
Apple Valley deposits: drive not over 4 miles; hike about 2 miles. Should take until noon. Either bring lunch or eat in Scappoose. Reassemble at "Feed Mills" at 1:00 p.m.		27.0
Trip to Pisgah Home deposit:		
Basalt dike and falls:		29.5
Basalt contact and alteration		33.0
Pisgah deposit: 1:45 to 3:15.		40.0 (about)
Return by way of Summer road (if open) stopping at drill rig.	4:00 p.m.	48.0
Arrive Scappoose	4:30 p.m.	50.5
Return to Portland, total mileage:	not over	75.0 miles

It is possible that itinerary will be somewhat changed on account of weather and other conditions. (But trip will be made whether it rains or not.) Wear heavy boots, bring flashlights or lamps.

****

DR. E. T. HODGE'S LECTURE

Dr. Edwin T. Hodge's lecture on the "Strategy of Natural Resources During and after the War", which he gave at the Public Service auditorium in Portland Friday evening, April 10, 1942 deserved a larger audience than the one that greeted him, and also a better reception by the audience, and we may add in passing, a better report in the News Letter than the editor is able to make.

For one thing, the hall got too hot, and nobody did anything to relieve the situation. Probably if Leo Simon had not had a very important engagement that caused him to miss a part of the lecture he might have remedied the ventilation, in which case the audience would doubtless have been less fidgety and more responsive, all of which would have made the speaker's task much easier with the result that every one present would have been happier.

Dr. Hodge has made a deep study of this subject of strategic minerals, and addressed the Society on a similar subject on a former occasion, and referred the audience to the manuscript of that talk for details which he did not care to repeat. He said that in the former talk he had made a dozen predictions as to what might happen in case of war, and that only one has failed to come true, and that looks like a high batting average for a modern propheteer.

He estimated that there is oil enough in the United States to last thirty five years, and enough in the world to last seventy years, and that none of us need worry about the coal situation as he estimates that there is enough to last the world for a thousand years. The thing that causes wars, according to Dr. Hodge, is the fact that these materials, and others like rubber, iron and manganese, are not evenly distributed so that each nation has its equal share. To make matters worse, even a geologist is not able to redistribute these minerals so that everybody can dig in his own back yard and get the thing that he needs next, so they have to be gone without or bought or fought for. Just now the decision is nearly unanimous in favor of fighting.

If we are able to print this lecture in the News Letter at a future date the editor hopes that no reader will be so suspicious as to compare this report with the good doctor's own words. After all, the best way to get the meaning of a lecture is to hear it. This is intended to be a suggestion that you attend the next Society lecture in person.

****

Attendance at the Thursday luncheons seems to be dropping off a bit as the warm weather advances. --o--Mary Robertson, in Portland for a short time following her ten months' stay in Los Angeles as secretary to the Chief Geologist of the Richfield Oil Co., has brightened two recent luncheons. She says that she has greatly enjoyed her work in the California city. --o-- Eva Catlin who has been principal of a school for children who need special help, was a recent luncheon visitor. --o-- Specimens shown have such unwieldy names that it is little wonder that the poor things are long since petrified. Possibly after the editor's typewriter gets limbered up a bit he may try out a few of these words for the benefit of the readers.

****

To the members:

I am submitting the following list of chairmen, appointed to head the standing committees of the society, for your information. Each chairman will appoint as many committeemen as he feels he needs. I am hoping that each member, who may be asked to assist on any committee, will be as cooperative in accepting a share in the work of the society as I have found the chairmen. If you have never served on one of our committees, you have missed many of the pleasures that you could enjoy from your membership in the society.

I would also like to have the names of six or more members who could donate some of their time to typing letters or reports for the various committees. This should seldom require more than one evening a month.

Your committees follow -

Editor of the Geological News Letter,
Mr. Orrin E. Stanley, 2601 S. E. 49th. Ave., Ta. 1250.

Business Manager of the Geological News Letter,
Mr. Raymond L. Baldwin, 4804 S.W. Laurelwood Drive, Ch. 1452.

Program Committee,Mr. Geary Kimbrell, 2522 N.E. 57th. Ave., Ga. 9995.

Trip Committee,Mr. A. W. Hancock, 2704 S. E. 84th. Ave., Su. 5285.

Membership Committee, Mr. Leo. F. Simon, 531 S.W. Washington St., At. 0438.

Research Committee, Mr. Lloyd L. Ruff, 3015 N.E. 45th. Ave., Tr. 6980.

Service Committee, Mr. Kenneth N. Phillips, 2213 S.E. 52nd. Ave., Su. 0029.

Publicity Committee, Miss Emma Nordgren, 711 S.W. Ankeny St., Be. 0300.

Social Committee, Mrs. L. E. Kurtichanoff, 8015 S. E. 35th. Ave., Su.5416.

Historian, Mrs. Amza Barr, 5417 S.E. 99th. Ave., Su. 4081.

Librarian, Miss Margaret Hughes, 1524 S.W. 10th. Ave.

Museum, Mr. J. C. Stevens, 434 N. E. Royal Court, Ea. 9333.

Public Relations, Mr. Clarence D. Phillips, 7630 S. E. 30th. Ave., Su. 5655.

Auditing, Mr. Clarence D. Phillips.

Other committees will be appointed as their need arises.

Such a special committee, consisting of Mr. Lloyd Ruff, chairman, Dr. Arthur C. Jones, Mr. A. D. Vance and Mr. J. C. Stevens, has been appointed to investigate places which we might use for a work room.

H. B. Schminky, President

ABSTRACTS

Dalquest, Walter W., and Scheffer, Victor B.,

The origin of the Mima Mounds of western Washington: Jour. Geol., Vol. 1, no. 1, pp. 68-84, Jan.-Feb., 1942.

The Mima mounds occur on certain prairies of glacial outwash in western Wash. The mounds are closely spaced, round or oval, from 10-40 ft. in diameter, and from 1-7 ft. in height. The typical mound is a double-convex lens of loose, unstratified, black silt-gravel set in a shallow pit in stratified yellow outwash gravel. Mounds are found only where a thin layer of soil overlies a compact bed of gravel, not on deep prairie soils.

The Mima mounds are formed by pocket gophers (Thomomys talpoides) over long periods of time. Gopher activity in any particular place destined to become a mound site starts with intensive burrowing, such as that required in the construction of a nest; which loosens the soil and stimulates the growth of vegetation. The vegetation, in turn, furnishes food for the gophers and encourages them to concentrate their activities in the vicinity. A stage is reached where the gophers find sufficient food on the mounds to maintain them the year around, making it unnecessary for them to forage, except at rare intervals, into intermound depressions.

In deep burrowing to create living quarters gophers dig a shallow pit in the stratified gravel beneath each mound. The smaller elements in the stratified gravel removed by deep burrowing become mixed with silt to form the substance of the mound lens. Stones too large to be moved by the gophers are undermined and settle to the bottom of the mound.

In shallow exploratory burrowing in the peripheral zone the gophers do not undermine large stones but remove soil from about them, eventually leaving them exposed on the surface of the ground.

*

Lowell quadrangle; topography by W. B. Upton, Jr., F. K. Van Zandt, T. Olferieff, and others. Latitude 43°30' to 44°; longitude, 122°30' to 123°. Scale, 1:125,000 (1 inch = nearly 2 miles); contour interval, 100 feet. Price, 10 cents.

Map of an area in Lane County and a small part of Douglas County in west-central Oregon, Southeast of Eugene. It includes parts of the Willamette National Forest and the Umpqua National Forest west of the Cascade Range. The Middle Fork Willamette River, the Row River, and Mosby and other creeks drain most of the area northwestward to the main valley of the Willamette River. In the valley of the Middle Fork Willamette River is the village of Lowell. As indicated by the contour lines on the map, most of this area is hilly to mountainous, except the broad valley flat in the northwest corner, where the lowest part is less than 500 feet above sea level. The slopes are cut by many sharp gulches. The highest altitude shown is 5,933 feet on Fairview Peak, in the southeastern part. Most of the area is wooded.

****

Jean Bowman identifies elephant bones

Those of us who attended a Geological Society lecture a couple of months ago will remember a large leg bone and a small vertebra that were on exhibition that had been found in the gravels at the Umatilla Ordnance Depot.

These specimens were brought to Portland and put on exhibition by J. C. Stevens, whose firm, Stevens & Koon, had charge of the engineering on that project. These bones were loaned to the Department of Geology and Mineral Industries for identification.

Miss Jean Bowman has completed the identification and has given Mr. Stevens the following letter which is self-explanatory.

"Dear Mr. Stevens:

I have examined the bones which you brought in for determination, and find them to represent the species Elephas columbi. The large leg bone is the left humerus - the upper segment of the fore limb - and the smaller bone is a portion of one of the vertebrae,but just which vertebrae,it is impossible to determine.

I have gone through the literature carefully, hoping to find some description of a humerus of E. columbi, but none seem to have been recorded. Therefore, in saying that these bones represent those of the species Elephas columbi, I am doing so on the strength of the fact that there are several known localities nearby, from which E. columbi have been removed. The records show that in 1907 Mr. John T. Whister, Engineer in the U. S. Reclamation Service, in making excavation for the "A.C.E.Drop" of the "Umatilla Project" found the lower jaw of Elephas columbi about three miles east of Hermiston. Other records indicate that the species ranged throughout all of eastern, central, and south-central Oregon as well as in parts of the Willamette Valley.

With your permission we hope to use these bones as a part of an elephant exhibit which we are working on, since this will add materially to our collection.

Very sincerely yours,

Jean Bowman "

****

The Society wishes to thank Miss Henley and John Allen for back numbers of the News Letter.

*

R. R. Poppleton underwent a serious operation at the Portland Sanitarium on April 14. Visitors were not allowed at latest report. All members who know Mr. Poppleton and his family are wishing for his speedy recovery.

*

The Society is sorry to learn of the death of Raymond D. Weber, youngest brother of J. Martin Weber, in an airplane crash in Australia on March 21. Raymond had been in the air service a little more than a year.

*

President Schminky announces the election of Raymond L. Baldwin to serve as Director of the Society to fill the position vacated by Winford E. Richardson when the Salem Chapter withdrew from our group. This appointment will hold until the next regular election of officers.

****

VIGNETTES OF STRATEGIC MINERALS

by

Ray C. Treasher and R. G. Bassett

(This article is a continuation from the vol.8 no.6 issue of the News Letter, pp. 39-40.)

Identification of Chromite (cont'd)

Chrome ores are assayed for chromic oxide, iron, silica, sulphur and phosphorous. The chrome assay is the most important as not less than 40 per cent of chromic oxide is saleable. When an ore does contain this percentage, further assays are made to determine whether or not the silica will be less than 13 percent and the chrome to iron ratio more than 2 to 1. If these conditions exist, then sulphur and phosphorous are determined. The ore can then be classified for marketing. Many prospectors have asked for manganese determinations on chromite specimens. This is foolish for two reasons: First, chromite and manganese do not occur in the same piece in large percentages. Second, it would be chemically impossible for a mineral to contain commercial quantities of both chrome and manganese.

The calculation of the chrome-iron ratio is a difficult problem for one not trained in chemistry. The assay reports give chromium in terms of its oxide and iron either as its oxide or the metallic element; whereas, the ratio gives the proportion in terms of metallic chromium to metallic iron. Simple formulae and a chart to solve the chromium to iron ratio have been published in the "Ore-Bin", the Oregon Department of Geology & Mineral Industries monthly publication.

Manganese

The principal ore minerals of manganese are the black oxides, which have a hardness which varies from that of wad, which is very soft and sooty to psilomelane which is harder than a knife blade. Other black oxides are pyrolusite and manganite. There are two pink varieties of manganese, rhodochrosite and rhodonite. Rhodochrosite is a carbonate; it is about as hard as limestone and will bubble or effervesce if placed in acid. Rhodochrosite may be classed as an ore of manganese and is used in the chemical industries. Rhodonite is a manganese silicate, a chemical combination of manganese and silica. Rhodonite cannot be classed as an ore of manganese on account of the chemically combined silica. Users of manganese ore have no commercial way of taking care of this chemically combined silica.

Most of the manganese that occurs in Josephine County is rhodonite, the silicate, and the black oxides that are derived from it. The rhodonite is slowly changed through the action of the atmosphere and surface water to the black oxides. The usual statement that ore gets better with depth does not apply to this type of manganese deposit.

Minerals, containing small amounts of manganese, are widely distributed. The rocks of this area contain quantities of them. When acted on by surface waters, the manganese is leached and later deposited along tiny cracks and fractures in the rock. Many samples of so-called manganese ore are submitted to us for assay, and they consist entirely of this surface skin of manganese.

Manganese ore can be judged in a general way by its weight. Unless it has considerably more weight than an ordinary rock of equivalent size, it certainly is not ore. One frequently can tell by looking at a sample that the grade is too low to justify an assay and, that from the nature of the rock, it is too silicious to permit satisfactory concentration of a commercial product.

(to be continued)

ANNUAL REPORTS OF OFFICERS AND COMMITTEES FOR 1941

Report of the Editor of the Geological News Letter

To Mr. Kenneth M. Phillips, President
Geological Society of the Oregon Country

Dear Mr. Phillips:

During the year of 1941 the "Geological News Letter" has been issued regularly on the 10th and 25th of each month, a total of twenty-four issues, averaging four pages in each issue.

The editorial staff have been cooperative in supplying articles to the Editor, and especial mention should be made of the contribution of J.C. Stevens and E. T. Hodge.

During the first six months of the year, a determined attempt was made to try to get material from the Salem Chapter, and a total of some five or six letters were written at monthly intervals to the Associate Editor in Salem, asking him for manuscripts. After the first few weeks, however, the only material received from Salem was announcements of meetings and trips.

Late in the year the dissatisfaction of the Salem Chapter with the "News Letter", as it is now constituted, became evident and a questionnaire was, therefore, prepared and sent out to members of the Portland Chapter, asking for opinions as to the present and possible function and set-up of the paper. The results showed that the "News Letter" should remain as it now stands - a news letter rather than a technical paper. Secondly, opinion was divided about fifty-fifty as to whether it should be changed to a monthly in which case more material, especially of a technical nature, could be printed.

The colored front page now in use was suggested by Mr. Ray C. Treasher as being valuable for a "separator" in the bound volumes and as also being more quickly recognizable and characteristic of the Society publication.

The Editor takes this chance to express sincere appreciation for the help given him by those who have contributed generously of their time and energies toward making this paper a success. Miss Ida M. Henley and Mrs. Kate Mahoney have been of particular assistance in writing the luncheon notes. The Editor regrets that press of his duties prevent him from continuing in this capacity, and assures whoever may follow him of his assistance and cooperation in continuing the publication.

Respectfully,

(Signed) John Eliot Allen

Report Of Program Committee

Out of the possible 24 regular Friday evening lecture dates of the Society for the year ending February 27, 1942, 21 meetings were held. Because of possible blackouts, no evening meetings were scheduled during December. The first lecture meeting in January was canceled due to weather conditions. Following are listed the speakers and their subjects:

DATE	SPEAKER	SUBJECT	REMARKS
1941			
March 14	Dr. Elmo Stephenson	Geologic Rambles in the Wallowas	Annual Banquet, Reed College Commons. Talk illustrated by drawings.
March 28	Dr. W.D. Wilkinson	Geology of the Butte Falls Quadrangle	Illustrated by slides and maps.
April 11	Dr. Francis T. Jones	Splitting the Atom	Illustrated by blackboard sketches and apparatus.
April 25	Dr. Seth B. Nicholson	The Solar System	Illustrated by slides.
May 9	Jack DeNeffe	Travelogue of South America	Motion pictures with explanations and comments.
May 23	Miss Sabina Nelson	Guatemala - it's People and Customs	Illustrated with slides examples of native textiles.
June 13	Mr.Beverly B.Wilder	The Ancient Forests of Oregon	Exhibit of fossil leaves.
June 27	Mr. Lloyd Ruff	Geological Investigations connected with the Detroit Damsite.	Illustrated by maps and drawings.
July 11	Dr. Donald B.Lawrence	Mt.St.Helens - A sleeping Volcano	Illustrated by slides.
July 25	Dr.Lawrence M.Gould	Antarctic Glaciers	Illustrated by slides.
Aug. 8	Dr. Ralph W. Chaney	Oregon's Changing Forests	Illustrated by slides.
Aug. 22	----------	Geology Amateur Hour	Annual picnic in Mt. Tabor Park.
Sept.12	Messrs.Carney, Kimbrell, Stanley, and Miss Fowler	Journeys in Color Through the Northern Rockies	Slides and Motion Pictures of Glacier Park and Waterton Lakes.
Sept.26	Messrs.Schminky and Stanley and Miss Fowler	Continued from Sept. 12 meeting	Slides and motion pictures of Banff, Lake Louise and Jasper National Park.
Oct.10	Mr.C.P. Holdredge	Dislocations in Domestic Supply of Minerals Due to the War.	
Oct.24	Prof. G. W. Gleeson	Technique and Chemistry of Portland Gas & Coke Co. Operations	Illustrated by slide and blackboard sketches .
Nov. 7	Mr. Ray Treasher	Geologic History of the Portland Area	Illustrated by maps and sketches.
Nov. 28	Dr.Courtland L.Booth	Trip to Wayne Wonderland	Motion Pictures and comments.
Dec. 12) Dec. 26)	----------	----------	Meeting cancelled due to possible blackouts.
1942			
Jan. 9	----------	----------	Meeting cancelled due to weather conditions.
Jan. 23	Mr. Ray Atkinson	The Columbia Ice Fields	Illustrated by slides.
Feb. 13	Mr. Horace Smith	The Tule Lake Petroglyph	Illustrated by slides.
Feb. 27	----------	Annual business meeting	Followed by slides shown by Geary Kimbrell.

Respectfully submitted,

Dr. Courtland L. Booth
Mr. E. N. Bates
Mr. John Eliot Allen
Mr. F. W. Libbey, Chairman

(Signed) by F. W. Libbey

TRIP COMMITTEE

The Trip Committee of the Society submits the list of trips sponsored by the Society during the past year.

1941-42 Trips

March 16	Local Interest Trip. Leader: Amza Barr
March 29-30	Trip to Eugene. Leader: Lloyd Ruff
April 27	The Soil Trip. Leader: Dr. W. L. Powers
May 11	Joint G.S.O.C.-Mazama Trip. Leader: Dr. Edwin T. Hodge
May 30-31	Ocean Lake-Newport Beach Trip. Leaders: A. D. Vance and H. B. Wood
June 29	White River. Leader: Eric H. Gordon
July 4-6	Spirit Lake-St. Helens. Leaders: K. N. Phillips and Leo Simon
July 20	Castle Rock, Washington. Leader: A. D. Vance
August 10	McCord Creek. Leader: Harrie Jennison
Aug. 23-24	Trip to Dr. and Mrs. C.L. Booth's Beach Home. Leader: H. B. Wood
Sept. 13-14	Warm Spring Indian Reservation. Leaders: Lloyd L. Ruff and A.D. Vance
Oct. 12	Annual Foliage Trip. Leader: Leo Simon
Oct. 26	Maryhill Museum. Leader: J. C. Stephens
Nov. 16	A Search for Zeolites. Leader: A. W. Hancock
Dec. 14	The Wilson River Cut-Off. Leader: H. B. Schminky
Jan. 11	Charlton Laboratories. Leader: A. D. Vance
Feb. 15	Some Rocks used in Portland Buildings. Leader: E. W. Minar

This makes seventeen trips for the year - one trip canceled.

Respectfully submitted,

(Signed) A. W. Hancock, Chairman

REPORT OF THE MEMBERSHIP COMMITTEE

Mr. Kenneth N. Phillips, President,
Geological Society of the Oregon Country.

Dear Mr. Phillips:

At the end of the fiscal year 1941, the Geological Society had a membership of 123, with an additional 50 as members of the Salem Chapter.

Of the Portland group 119 were senior and 4 were junior members. Of the Salem Chapter 47 were senior and 3 junior members.

During the year, 10 new members were added to the Portland group. Last year a number of letters were sent out soliciting members; a total of 15 new members were gained. This year, without this effort, nearly as many joined the Society.

Respectfully submitted,

Membership Committee:
(Sgd) Leo Simon, Chairman
Dr. Courtland L. Booth
Mrs. Kathleen Mahoney

REPORT OF THE RESEARCH COMMITTEE

Activities of the research committee for 1941-42 included three projects. Progress has been made toward completion of two of the projects while the third is a continuing project to which data can be constantly supplied.

Nearly 300 entries, mostly through the efforts of Ray C. Treasher, have been gathered for the "Addenda to the Bibliography of the Geology and Mineral Resources of Oregon". The coming year should see this project well on its way to completion.

A survey of the building stones of Portland was begun under the leadership of Earl W. Minar. Complete or partially complete data has been assembled for some 25 buildings and monuments in S. W. Portland. A preview of the results of the survey was given by Mr. Minar on the field trip February 15, 1942.

A number of society members have contributed to the "Index of Oregon Fossil Localities". An index system has been devised, and several dozen fossil localities have been recorded. Committee members were selected to gather data on various sections of the State as follows:

Northeast: J. E. Allen
Southeast and South Central: H. B. Schminky
Central: A. W. Hancock
North Central: Mr. and Mrs. A. Barr
Northwest: A. D. Vance
Central Willamette Valley: Glen S. Paxson, representing the Salem Chapter
Upper Willamette Basin: Lloyd Ruff
S. W. Oregon: Ray C. Treasher

These projects are recommended for further work during the coming year.

(Signed) Lloyd L. Ruff, Chairman

REPORT OF THE HISTORIAN
(For the year ending Feb.27, 1942)

During the year ending Feb. 27, 1942, we have received for the album 78 pictures. This is 31 less than for the previous year. There were 11 donors, to whom we express our thanks.

Pictures were turned in for only three trips during the past year, 7 for the Memorial Day trip to Spencer Creek, 8 for the Neahkahnie Mtn. trip, and 1 for the Indian Cave trip. There are 22 banquet pictures.

Mr. H. B. Schminky gave us the largest number--33 in all. These covered the 1938 Wallowa summer camp, and the 1940 Labor Day trip in the Grants Pass area. T. C. Smith gave 15 pictures, all taken at the 1941 annual banquet. We were given 3 pictures by T. C. Bones, president this year of the Oregon Agate & Mineral Society. One shows the Clarno nut beds, and the other two the John Day formation in the noted fossil locality.

Clippings of value to our Society include a nice write-up in the Tillamook newspaper about the Neahkahnie Mtn. trip, given to us by Miss Ava Bickner, and the articles about Mrs. Stevens' find near Hermiston, and the Snake River trip of Mr. Ruff.

(Signed) Elizabeth M. Barr, Historian

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GEOLOGICAL NEWS LETTER

OFFICIAL PUBLICATION OF THE

VOL. 8 NO. 9 PORTLAND, OREGON May 10, 1942

GEOLOGICAL NEWS-LETTER
Official Publication of the
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THE GEOLOGICAL NEWS-LETTER
Official publication of the
GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

The Geological News-Letter is issued semi-monthly on the 10th and 25th.
Yearly subscription: $2.00 Single copies: $0.15
Communications and material for publication should be sent to the Editor. Change of address and subscriptions are required 30 days in advance of date of change, and should be sent to Emily M. Moltzner, Morgan Building.

MEMBERSHIP APPLICATION
GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

Qualifications and Dues: Applicant must be sponsored by a member and recommended by the Membership Committee. A knowledge of geology is not a requisite. There is no initiation fee. A Member shall be over 21 years of age; or a husband and wife and all children under 18 years of age. The dues are $3.50 per year, payable in advance, which includes one subscription to the Geological News-Letter. A Junior is an individual between the ages of 18 and 21. Dues are $1.50 per year, payable in advance, and include one subscription to the Geological News-Letter.

Date . . . . . .

I, ... (please print full name) do hereby apply for membership (junior membership) in the Geological Society of the Oregon Country, subject to the provisions of the By-Laws.

Home address . . . . . Phone . . . . . .

Business Address . . . . . Phone . . . . . .

Occupation . . . . . .Hobbies. . . . . .

I am particularly interested in the following branches of geology: . . . . . .

. . . . . .

I enclose $. . . for the year's dues, March 1 to March 1. (Checks payable to the Society).

. . . . . Sponsored by . . . . . .
(signature) (member)

PORTLAND CHAPTER ANNOUNCEMENTS

LECTURES: On 2nd and 4th Fridays of each month at the Auditorium (3rd floor) of the Public Service Building, 920 SW 6th Ave., at 8:00 p.m.

TRIPS: On Sundays following lecture meetings, or as otherwise arranged. Meeting place at Public Market, Front and Yamhill.

LUNCHEONS: Every Thursday noon, in the banquet room of the Treasure Island Restaurant, 815 SW Broadway (50¢ minimum). A table is also reserved every day except Thursday and Sunday for the men of the Society in the "Barnyard", 8th floor, Lipman Wolfe & Co.

Friday May 8 — Subject: "LAVA CAST FOREST OF OREGON".
Speaker: Robert L. Nichols, Tufts College, U. S. Geological Survey.

For those of us who have studied the recent lavas of Central Oregon, this illustrated talk will be of especial interest. Dr. Nichols has made a detailed study, not only of the lava casts, but of other physiographic forms of lava in this and other areas. He is now engaged in a survey of the clays of Castle Rock, Washington for the U. S. Geological Survey.

Sunday May 17 — Field Trip. Rhododendron District.
Leaders: A. W. Hancock and Prof. Orr, Principal of Sandy High School. Meet at the Public Market, S.W. Front Avenue and Yamhill St. at 8:30 a.m. Reassemble at the Ranger Station below town of Zig Zag at 10:00 a.m. Professor Orr has some very interesting localities to show the members of the Society.

SPECIAL NOTICE!

In order that as many members as possible may meet Dr. Nichols personally, he, and probably Mrs. Nichols, will be guests of the Society at a dinner to be held at Treasure Island restuarant at 6:30 p.m. May 8. Price per plate will be eighty-five cents. Please call H. B. Schminky, LA. 3903 at once for reservations.

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LUNCHEON NOTES for April 30th.

Mr. Bates brought out a copy of an old report on the bulk handling of grain, printed years ago by the Oregon Society of Engineers when the present editor of GEOLOGICAL NEWS LETTER was president of that organization, and because both the report and the NEWS LETTER happened to be bound in yellow, he practically inferred that the editor is a yellow journalist. Maybe so. Time will tell.---o--- Dr. Booth begged to differ with the conclusion reached by Walter W. Dalquest and Victor B. Scheffer as to the origin of the Mima Mounds of western Washington. Perhaps Dr. Booth is not a believer in Paul Bunyan, his blue ox, Babe, and his pocket gophers of comparable size. If geologists agreed in all respects much of the interest in the science would fly out of the window. --o-- Hy. Wood showed a copy of Engineering News Record containing a picture of stalactites and stalagmites formed under an elevated concrete sidewalk. --o-- Mr. Wood also had some specimens

of silicified wood (tree roots, mainly) from the iron deposits west of Scappoose, Oregon. --o-- Mr. Hancock brought a colored picture showing the bluffs along the John Day River in the approximate location where he found his now famous elephant head. --o-- Messrs. Paxson and Reeves of the State Highway Department are riding the stages now on their trips to and from Portland, and claiming to like it. Gives them time to relax but their errands take longer. --o--

John Allen displayed specimens of metacinnabar from the Panoche Mine in San Benito County, California, and a piece of diabase from the Wilson River Highway. --o-- Mr. Minar had some pieces of fossil wood from the Wolf Creek tunnel, and a shell of a land snail (Caemaena Monochroa) from the Philippines.--o-- Any errors and/or omissions made in reporting luncheon notes are purely accidental and are not the result of malicious attempts to slight, slur or slam any person or group. The acoustic properties of the dining room are not all that one might desire, the editor's hearing is not the most acute in the world, some of the speakers do not recognize the rights of others to carry on conversation while the speakers fondly believe they have the floor and do not talk as loudly as the occasion demands, and furthermore, the editor finds it desirable to spend some of the noon hour eating.

****

Mr. Poppleton was reported as improving slowly. We all hope that he will soon be able to resume the normal pattern of his life.--o--Mrs. K. C. Phillips has been in the Portland Sanitarium for about two weeks recovering from an operation.

****

N. B. also S.O.S. Mr. Baldwin, Business Manager of GEOLOGICAL NEWS LETTER is in dire need of the following numbers of the NEWS LETTER: Vol. 5, numbers 7 and 21, Vol. 8, no.5, and vol. 7, numbers 5 and 21. Any person having one or more of these copies and not wishing to keep them will greatly ease the Business Manager's mind by conferring with him at an early date.

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Displays of maps, minerals, and publications by the Department of Geology and Mineral Industries have been prominent in the windows of the First National Bank during the last few weeks, and are now to be seen in the cases and windows of the Northwestern Electric Co., Public Service Bldg.

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SCAPPOOSE IRON ORE TRIP
April 26

In spite of the 70-mile length of the trip and the tough wear on tires involved in the trip up the secondary road to the 2000 foot elevations at Pisgah, the trip was exceedingly well attended with nine carloads. There would have been an even greater number of cars had not some of the more generous members doubled up and taken others in their cars.

Leaving the Public Market soon after nine o'clock, the caravan reassembled at the office of the Bureau of Mines in north Scappoose, and under the misguided leadership of John Allen (who immediately led part of them up the wrong road) and Preston Hotz of the U. S. Geological Survey (who thereupon led the rest of the caravan up another wrong road) finally got on the right course and made the first stop at the north end of Apple Valley. The "contact trail" which follows the outcrop of the iron-bed around the hill was followed for about half a mile, and stops

were made at the various new cuts and exposures which have been recently cleaned out and sampled by the Bureau of Mines.

A general summary of the geological history of the area took the party back to the Oligocene, when the micaceous sandstones and shales which underly the basalt were deposited. These rocks were uplifted and eroded to form a relief of many hundred feet before the outpouring of the Columbia River basalts, which filled in the valleys and even lapped over the ridge-tops.

During the upper Miocene or in the Pliocene there appears to have been a period of intense weathering, probably due to a warm and moist climate, possibly supplemented by acid rains derived from the belching volcanoes of the Cascades. The gently rolling basalt plain was decomposed to form a soil mantle tens of feet thick. According to one hypothesis on the origin of the iron deposits, lakes and ponds formed on the undulating surface. It was in these lakes that the iron, which had been dissolved out of the magnetite-rich basalts, was precipitated and ultimately accumulated to a thickness varying from a few inches up to an average of perhaps ten feet. This deposit of bog-limonite was then covered over, first with a scanty shower of rhyolitic ash, and then with later basalt flows, which accumulated in places to thicknesses of several hundred feet above the iron bed.

According to another hypothesis, the iron was formed in place within the basalt at a depth which was governed both by the vesicular zones between basalt flows and by the ground water level at the time of formation. Features supporting both ideas were discussed pro and con, and if a final conclusion was reached, it was that probably both types of activity had been at work in forming the deposits.

The party returned to their cars with just enough time remaining before lunch to drive to a picnic spot on Scappoose Creek. The site was unusual in that the party could eat their lunches roosting on a brickbat basalt dike, and after lunch could walk a hundred yards and dig out fossils (poorly preserved to be sure) from a railroad cut.

The afternoon started with the long and arduous climb up to Pisgah. The road was rutted, muddy, and narrow, and brush frequently scraped both sides of the "Geesockers" cars (Jack Stevens wished he hadn't brought his "Sunday" car), but the interesting phenomena awaiting them at the Ironcrest deposit was judged by all to be worth the trip. Here there appeared to be a channel in the basalt which had been filled to a depth of ten to twenty feet with high-grade (for this country) iron ore. Within this ore were fragments of more or less silicified wood, which became the immediate object of attention to the collection-minded "Geesockers". After making good use of the flashlights in the numerous tunnels which have been driven to explore the ore, the party returned to the cars with their loot and started down the "Summer Road" in a gentle "Oregon mist". Although they had intended to stop at another fossil locality on the way down, the leaders again got lost from the party and so the dismembered caravan started on to Portland, calling it a day.

JEA.

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ANNUAL LIBRARY REPORT

by M. M. Hughes

February 27, 1942

The annual report of February 28, 1941, contained announcements of special interest to the Society, as the library had been moved to its present desirable central location, bookcases had been purchased, and a promise was held out that the library might be cataloged.

The annual report of February 27, 1942, has no such outstanding items to present, yet a review of the present status of the library reveals satisfactory growth and progress. Equipment, such as index card files, stamp of Society seal, shelf book supports, etc., has been purchased to facilitate the cataloging project. The library is now cataloged and ready for use; in fact, it has already been used by a few members and a dozen books have been in circulation. Limited as this circulation service has been, it has demonstrated that a SELF-SERVICE library such as ours can function successfully without a breakdown in orderliness IF the simple circulation rules are observed by its patrons.

The cataloging system has been built around "self-service" and modified to meet the requirements of such a service in order that the library may operate efficiently and with as little inconvenience as possible to the Society members. Suggestions on how to use the card catalog are typed on cards inside that file. Rules for circulation of books and periodicals are on the outside of the circulation file. This cataloging system may undergo many changes by trial and error tests when put into practical use during the coming months.

The growth of the library can best be measured by a summary made from our shelf list record of the books and periodicals cataloged to date:

Books:

Received prior to February 28, 1941.....32
Received during the year ending february 27, 1942.....20
(List will appear in later number of News Letters)
Total number of books - numbered and arranged in numerical order on the shelves.....52
Gain in book department in this one year.....38%

Periodicals (publications issued more or less at regular intervals, such as bulletins, transactions of societies, etc. These are arranged by sets in alphabetical order on the shelves):

Total number of sets..... 8
Additions for year ending Feb. 27, 1942:-
New sets of periodicals..... 0
Additions to established sets (volumes, bulletins, etc:-
American Museum Novitiates..... 1 vol.
Geological News Letter..... 2 vols.
Mazama Year Book..... 1 vol.
American Geophysical Union..... 1 bul.
Bulletin of American Museum of Natural History..... 1 bul.

S.O.S.! Come with help and save a failing department!

Not all books and periodicals that belong to the library are included in the above analysis. A check of our shelf list with the notices of additions made to the library in the News Letter reveals the following to be missing. They have been out of the library for the whole cataloging period.

The Columbia River Gorge - its Geological History
Interpreted from the Columbia River Highway.
By Williams. Two volumes.

Bulletin No. 13. First Biennial Report of the State Department of Geology and Mineral Industries.

Northwest Science. Vols. 1-12, 1926-1938 incl.
Mazamas - 1939, year's publications.
Two Islands, by Condon.
Mining Congress Journal, Vol. 6, No. 23.
Mineralogist, Vol. 5, 1937.
Sampling of Small Prospects and New Discoveries.
File of Ore Bin.
G.M.I., Short Papers, Industrial Aluminum. A Brief Survey, by Motz.

Members are urged to return these numbers to the library. It is important that they be cataloged and entered on the "shelf list record."

The coming year should mark a greatly increased use of the library, a continuing effort to stimulate the growth of its resources, with more emphasis on strengthening the department of current publications on which readers depend in large measure for up-to-the-minute material.

Through the pages of the News Letter the Society has expressed its appreciation to those who have made contributions to the library throughout the year. In this report the thanks of the Society are due Mr. Piper and to his secretary for courtesies that have forwarded the work of our library and to the State Medical School library, the Association of Portland Library and our own executive officers who have given assistance in the development of a cataloging system for our SELF-SERVICE library.

***

REPORT OF THE TREASURER
February 25, 1942

(Note that an adjustment was made after the annual report last year in order to reflect a $90 credit on our books.)

Report as given: February 28,1941

United States National Bank	$ 269.60	Surplus	$ 636.41
Multigraph Equity	351.56		
Furniture (bookcase)	15.25		
	$ 636.41		

Adjustment to show credit:

United States National Bank	269.60	Surplus	726.41
Credit with State Dept. of Geology & Mineral Industry for News letter supplies	90.00		
Multigraph Equity	351.56		
Furniture	15.25		
	726.41		

Trial balance before closing
February 25, 1942

United States National Bank	331.74	Surplus	726.41
Multigraph Equity	351.56	News Letter Sales	22.55
Furniture & Equipment	20.05	Banquet tickets (1941	152.00
News Letter Expense	282.75	Memberships-City	240.20
Staty.Prtg.Postage	45.23	" Salem	100.75
Banquet Expense (1941)	176.90		
Lecture Expense	11.50		
Miscellaneous	22.18		
	$ 1241.91		$ 1241.91

Cash Receipts
Year 1941-1942

Report as of February 25, 1942.

Balance $ 269.60

1941	Dues	News Letter	Banquet	Total	
Mar.	176.00	2.00	152.00	330.00	
Apr.	36.00	2.00		38.00	
May	--	--		--	
June	62.50	2.60		65.10	
July	35.25	2.00		37.25	
Aug.	3.50	6.80		10.30	
Sept.	10.50	5.15		15.65	
Oct.	9.00	--		9.00	
Nov.	14.20	2.00		16.20	
Dec.	--	--		--	
1942					
Jan.	6.25	--		6.25	
Feb.	--	--		--	527.75
Total	353.20	22.55	152.00	527.75	797.35

Cash Disbursements

1941	News Letter	Staty Prtg	Banquet	Lecture	Equipment	Miscel.	Spec.
Mar.	10.84	6.76	--	--		2.50	
Apr.	11.46	--	166.15	7.50		7.50	
May	17.75	8.66	10.75	--	4.80	--	
June	33.53	14.75	--	2.00	--	2.50	
July	--	--		--		--	
Aug.	--	--		--		00	
Sept.	22.72	.85		--		6.93	
Oct.	12.92	--		--		2.50	
Nov.	13.74	1.91		--		3.50	
Dec.	11.45	--		--		--	(dues rtd)
1942							
Jan.	15.48	--		--		2.75	6.25
Feb.	42.86	12.30		2.00		--	
	$ 192.75*	45.23	176.90	11.50	4.80	28.18	6.25

*This figure does not include the $90.00 worth of News Letter supplies covered by our credit with the State Dept. of Geology & Mineral Industries, and which we have used during the year.

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REPORT OF THE SECRETARY

Portland, Oregon
February 28, 1942

To the Members of the Geological
Society of the Oregon Country.

Report of the Secretary for the fiscal year ending February 28, 1942.

During the fiscal year five called meetings of the Executive Committee were held; business was discussed and taken care of; and minutes were taken of all proceedings.

Membership cards were furnished all members both of the Portland group and the Salem.

Ballots for officers for the fiscal year ending February 28, 1943 were mimeographed and submitted to all members.

Respectfully submitted,
(Sgd) Kathleen Mahony, secretary

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REPORT FROM SALEM CHAPTER
February 24, 1942

Geological Society of the Oregon Country,
Portland, Oregon.

Gentlemen:

At the annual meeting of the Salem Chapter of the Geological Society of the Oregon Country on February 19, 1942, attended by twenty-two members in good standing, action was taken as indicated in the following excerpt from the minutes of said meeting:

"A motion was made and seconded that the Salem Chapter of G.S.O.C. surrender its Charter and establish itself as an independent group. A standing vote was taken, with results as follows: Affirmative, Seventeen; negative, Five."

In accordance with the above action, the Charter issued to the Salem Chapter is hereby transmitted to the home office of the Geological Society of the Oregon Country.

Very truly yours,

(sgd) Herman Clark, President
Salem Chapter

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VIGNETTES OF STRATEGIC MINERALS

by

Ray C. Treasher and R. G. Bassett

(Concluded in this issue)

Manganese (cont'd)

Whenever deposits of manganese minerals are found, it is a good idea to submit representative samples for inspection. If our staff, speaking from their experience with this material, feel that the sample justifies an assay something worthwhile may be discovered.

Those who would like to identify and test for manganese minerals in the field would do well to first familiarize themselves with known specimens. Chemical tests are not often required for the identification of the three or four more important minerals of the element. Color, luster, specific gravity, streak or color of the very fine powder, hardness, and a few other properties, when carefully determined are usually sufficient to classify manganese ores. Most of these properties can be determined with a knife and a hand lens.

Chemical tests, while not difficult, do require some laboratory technique. Manuals of mineralogy and prospecting give these tests in detail, and should be carefully studied by everyone deeply interested in mining and its problems.

Mercury

Mercury is one of our most vital strategic minerals, and there is practically no difference between the civilian and military uses of the metal. The principal use is in the firing and exploding of all cartridges and shells, and there is no substitute for it. In the last war Germany was forced to use substitutes and this accounted for the high percentage of "duds" that she fired. Other important uses are as antiseptics and in dental work. A complete list would take considerable time but these three uses give a fair picture of the metal's importance.

The principal producers of mercury metal are Spain, Italy, the United States, and Mexico. Prior to the recent war the United States produced less than a quarter and used a very high percentage of the world output. Prior to the war the position of the United States was very unfavorable.

As late as 1940 government experts were decrying the fact that the United States could never produce its war time requirements let alone its peace time requirements. At the moment of the utterance the United States was satisfying its war time needs and actually exporting quicksilver. The reason is price, which raised from $90 to $200 a flask. With this stimulus old mines were reopened and new mines discovered until in 1941 the January to October, inclusive, production was 36,300 flasks or 1,380 tons of mercury metal.

This fact cannot be stressed too greatly; given a sufficient price stimulus, increased production is practically assured within certain limits.

At present Oregon is the second largest producer in the United States, led only by California. Oregon has the largest single quicksilver producer in the United States in the Bonanza Mine east of Sutherland. The principal quicksilver producing areas are:

1. The western foot hills of the Cascade mountains from the Clackamas River to the California line.

2. The Ochoco Mountains.

3. Southeastern Oregon.

Prospecting for cinnabar is similar to prospecting for gold. The prospector should pan the creeks and the surface over burden for showings of the familiar red cinnabar mineral. These should be traced to their source as in gold prospecting, and work done to thoroughly expose the ore. However, it should be borne in mind that the value of cinnabar is about 1/17 that of gold.

Cinnabar may occur in rocks of any age and kind, but usually the country rock is thoroughly altered. It is difficult to block out the ore as the cinnabar occurs as aggregates of thin seams and veinlets along fractures.

Identification of Cinnabar

Pure cinnabar is vermilion-red and impure cinnabar is a brownish-red. The color of the powdered mineral is scarlet. Its luster is brilliant when pure, to dull and earthy when impure. Cinnabar usually occurs as a fine granular massive mineral, sometimes as earthy and as incrustations, and rarely as crystals.

Cinnabar is usually found occurring in sedimentary rocks such as sandstone and limestone where it fills cavities and fissures. The bright red mineral may be present as scattered specs throughout the rock or as a massive sheet filling a large opening, and associated with it may be other minerals such as pyrite, chalcopyrite, stibnite, gold, quartz, and calcite. The igneous rocks from which the cinnabar is thought to have been derived are usually nearby.

Cinnabar is one of the heaviest of all common minerals, having a specific gravity twice that of chromite and nearly four times that of quartz. It, therefore, may be easily detected by panning, as is gold.

A copper penny will scratch it easily. The mineral is insoluble in nitric acid but soluble in aqua regia. Aqua regia is a mixture of three parts of hydrochloric or muriatic acid and one part of nitric acid or aqua fortis.

The chemical tests for mercury are not difficult. If the mineral is boiled in hydrochloric or muriatic acid, into which pyrolusite or manganese dioxide has been added, the mercury will be dissolved. A copper cent cleaned in nitric acid will, when placed in the acid solution of the mercury, become coated with a bright silver-like film.

The identification of cinnabar is simple. Learn its appearance, a few of its physical properties, and the chemical test for it, and it will be hard to miss.

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ABSTRACTS

Volcanoes of the Three Sisters Region, Oregon Cascades: by Howel Williams. Taken from The Geological Society of America: 1942- pp.16-17.

During the Pliocene an arcuate cluster of basaltic and basaltic andesite shield volcanoes was built in the Three Sisters region. Included in the cluster are the North Sister, Little Brother, Husband, Wife, Sphinx, and Broken Top, the radial dikes and conduit fillings of which have been bared by glacial erosion. The view that this line of peaks marks the rim of a caldera formed by decapitation of an enormous central volcano--Mount Multnomah--is shown to be erroneous. During the Pleistocene, andesites and dacites were erupted, principally by the Middle and South Sisters, while new basaltic cones were growing elsewhere. During Recent time, still other cones of basaltic lava and scoria were formed, and vast flows were poured from some of them, notably from the Belknap Craters near McKenzie Pass, while showers of dacite pumice and viscous domes of obsidian were erupted by neighboring vents. Some of these eruptions ended only a few centuries ago; nowhere in the High Cascades has there been more volcanic activity within the last millennium. Taken as a whole, the magmatic history closely resembles that of the Crater Lake region and the post-Miocene activity of other parts of the Cascade Range farther south.

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Recent Drainage Changes in Toowa Valley, Southern Sierra Nevada: by Robert W. Webb. Geological Society of America: 1942- p.16.

A broad east-west mature valley, named Toowa Valley by Lawson in 1904, lies astride the Sierra Nevada in latitude 36° 22' N., west of Olancha, California. The valley is drained by Golden Trout Creek, which flows west, and the South Fork of the Kern River, which flows east. Both streams enter Toowa Valley from the north. Here, the divide separating them is only 25 feet high and 150 feet wide. Small volcanic outbursts have produced temporary base levels along the west-flowing stream, and several west-draining tributaries have been successively captured by the east-flowing stream. If the present base levels are maintained, further capture of west by east drainage is imminent. If, however, accelerated downcutting by the west-flowing stream cleanses its channel of volcanic material, the entire drainage will soon be returned, through a series of future captures, to a pattern similar to the original. Evidences for these captures are (1) cobbles along the line of former stream channels (2) underfit streams in present valleys, and (3) anomalous drainage pattern of tributaries in the two major stream systems.

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GEOLOGICAL NEWS LETTER

OFFICIAL PUBLICATION OF THE

GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

VOL. 8 NO. 10 PORTLAND, OREGON May 25, 1942

GEOLOGICAL NEWS-LETTER
Official Publication of the
Geological Society of the Oregon Country
413 Morgan Building, Portland, Ore.
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THE GEOLOGICAL NEWS-LETTER
Official publication of the
GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

The Geological News-Letter is issued semi-monthly on the 10th and 25th.
Yearly subscription: $2.00 Single copies: $0.15
Communications and material for publication should be sent to the Editor. Change of address and subscriptions are required 30 days in advance of date of change, and should be sent to Emily M. Moltzner, Morgan Building.

MEMBERSHIP APPLICATION
GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

Qualifications and Dues: Applicant must be sponsored by a member and recommended by the Membership Committee. A knowledge of geology is not a requisite. There is no initiation fee. A Member shall be over 21 years of age; or a husband and wife and all children under 18 years of age. The dues are $3.50 per year, payable in advance, which includes one subscription to the Geological News-Letter. A Junior is an individual between the ages of 18 and 21. Dues are $1.50 per year, payable in advance, and include one subscription to the Geological News-Letter.

Date . . . . . .

I, ... (please print full name) do hereby apply for membership (junior membership) in the Geological Society of the Oregon Country, subject to the provisions of the By-Laws.

Home address . . . . . Phone . . . . . .

Business Address . . . . . Phone . . . . . .

Occupation . . . . . .Hobbies. . . . . .

I am particularly interested in the following branches of geology: . . . . . .

. . . . . .

I enclose $. . . for the year's dues, March 1 to March 1. (Checks payable to the Society).

. . . . . Sponsored by . . . . . .
(signature) (member)

PORTLAND CHAPTER ANNOUNCEMENTS

LECTURES: On 2nd and 4th Fridays of each month at the Auditorium (3rd floor) of the Public Service Building, 920 SW 6th Ave., at 8:00 p.m.

TRIPS: On Sundays following lecture meetings, or as otherwise arranged. Meeting place at Public Market, Front and Yamhill.

LUNCHEONS: Every Thursday noon, in the banquet room of the Treasure Island Restaurant, 815 SW Broadway (50¢ minimum). A table is also reserved every day except Thursday and Sunday for the men of the Society in the "Barnyard", 8th floor, Lipman Wolfe & Co.

Friday May 22 Subject: "AROUND THE UNITED STATES IN TWO HOURS".
Speaker: Will T. Kirk.

Mr. and Mrs. Will T. Kirk made a 10,000 mile automobile trip around the United States with side trips into Canada and Mexico last September and October, photographing in Kodachrome what they saw. Mr. Kirk will show some of the best of his pictures to the members of the Geological Society of the Oregon Country and guests in the Auditorium of the Public Service Building, Friday evening, May 22 at EIGHT O'CLOCK P.M. The Public Service Building is at 620 S. W. 6th Avenue, Portland.

Among the scenes to be shown are Niagra Falls from the Canadian side, the Natural Bridge in Virginia, the Grand Canyon of the Colorado in Arizona and Crater Lake, Oregon. Many historic Buildings will also be shown, as well as landscapes of grandeur and striking beauty.

These pictures, selected from those taken in 27 states, have been seen by our program committee chairman, Geary Kimbrell who makes and knows good color photographs, and we have his word for it that a rare treat is in store for lovers of beauty.

***

LAVA CAST FOREST OF OREGON

Dr. Robert L. Nichols, Tufts College, temporarily with the United States Geological Survey in the Castle Roch district of Washington gave a bipartite illustrated lecture at the Public Service Auditorium Friday evening, May 8, 1942. The announced subject: "Lava Cast Forest of Oregon" shared the evening with a very interesting account of the eruption of Krakatoa in 1883 illustrated with maps, charts and photographs.

Dr. Nichols is a dynamic speaker. His lecture gave many who heard it a new interest in geology and created an interest in those who had hitherto considered it a rather dry subject.

It is safe to say that if and when the tire and gasoline situation clears up many who heard Dr. Nichols tell of the lava cast forest of Oregon will be travelling to that locality to see for themselves some of the wonderful and interesting things pictured and described by him.

***

DINNER FOR DR. AND MRS. NICHOLS AND SUSAN

Sixteen members of the Geological Society of the Oregon Country crowded into a corner of the Treasure Island banquet room to meet Dr. and Mrs. Robert L. Nichols and their very interesting daughter, Susan.

The editor of the NEWS LETTER was privileged to sit where he could listen in on the learned conversation between Dr. Nichols and two of our Society members, Claire Holdredge and John Allen, and whether or not he derives any permanent good from the contact will depend upon how much time and inclination he has for reading along the lines of their discussion.

Those present at this dinner besides the three guests were: President H. B. Schminky, John Allen and Mrs. Allen, Claire Holdredge, the Misses Florence Iverson, Emma Nordgren, Vera Martin and Nellie Lange, Mrs. Leo Simon, Mrs. O. E. Stanley and her husband, the editor, Earl K. Nixon, Geary Kimbrell, Amza Barr, L. E. Rydell, Raymond L. Baldwin, and at long last, (too late, in fact, to have dinner with the rest) Dr. Arthur C. Jones. Sometimes we think that even though the editor's income is not comparable with that of a doctor, there are compensations of a sort.

***

LUNCHEON NOTES
for May 7

Twenty four members (including our secretary) and two guests nearly filled the tables at the May 7th luncheon at the Treasure Island restaurant. The guests were Edw. Baker, introduced by John Allen; and Arthur C. Waller, introduced by Hy. Wood. Mr. Waller, formerly materials engineer for the Idaho state highway department, and now temporarily loaned to the United States Engineer Corps by the Shell Oil Co., for whom he is technical engineer, had some highly polished pebbles which he had picked up on the prairies of southwestern Idaho. No one present could say definitely whether or not they were gastroliths, though there were several who thought that they probably were.----o---- Dr. Adams had a very pretty specimen containing zinc sulphide, and a sand rose from Death Valley. The doctor cautioned that no crystals were expected to be pried loose from the zinc sulphide specimen. ---o--- Miss Hanley had some specimens which she thought contained cinnabar but John Allen believed them to be red rhyolite. ---o--- Mr. Vance had a pebble with several small but very pronounced faults, which in section looked like a bolt of old fashioned Iowa lightning. If he can get the formula for the cement used in sticking the stone together after slipping, he will be able to devote the rest of his life to his hobby, for such adhesives as LePage's liquid glue and Duco household cement will be permanently shelved.--o-- Miss Hughes who had recently returned from a trip in Death Valley had to leave the room before she had time to tell the group about her travels. However, she has promised us a story about the trip for the next issue of the NEWS LETTER. ---o--- John Allen mentioned exhibits by the Oregon State Bureau of Geology and Mineral Industries in the window of the First National Bank and in the Public Service Building. ---o--- Mr. Bates called attention to the fact that Past-President Ray C. Treasher's name "led all the rest" in "Keeping Posted" column of the Saturday Evening Post for May 9.

The absence of Tom Carney from several successive luncheons has been noted. We have been informed that he is extra busy gathering in the sheckles these days, and while we do not wish him any less lucrative business, we do decidedly miss seeing the beautiful specimens that it has been his habit to bring to the weekly luncheon meetings.

***

LUNCHEON NOTES
for May 14

Twenty members and one guest were present. Mary Robertson is to be so busy for the next three weeks getting ready to be married that she is afraid that she may not be present at another luncheon for quite a while. We shall miss her bright

smile and vivacious conversation and shall be glad to see her whenever she may be able to meet with us again.

Miss Hughes who has had a delightful trip through Death Valley brought a tray of specimens from that interesting part of California, with a card saying "Take one". As a result of that card she did not have a very heavy load to carry from the restaurant. Among the specimens were two colors of rhyolite, amphibole crystals from Darwin Canyon, lapilli and scoria from Uhebe, slate from the temple of Ginga Dun location in Alabama Hills near Lone Pine, and salt from the Devil's Golf Course. Watch for her story of this trip in the next issue of the NEWS LETTER.

Kenneth Phillips reports that Mrs. Phillips is slowly regaining her health at home. Mr. Phillips had a copy of a book, "The Face of South America" by John Lynch Rich, a friend of our fellow member Leslie Bartow. The book is profusely illustrated with half-page photographs, mostly taken from an airplane. There are strip maps in the book showing the routes taken, and the locations where the pictures were made. If you haven't time to make this trip you can get a very good idea of the geology of our neighboring continent from this book, and if you plan to make the trip, a study of the book will be profitable in showing you, in advance, what you may expect to see.

Miss Henley exhibited a specimen of limonite with iridescent coating from Golden Queen Mining Co., Mojave, Cal/ and another of dendritic limestone from Mojave, Cal. She also brought a copy of a bulletin of the Northern California Mineral Society, of which her brother, R. F. Henley is treasurer. It was interesting to note that the bulletin is mimeographed on the back of a circular advertising stone cutting and polishing wheels (or maybe the advertisement was on the back of the bulletin---at any rate, it paid the cost of publication for the society). Six meetings of the society were scheduled for April as follows: Blowpipe Analysis, Laboratory Nite, Field Trip, Blowpipe Analysis, Board of Directors' Meeting, and Monthly Meeting. A paragraph about the field trip mentioned that on account of the nature of the trip it was considered inadvisable to publicize it, and referred inquirers to two committee members for further information. This seems like a clever idea, and should bring out nearly the full membership.

Dr. Arthur C. Jones had some beautifully polished "apples" fashioned from onyx or agate--we were not able to determine which. He said they had been given to him by a patient and a voice at my left was heard to say: "I wish I could find a patient."

Kenneth Phillips introduced Harry Clark of the Portland General Electric Co., who is doubtless before this time a member of the Coast Guard. Mr. Clark was told to remember that the Society will pay the freight on all geological specimens from anywhere he may find them.

***

BINDING YOUR NEWS LETTER VOLUMES

Business Manager Raymond L. Baldwin is now ready to send your volumes of the NEWS LETTER to the binder. Please bring them to him at the Thursday luncheons or to his office in Room 401 Federal Court House, Southwest Broadway at Main.

Please take out all the staples and arrange the sheets in their proper order, as the binder can not take time to re-arrange them at the low price for which he is willing to do this work for the Society, and place the index which was sent to

you with Number 7 of Volume 8 (the April 10, 1942 number) where you want it to be in the finished book. The charge will be 50 cents a volume.

Please attend to this as soon as possible to save confusion at the bindery and to allow Mr. Baldwin to get the matter off his mind.

***

Emma Nordgren was recently seen "just looking" at a table of handbags in one of Portland's leading stores. There were some very attractive specimens but Miss Nordgren seemed hard to please, and the reason, she explained, was that the last bag she purchased was guaranteed to be "genuine leather" but as soon as the corners became a bit worn, a woven fabric appeared, and although she is well informed about many natural and scientific phenomena, from the original moulding of the earth to the making of photographic prints in natural colors, she has never heard of any animal with a subcutaneous layer of cloth.

***

BRACE AND BIT BURGLAR?

It is only a clue, and maybe not a very good one at that, but so far as I have heard, the Police haven't done much better, so perhaps it were better that nothing be said about it. However, if we all kept silence until all the pertinent facts were in mind our vocal chords might be atrophied, and that might, or might not, be just too bad.

A few days ago I took a package to Mr. Baldwin's office. He had a one inch auger bit in his hand, and being handy with the bit and not having a knife a bit handy, he opened the package with the bit.

Now, I ask you, does it not augur ill that a grain inspector should be so handy with an auger bit that he instinctively uses it for a letter opener?

***

TREASHER IN FAST COMPANY

At the top of the "Keeping Posted" page of the May 9 number of the Saturday Evening Post (10 cents at all news stands) we read:

> "Geologist R. C. Treasher and Analyst R. G. Bassett, who work in the Grants Pass field office of Oregon's State Department of Geology and Mineral Industries, are earnest readers of the Post. When they picked up the first installment of Leslie Ford's recent serial, Murder in the OPM, and read of Miss Ford's fictional strategic metal, promethium, Treasher turned to Bassett and said, 'Two takes one, my friend, that within two weeks we'll get a sample of rock with the request that we assay it for promethium.'
>
> "We don't know whether Bassett made it a bet or not, but we do have the department's word for it that a sample of rock from a prospector in the hills duly arrived--with a request for quantitative determination of promethium!"

The editor thanks Carl P. Richards, 530 N. 19th St. Salem for taking time and thought to write a card calling attention to the above item. Such help in gathering material for the NEWS LETTER is appreciated and helps to make the NEWS LETTER more interesting.

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LIBRARY OF THE GEOLOGICAL SOCIETY OF OREGON COUNTRY
307 Old Post Office Building
Sixth Ave. and Morrison

2-28-42

During the year 1941 the cataloging of the library has been completed and the following report covers the resources which the library now has to offer the members of the society.

The library has:-

A. Books.

Books numbered and labeled are placed on the shelves in numerical order. They include the bound volumes and the odd copies of periodicals, bulletins and transactions.

The Card Catalog furnishes ready reference to the books by title, author, and subject cards arranged in alphabetical order.

List of books by title:-

Beach Placers of the Oregon Coast. By J.T. Pardee.
Bear River and Stewart Map-Areas, Cassiar District. British Columbia. By G. Hanson.
Bibliography of Publications on the Indians of Oregon. By University of Oregon, Museum of Anthropology, 1936.
Bulletin of the Meteorological Society. Nov. 1936.
Cambrian-Ordovician Stratigraphic Column in Southeastern Newfoundland. by B. F. Howell.
Cascade Andesites of Oregon. By Richard Bogue and Edwin T. Hodge.
Composition, Rating, and Conservation of Willamette Valley Soils. By L. W. Powers.
Descriptive geology, U.S. Exploration of Fortieth Parallel. By Arnold Hagen and S. F. Emmons.
Distribution of Life in the Philippines. By Roy E. Dickerson, Elmer D. Merrill, and others.
Economic Geological Resources of Oregon. By Oregon State Bureau of Mines.
Fossil Woods of the Far West. By Central Washington College.
General Features of Washington Geology. By Harold E. Culver.
Geologic Map and Guide of Oahu, Hawaii. By H. T. Stearns.
Geologic Sketch. By Lambert Wood.
Geology and Ground Water Resources of the Island of Oahu, Hawaii. By H. T. Stearn and K. N. Vaksvik.
Geology and Ground Water Resources of Lanai and Kahooiawe- Islands. Hawaii. By H. T. Stearn.
Geology of Catahoula and Corncordia Parishes. State of Louisiana. By W. D. Chawner.
Geology of the Victoria and Saanich Map-Areas. Vancouver Island. B.C. By Chas H. Clapp.
Guardians of the Columbia. By John H. Williams.
Guidebook for the Identification of Woods used for ties and timbers. Supplement to Fossil Woods of the Far West. By Arthur Koehler.
Maps of British Columbia. By Geological Survey, Dominion of Canada.
Maps of Oregon. By State Department of Geology and Mineral Industries.
Maps of Oregon. By State Department of Geology and Mineral Industries.
Mechanical and Chemical Composition of the Soils of Sussex Areas, New Jersey. By A. W. Blair and Henry Jenning.

Metallurgy and Wheels, the Story of Men, Metals and Motors.
By General Motor Corporation.
Mineral Resources of Stevens County, Washington State. By Charles E. Weaver.
Mining Laws of the State of Oregon, 1937.
By State Department of Geology and Mineral Industries.
Our Vanishing Glaciers. By Kenneth N. Phillips.
Pliocene Diatoms from the Kettleman Hills, Cal. By K.E. Lohman.
Portland Canal Area, British Columbia. By George Hanson.
Preliminary Report upon the Saline Lakes, Oregon. By O.F. Stafford.
Road Materials in the Willamette Valley. By Oregon State Bureau of Mines.
Sedimentation of the Frazer River Delta. B.C. By W. A. Johnson.
Small Scale Placer Mines - as a Source of Gold, Employment and Livelihood in 1935. By C.W. Merrill, C.W. Henderson, O.E. Kressling.
Snows of Yesteryear - A Record of Snow Depths Near Mt. Hood.
By Kenneth N. Phillips.
Soil. A Collection of Papers. Vol.1 and 2. By Oregon State College.
Soil and Water Conservation in the Pacific Northwest. By E.M. Rowalt.
Soil Survey in Clackamas County, Oregon. By A.E. Kocher, E.J. Carpenter, and K.S. Taylor.
Soil Survey of Marion County, Oregon. By E.F. Torgerson, and T.W.Glassey.
Soil Survey of Multnomah County, Oregon. By C.V. Ruzek and E.J.Carpenter.
Sour Soil and Liming. By Dr. William Frear.
Summary Report 1907 - Geological Survey.
By Canada Department of Mines, Geological Survey Branch.
Telescoping. By Portland Amateur Telescope Makers Association.
Twenty-Second Annual Report - Issued in Four Parts.
By U.S. Geological Survey.
Wallowa Mountains and County - Geology and Economic Geography.
By DuPre Smith.
Ward's Natural Science Bulletin - and Catalog.
By Ward's Natural Science Establishment.

The library has:

B. Periodicals.

Included with periodicals are bulletins, transactions of societies, etc., when in a series. These series are placed on the shelves in alphabetical order under the first word of the title which is not an article.

In the Card Catalog a standard bears the title of the periodical and following the standard are cards listing the individual numbers of the series under serial number, date of issue, and in some instances also title and author.

List of Periodicals by title:

AMERICAN GEOPHYSICAL UNION - Transactions. Reports and Papers.

Part 1.

Bulletin	1.	General Assembly.	"	"
"	2.	Section of Geodesy	"	"
"	3.	Section of Seismology	"	"
"	4.	Section of Meteorology	"	"
"	5.	Section of Terrestial Magnetism and Electricity	"	"
"	6.	Section of Oceanography	"	"
"	7.	Section of Volcanology	"	"

Part 2.

"	8.	Section of Hydrology	"	"

AMERICAN MUSEUM NOVITATES.-

The numbers of this periodical have been bound in volumes under the year of publication, 1936-1941 inclusive.

In the Card Catalog the fifty-two numbers contained in the six bound volumes are listed by serial number, title, and author. These cards furnish a complete index and owing to the length of the list it will be omitted from this report.

BULLETIN OF THE AMERICAN MUSEUM OF NATURAL HISTORY.-

1936

v.72, Art. 1 Further Notes on the Gigantic Extinct Rhinoceros, Baluchitherium, from the Oligocene of Mongolia. By Walter Granger and William K. Gregory.

" " Art. 2 Some Features of the Cranial Morphology of the Tapinocephalid Deinocephalians. By Lieuwe D.Boonstra.

" " Art. 3 The Cranial Morphology of some Titanosuchid Deinocephalia. By Lieuwe D. Boonstra.

1937

v.72 Art. 7 Siwalik Antelopes and Oxen in the American Museum of Natural History. By Guy E. Pilgrim.

v.73 Art. 6 Catalog of the Meteorites in the American Museum of Natural History. By Chester A. Reeds.

" " Art. 8 Skull Structure of the Multituberculata. By George Gaylord Simpson.

v.74 Art. 1 New Fishes from the Continental Tertiary of Alaska. By Erich M. Schlaikjar.

1938

v.74 Art. 5 Crossochelys, Eocene Horned Turtle from Patagonia. By George Gaylord Simpson.

" " Art. 6 Fossil Mammals from Burma in the American Museum of Natural History. By Edwin H. Colbert.

1940

v.77 Art. 4 Studies on the Earliest Primates. By George Gaylord Simpson.

" " Art. 5 Merycochoerinae. By C. Bernard Schultz and Charles H. Falkenbach.

1941

v.78 Art. 4 A Study of Orycteropus Gaudryi from the Island of Samoa. By Edwin H. Colbert.

GEOLOGICAL NEWS LETTER.-

v.1 1935 No.1-18 c2
v.2 1936 No.1-24 c2
v.3 1937 No.1-24 c2
v.4 1938 No.1-24 c2
v.5 1939 No.1-24 c2
v.6 1940 No.1-24 c2

The library has two copies of each annual volume. One copy for circulation. One copy for reference. These reference volumes are for use at the library only as they are intended to ensure the members of a complete set of the Geological News Letter at the library at all times.

MAZAMA.-

Vol. XXI. No. 12 1939
Vol. XXII. " 1940
Vol. XXIII " 1941

MINERAL RESOURCES OF OREGON.-
Published by Oregon Bureau of Mines and Geology, Portland.

* v.1	No.5	1914	Petrology and Mineral Resources of Jackson and Josephine Counties, Oregon. By A.N. Winchell.
* v.1	No.6	1914	Geology and Mineral Resources of Sumpter Quadrangle. By J. T. Pardee and D.F. Hewett. General and Economic Geology of Baker District. By U. S. Grant and G. H. Cady.
* v.1	No.7	1914	Construction and Use of the Relief Map. By S.Shedd. Testing of Building Bricks, Hollow Blocks and Drain Tiles. Limestone Deposits in Oregon. By Ira A. Williams.
* v.1	No.8	1914	Ore Deposits of Northeastern Oregon. By Arthur M. Swartley.
* v.2	No.2	1916	Geology and Mineral Resources of Curry County, Oregon. By G.N. Butler and G. J. Mitchell.
* v.2	No.4	1916	Handbook of the Mining Industry of Oreg. Alphabetical lists of properties; description of mining districts. By H.M. Parks and A.M.Swartley.
* v.3	No.1	1920	Oil and Gas Possibilities of Western Oregon. By Harrison and Eaton.
* v.3	No.2	1921	Oil and Gas Possibilities of Eastern Oregon. By John P. Buwalda.
* v.3	No.3	1923	Limonite Iron Ores of Columbia County, Oregon.

* Out of print.

OREGON DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES.-

Bulletin	No.1.	1937	Mining Laws, State of Oregon, with 1939 Addenda.
"	No.2		Progress Report on Coos Bay Coal Field. By F.W. Libbey.
"	No.3	1938	Geology of Part of the Wallowa Mountains. By C.P. Ross.
"	No.4	1938	Quicksilver in Oregon. By C.N. Schuette.
"	No.5	1938	Geological Report on Part of Clarno Basin, Wheeler and Wasco Counties, Ore. By Donald K. Mackay.
"	No.6	1938	Refractory Clays of Western Oregon. By Wilson Hewitt and Ray C. Treasher.
"	No.7	1938	Gem Minerals of Oregon. By H. C. Dake.
"	No.8	1938	Feasibility of a Steel Plant in the Lower Columbia River Area Near Portland. By Raymond M.Miller.
"	No.9	1938	Chromite Deposits in Oregon. By John Eliot Allen and H.F. Byram.
"	No.10	1938	Placer Mining on Rogue River- an Ecological Study. By Dr. Henry Baldwin Ward.
"	No.11	1938	Geology and Mineral Resources of Lane County, Ore. By Warren D. Smith and Lloyd L. Ruff.
"	No.14	1939	Oregon Metal Mines Handbook. By Staff of Dept. of Geology and Mineral Industries.

Bulletin	No.15	1939	Geology of Salem Hills and North Santiam River Basin, Oregon. By Thomas P. Thayer.
"	No.18	1939	First Aid to Fossils. By John Eliot Allen.
"	No.19	1939	Dredging of Farmland in Oregon. By F.W. Libbey.
"	No.20	1940	Analyses and other Properties of Oregon Coal as related to their utilization.
"	No.21	1940	Second Biennial Report.

UNITED STATES GEOLOGICAL SURVEY.-

Bul.	No. 387	1909	Structural Materials in Parts of Oregon and Wash. By N. H. Darton.
"	No. 422	1916	Analysis of Silicate and Carbonate Rocks. By W.F. Hillebrand.
"	No.531-L	1913	Coal Resources of Cowlitz Valley, Cowlitz and Lewis Counties, Washington. By A.J.Collier.
"	No.616	1916	Data of Geochemistry. By Frank Wiggleworth Clark.
"	No.637-D	1931	Geology and Water Resources of the Middle Deschutes River Basin, Ore. By Harold T. Stearns.
"	No. 746	1923	Geologic Literature on North America 1785-1918. By John M. Nickles.
"	No. 830-B	1933	Geology of Robertson, Humdinger, and Robert E. Gold Mines, Southeastern Oregon. By Phillip J. Shenon.
"	No. 846-B	1933	Geology and Ore Deposits of the Takilma-Waldo District, Ore. By Phillip J. Shenon.
"	No. 896	1938	Lexicon of Geologic Names of the United States. By M. Grace Wilmarth.
"	No. 907	1940	Geology of the Alaska Railroad Region. By Stephen R. Capps.
"	No. 914	1940	Microscopic Determination of Ore Minerals. By M. N. Short.

C. Card Catalog.

This catalog is based on the general principles of dictionary card cataloging with such modifications as necessary to meet the needs of a SELF SERVICE LIBRARY.

How To Use The Card Catalog.

The catalog may be consulted like a dictionary.
If you know the author's name look for that.

If author's name is not known to you, look for subject or title cards. Subject heading is in red.

Look for title card under first name of title not an article, such as a, an, or the.

The book number is found in upper left hand corner of all cards referring to a book (numbered volume)

Book number--how obtained. Books are classified by the Dewey decimal system and this class number with the Cutter call number gives the book its individual book number.

D. Shelf List.

The shelf list is a current record of what the library has. The cards are filed by classes in the order in which the periodicals and

books are placed on the shelves.
The periodicals in alphabetical order.
The books in numerical order.
The shelf list is an indispensable tool for taking inventory.

E. Circulation

Cards. Circulation cards for all books and periodicals may be found in the pocket of inside back cover of each volume intended for circulation use. A few volumes are marked "reserved".

Borrower is requested to take the card out of the pocket, sign and date it then place it as designated by the classification standard card in the small green - circulation - box.

On returning book or periodical date the card and replace it in pocket at back of book.

Recommendations.

That a library committee be appointed.
That measures be adopted to promote the growth and the use of the library so that it may more adequately serve a specialized group such as the Geological Society of Oregon Country.

Respectfully submitted,

Margaret Hughes.

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FURTHER DATA ON OREGON'S NICKEL

United States Department of the Interior. Geological Survey. Bulletin 931-I. Nickel deposit near Riddle, Douglas County, Ore., by W.T Pecora and S.W. Hobbs. 1942. pp.i-iii, 205-226, pls. 37-38, figs.20-22. Price 20 cents.

The Riddle nickel deposit is on the slopes of Nickel Mountain, about 5 miles northwest of Riddle, Douglas County, Ore. The deposit is a layered blanket, containing the nickel silicate garnierite which rests upon unserpentinized peridotite. This blanket ranges in thickness from a few feet to a maximum of 60 or 70 but with an average of about 20 feet. It is best developed on terraces, flats, and gentle mountain slopes above an altitude of 2,000 feet. It consists of three layers, a top brick-red soil layer, an intermediate thick yellow limonitic layer with some quartz-garnierite boxwork, and a root layer composed of quartz-garnierite boxwork in nearly fresh bedrock that is a transitional phase between weathered material and fresh peridotite. Nickel occurs in all three layers of the blanket but is most abundant in the boxwork veins carrying garnierite. The darker green varieties of the garnierite contain the highest percentage of nickel. The nickel is believed to have been derived from olivine in the peridotite by decomposition during lateritic weathering, which probably took place during late Tertiary time, before the present regional surface at an elevation of 2,000 feet was dissected. This process formed limonite and nickel-poor garnierite. Under present climatic conditions the original laterite has undergone a change resulting chiefly in a boxwork of quartz and nickel-rich garnierite. About 162 acres of ground are underlain by a blanket containing over 6,000,000 tons of material, 1 to 2 percent of which is probably nickel. Eighty thousand tons have been proved to contain 2 to 3 percent of nickel, and 75,000 tons have been proved to contain 1 to 2 percent of nickel. A new method of treating low-grade silicate material would have to be devised before this large deposit could be utilized. The report contains a geologic map of the vicinity of Nickel Mountain and a geologic and topographic map of the nickel deposit. This is one of the chapters of "Strategic minerals investigations, 1941".

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GEOLOGICAL NEWS LETTER

OFFICIAL PUBLICATION OF THE

VOL. 8 NO. 11 PORTLAND, OREGON June 10, 1942

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THE GEOLOGICAL NEWS-LETTER
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GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

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MEMBERSHIP APPLICATION
GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

Qualifications and Dues: Applicant must be sponsored by a member and recommended by the Membership Committee. A knowledge of geology is not a requisite. There is no initiation fee. A Member shall be over 21 years of age; or a husband and wife and all children under 18 years of age. The dues are $3.50 per year, payable in advance, which includes one subscription to the Geological News-Letter. A Junior is an individual between the ages of 18 and 21. Dues are $1.50 per year, payable in advance, and include one subscription to the Geological News-Letter.

Date . . . . . .

I, ... (please print full name) do hereby apply for membership (junior membership) in the Geological Society of the Oregon Country, subject to the provisions of the By-Laws.

Home address . . . . . Phone . . . . . .

Business Address . . . . . Phone . . . . . .

Occupation . . . . . .Hobbies. . . . . .

I am particularly interested in the following branches of geology: . . . . . .

. . . . . .

I enclose $. . . for the year's dues, March 1 to March 1. (Checks payable to the Society).

. . . . . Sponsored by . . . . . .
(signature) (member)

PORTLAND CHAPTER ANNOUNCEMENTS

LECTURES: On 2nd and 4th Fridays of each month at the Auditorium (3rd floor) of the Public Service Building, 920 SW 6th Ave., at 8:00 p.m.

TRIPS: On Sundays following lecture meetings, or as otherwise arranged. Meeting place at Public Market, Front and Yamhill.

LUNCHEONS: Every Thursday noon, in the banquet room of the Treasure Island Restaurant, 815 SW Broadway (50¢ minimum). A table is also reserved every day except Thursday and Sunday for the men of the Society in the "Barnyard", 8th floor, Lipman Wolfe & Co.

Friday June 12 — Subject: "THE GEOLOGY OF THE PACIFIC COAST AND ITS SIGNIFICANCE WITH RELATION TO ATTACK OR ATTEMPTED INVASION".
Speaker: Claire P. Holdredge
Mr. Holdredge is so well known to the most of our members that to announce that he will speak on any given subject is assurance of a good attendance and a satisfied audience.

Friday June 26 — Subject: "GEOLOGY OF THE PHILIPPINES"
Speaker: Dr. Warren D. Smith - Head of the Departments of Geography and Geology, University of Oregon, Eugene, Oregon.

Dr. Smith headed the first scientific expedition across the island of Mindanao, and is the author of a book on the mineral resources of the Philippines and had planned to make further studies on the islands for a revision of this book but the war has interfered with that work.

Sunday June 14 — Field Trip: Geology and history of Oregon City.
Leader: J. Dean Butler.
Leave Front & Yamhill at 12:45 p.m. Reassemble at 1:30 p.m. at the Butler Parking Lot at the Hamilton Associated Gas Station one block north of the Willamette River Bridge on the Super Highway in Oregon City. (opposite Courthouse)

***

BINDING YOUR NEWS LETTER VOLUMES

Mr. Baldwin again calls attention to the desirability of getting your completed volumes with indexes to him at an early date if you want them in convenient form for reference. Be sure to remove all staples and arrange sheets in the order in which they are to be bound. Bring them to the Thursday luncheon or to Mr. Baldwin's office in the Federal Court House, S. W. Broadway at Main.

***

Mr. Baldwin is in urgent need of the following copies of the News Letter:

Vol. 7 Number 21
Vol. 8 Number 5

If you do not preserve your News Letters in permanent form, kindly look through the copies you have on hand for the above numbers and send them to the Business Manager.

***

IT TOOK 12 YEARS

Dr. W. Claude Adams, well knwon oral surgeon of Portland, will receive his B.A. degree in June from the University of Oregon. Dr. Adams has completed three years work in the Portland Extension Center and has been enrolled approximately 12⅛ years in the center. Mrs. Adams has taken the same amount of work and expects to complete her hours for her degree in Portland.

- General Extension Journal.

***

MEMBERSHIP DUES

Unless your dues are paid, or special arrangements for such payment are made with the Secretary, your name will be dropped from the mailing list of the Geological News-Letter with the sending of the last June issue. A payment of $2.00 will keep your name on the mailing list pending receipt of the balance of your year's dues.

***

John Eliot Allen, geologist of the State Department of Geology and Mineral Industries, spoke on "Minerals of Past and Present in the Portland Area" at the meeting of the Oregon Agate and Mineral Society Friday evening at the Northeast Y.M.C.A., N.E. 38th avenue and Broadway.

***

WANTED:- GEOLOGICAL ARTICLES

The News-Letter needs articles on geological subjects if it is to fulfill its mission and live up to its name - "Geological News-Letter".

Miss Hughes, in this issue, tells us of her trip to see a geologically interesting section of California. This will be a help to anyone wishing to make a similar trip when tires and gasoline are again available. The specimens which she brought back with her and distributed at a recent luncheon will be prized by the beneficiaries of her generosity.

The wanderings of the editor are recounted purely as a space filler and will be gladly skipped by serious minded geologists. They may serve as a warning of what may happen in the future if our geological contributors do not "come through" with material of a scientific nature.

***

LUNCHEON NOTES
by
Donald O'Connell

June 4

In attendance today were Lotus Simon and Ellen James, who will graduate this evening from Washington High School. They passed around their yearbooks- The Lens - to be autographed.

Mr. Libbey introduced as his guest, Mr. Meade, who is an instructor of Mining Engineering at Oregon State College, and will soon be in the army.

Mr. Allen brought Dr. Cordell Durrell, who has recently made some important investigations of volcanic extrusions and intrusions of mud flow material. Dr. Durrell gave an interesting talk and passed around some photographs to illustrate it.

Dr. Jones brought a "what is it" which he thought might be aluminite. It was slightly magnetic. No one, however, was able definitely to identify it.

Donald O'Connell showed a large and beautiful specimen of manganese from Butte, Montana. Mr. Libbey exhibited an unusual piece of magnetite replaced by hematite and a specimen of chalcopyrite with traces of magnetite, which was quite showy.

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LIBRARY NOTES

The library has received:

From the United States Geological Survey:-

Geology of the Area Between Green and Colorado Rivers, Grand and San Juan Counties, Utah. 1940 Geological Survey Bulletin 908. By Edwin T.McKnight.

From the American Museum of Natural History:-

A Giant Rodent from the Oligocene of South Dakota. George Gaylord Simpson.
A New Oligocene Insectivore. George Gaylord Simpson.
Mounted Skeleton and Restoration of an early Paleocene Mammal. Geo. Gaylord Simpson.
A Miocene Sloth from Southern Chile. George Gaylord Simpson.
Notes on the Paleocene Lagomorph, Eurymylus. Albert Elmer Wood.
Skull Characters of Amphicotylus Lucasii Cope. Charles C. Mook.

Erosion in the Valleys of the Southwest. (Reprinted from the New Mexico Quarterly 1940). Kirk Bryan.

In this paper Mr. Bryan makes the following significant statement, "There is no question that our hesitant land policy, has encouraged the misuse of grazing land and that overgrazing has resulted in many localities. Nor can one question the general coincidence in time between the cutting of arroyos and the development of the stock business. However, geologic studies of the valleys of the Southwest have demonstrated that the present arroyos had predecessors cut and filled up again before the coming of the white men and the introduction of his domestic animals."

Fossil Woods of the Far West. Vol. 2. 1942.
Dr. George F. Beck, Central Washington College, Ellensburg.
The seven fossil woods described in this booklet represent the variety found in the collection of Dr. Beck made along the Crooked River in 1932-- redwood, hazel, basswood, hackberry, live oak, zelkove, and sycamore. This ancient oligocene-miocene forest has been ably described by Dr. Ralph W. Chaney in publication 346 of the Carnegie Institution (1925 & 1927).

M.M.H.

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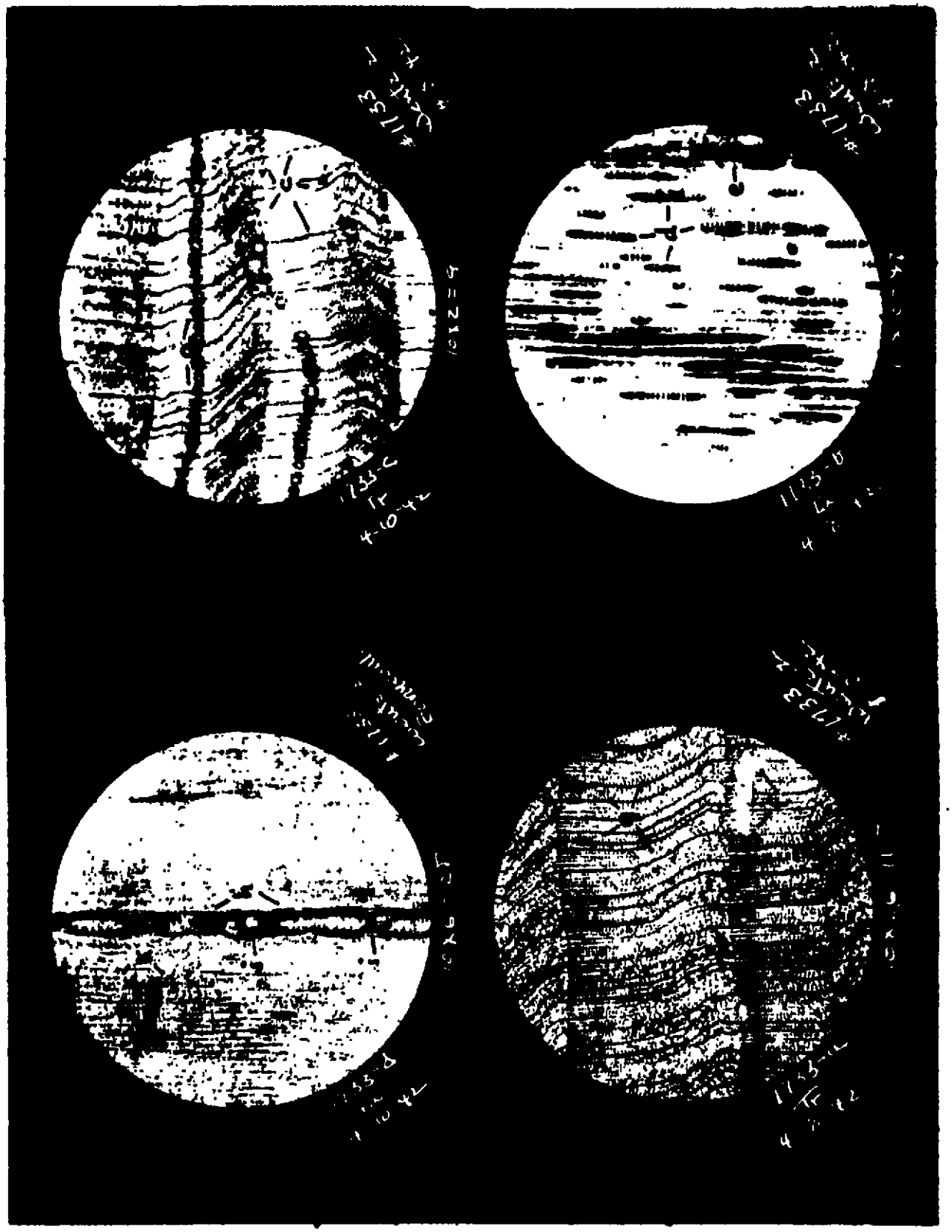

KETELEERIA AND CEDRUS AT BONNEVILLE, OREGON

Plate 1733-c
Transverse x 9

(UPPER LEFT)

(a). "Traumatic canal", or duct row, resulting from injury, such as seen in:

1. Douglas fir (Pseudotsuga)
2. Spruce (Picea)
3. Larch (Larix)
4. Cedar of Lebanon (Cedrus)
5. Keteleeria
6. Balsam fir (Abies)
7. Hemlock (Tsuga)
8. Pseudolarix
9. Redwood (Sequoia)

(b). Normal resin canals, isolated or in short, curved chains. Found only in 1,2,3,4, and 5 as listed above.

(c). Rays strictly uniseriate (one, or in part, two cells wide) as found in 5,6,7,8 and 9 above.

At higher powers, and in radial section, these rays are seen (1) to be without ray tracheids as normally the condition in 4 (fossil), 5,6, (7 fossil ?), 8 (?) and 9 above; (2) to carry abietineous pitting (transverse and end walls of cells deeply and conspicuously pitted) as found in all but redwood (9) above.

Plate 1733-b
Tangential x 47

(UPPER RIGHT)

(d). Uniseriate rays of variable height.

(e). Traumatic canal zone.

Plate 1733-d
Radial x 28.

(LOWER LEFT)

(h). Canal or duct row as seen in longitudinal view.
(i). Constriction in canal.
(j). "Cyst" in swollen portion of canal.
(k). Ray in side view (at higher magnifications note absence of ray tracheids and presence of abietineous pitting and occasional crystal-bearing cells).

Plate 1733-a
Transverse x 11.5

(LOWER RIGHT)

(f). Short "normal" canal chains.
(g). Uniseriate rays (only).

Keteleeria and Cedrus at Bonneville

by George F. Beck
Professor of Geology
Central Washington College of Education

David Douglas, the pioneer naturalist, is the first to mention petrified logs in the Pacific Northwest. His journal, according to my recollection, states that he found what were obviously logs turned to stone, protruding into the Columbia in the vicinity of what is now Bonneville, Oregon. It did not occur to Douglas that these could be anything but members of the present day "pines and maples" which clothe the hillsides in the area.

In the hundred and more years that have elapsed since Douglas pioneered on the Columbia, little has been done to correct his off-hand determination of these logs. The logs themselves have been lost to sight, having been undermined and swept away by the Columbia, or otherwise having succumbed to the ravages of time. Other stumps, and logs, to be sure have been found, such as the McCord Creek Tree, fenced off, on the old highway, at the east approach to the bridge spanning this stream.

Had Douglas happened along a hundred years later he would have had available the study of the "Eagle Creek" flora made by Dr. Ralph W. Chaney of the University of California. Since the logs and fossil leaves are intimately associated in the Bonneville area, Douglas would have understood that there is a high chance that any exposed log will turn out to be a type now found in the forests of the Atlantic seaboard. He might even wonder if perchance one of the logs might not represent the sacred (and elusive) ginkgo, whose typical leaves have been recognized by Dr. Chaney---but which survived into modern times on the Asiatic continent, only.

However, good scientist that he was, David Douglas would never have dared to imagine (in the light of the knowlege of his time) that the first two logs he might examine could belong to an era so remote and so different that they not only checked different from the overshading living trees, but also from the Eastern dominants which preceded them. He could never have visualized the transition, or have granted the million of years required to carry us back beyond these stages.

Yet, the first two woods I have examined from Bonneville have turned out to represent members of the modern Asiatic forests. Cedrus (Cedar of Lebanon) I have already reported in Fossil Woods, Vol. 1 No. 7, Oct. 1941--as well as at the annual banquet of the Geol. Soc. Ore. Country in 1940.

A splendid specimen of Keteleeria has just been received from Carey F. Wentz and A. H. Hoffman of Bonneville. This type agrees in essential detail with my number 1129 reported in Fossil Woods, Vol.1 no.6, Sept. 1941, as coming from some place and horizon in central Oregon.

Ultimately, "maple and pine" corresponding to our modern Pacific Northwest trees may be found among the petrified (Miocene?) giants at Bonneville, but probably not until a larger representation of Atlantic coast elms, sycamores, walnuts, etc., have been encountered. The identification of Cedrus and Keteleeria among the first two logs does not mean necessarily that the "asiatic element", was larger than the "Atlantic", or than our modern western types, but it does suggest that this exotic element was conspicuous in "Eagle Creek" days of some 20 million years ago.

DEATH VALLEY
Expedition of the College of the Pacific - 1942

by

Mary Margaret Hughes

Planning and packing are usually two of the most exciting and exacting stages of a trip. However, when making preparations for the 8-day expedition through Death Valley, that region of legend and mystery, it was a relief to know that all responsibility for the conduct of the tour rested with the College of the Pacific. For ten successive years this institution has conducted these educational expeditions, and through this long experience has built up equipment and facilities to ensure the health, happiness, and mental stimulation of its students and interested outsiders accepted in its annual membership. Packing was reduced to a minimum of effort by following concise printed instructions furnished by the college, the most necessary items being: a sleeping bag or the equivalent of six or eight blankets, outing clothes including plenty of warm garments for quite cold weather and on the other hand, clothes suitable for a temperature of 100 degrees Fahrenheit, dark glasses, a CANTEEN, and such toilet articles as cold cream, talcum powder, soap and towels; field glasses, flashlight and pencils advisable; camera optional.

To add to my appreciation of the trip I spent considerable time reading material on Death Valley. The paper that gave me the greatest fund of information with the least amount of thumbing of pages was the digest of a lecture by Dr. J. H. Jonte, Professor of Geology, College of the Pacific, published in the News-Letter of 7-25-40, pp. 118-120. Those two and one half pages are packed with interesting descriptive and factual material covering nearly every phase of Death Valley, such as, climate, plant and animal life, geography, geology, etc.

The well organized and smooth-running annual expeditions through the desert land have been under the direction of Dr. A. T. Bawden and Dr. Jonte. The itinerary as planned by them for 1942 made certain changes necessary, due to the national emergency. Visit to Boulder Dam was not possible as it has been closed to visitors. Owing to tire rationing busses had to replace private cars. Trips to some of the beautiful canyons, such as Mosaic Canyon could not be made by bus.

The following is the itinerary as planned:

3-28-42 Stockton, Merced, Fresno, Tulare, Bakersfield, Isabella; mileage 279 miles. Camp by Kern River.

3-29-42 Walker Pass, Ricardo, Red Rock Canyon, Maintenance Station, Lone Pine, Gunga Din Camp in Alhambra Hills; 155 miles. Camp at location of temple.

3-30-42 Lone Pine, Panamint Springs, Sand Dunes, Stovepipe Well; 95 miles. Camp, the desert sands.

3-31-42 Golden Canyon, Bad Water, Furnace Creek Inn, Zabriskie Point, Furnace Creek Ranch, Old Harmony Borax Works, Gnome's Work Shop, Stovepipe Well; 85 miles. Camp, desert near sand dunes.

4-1-42 Rhyolite, Scotty's Castle, Ubehebe Crater, Stovepipe Well; 132 miles.

4-2-42 Stovepipe Well Hotel, Panamint Springs, Gunga Din Camp; 95 miles. Camp at foot of Mt. Whitney.

4-3-42 Lone Pine, Little Lake, Maintenance Station, Walker Pass, Isabella, Camp Isabella; 120 miles.

4-4-42 Camp Isabella to Stockton; 279 miles. Total mileage, 1240 miles.

The caravan left Stockton about 7:30 on the morning of March 28. It consisted of four large sight-seeing busses and a great food truck. There were 125 passengers including professors from the college staff, a physician, a recreational director, students, and outside interested individuals. Those taking the trip for the first time bore the title, "Desert Rats", a term which suggested to me disease, filth and fleas. A leader was assigned to each bus. They were all men with special qualifications, but our bus drew one who had no interest in geology, therefore he had no understanding of or patience with rock hounds. To me, this was a real handicap; but to others it may have rated as one of his strongest assets.

The food truck was a vital part of the caravan. It carried the food supply for the 8-day trip, the refrigerator and all the equipment necessary for the preparation and serving of meals or other routine activities of camp life. Its importance was brought home to us when on April 2 it broke down and was left behind while the busses went ahead to make camp in Darwin Canyon, a point nearer the place of breakdown than was Gunga Din, the camp listed on our schedule for that night. The truck did not come rumbling into camp until late in the night. We had not suffered from hunger as our lunch bags contained left-overs sufficient for an evening snack. It seemed to me that truck had played a belated April Fool's prank on us to send us to bed without dinner.

The expedition is run on a cooperative basis. Each member signs up for K.P. and camp fire duties. Sharing in the domestic work of camp life appeared to afford an opportunity for a jolly good time and proved the truth of the adage, "many hands make light work". The preparation of meals, filling lunch bags, washing dishes and cleaning up camp were accomplished in incredibly short time. No one had to serve on such duty more than twice during the trip. My K.P. duty consisted of baking pan cakes for a short time one morning. There were three large griddles in operation. By the time I poured batter for the eighth cake the first two were threatening to turn to cinders. I found home experience in baking hot cakes did not carry over to mass production. The boys presiding over the two other griddles were experts.

The hours spent around the evening camp fires were devoted in part to educational purposes with lectures on the history and geology of the valley, astronomy, etc. The remainder of the evening was given over to recreation, community singing and stunts. The songs were often composed and rehearsed on the busses during the day and usually served as an adjunct of the stunt of the evening. From the first day out a wholesome, spirited rivalry developed between the four bus groups. It proved a perfect medium for clever and mirth-provoking songs and stunts which grew evening by evening in wit and humor under student leadership.

In order to allow for a long day of travel with stops at points of interest it was necessary for us to arise in time to make our toilets, carry our sleeping bags to our respective busses and be ready to respond to a seven o'clock call to breakfast.

We reached Stockton late in the afternoon of April 4. As the bus sped over the last few miles laughter and chatter had subsided as though all felt regret that the marvelous trip was so soon to end and our congenial group dispersed. As I alighted at my hotel and waved goodbye I recalled the words at the end of our printed itinerary "We part with a renewed faith in human nature and a greater appreciation of God's handiwork".

Since reaching home so many pertinent questions have been asked by those interested in the trip that it occurred to me that the most frequently repeated questions might serve as a gauge of the information readers of the News-Letter would expect from a desert rat recently escaped from the enchantments of Death Valley. The following questions selected all relate to subjects of a a popular nature.

Did you have good weather for the trip? Yes, the weather was quite ideal. There was one light sand storm just sufficient to show shifting sands in mild action. We encountered no rain until out of the valley on our return trip northward. At times we were thankful for plenty of warm clothing and blankets, and again we were equally thankful for the coolest articles of dress our grips could yield.

What about rock strewn roads? We made the 1240-mile journey over good roads.

Was the valley floor carpeted with flowers? That condition exists only in years when the rains fall at the right time and in the proper amount. This was not such a year, never-the-less we saw a large variety of flowers and in some places in profusion.

What is the risk to tourists from poisonous bites and stings? We did not catch a glimpse of any snakes, although some of us would have been interested in seeing the famous side winder at a safe distance. Those interested in biology captured quite a collection of lizards for display. The leopard lizard was the beauty of the group and the big, ugly chuckwalla the most vicious. We inspected a 3-inch scorpion in the safe confines of a bottle. It was said that the young woman who found this unwelcome visitor in her sleeping bag quietly remarked, "Why there is a scorpion. Ken Stocking will want to show him to the biology students." It is a safe guess that this brave girl was a member of the biology class. The sting of this scorpion and the bite of some of the lizards would be very painful but not necessarily fatal. In another enclosure with a wire mesh cover I found a beautiful little creature with soft fawn coat and large brown eyes that looked up at me with the quiet confidence of an animal that had lived with and learned to like human beings. He sat up on long hind legs with his short fore legs curving gracefully downward and reminded me of a miniature kangaroo. Just as I was thinking I should like a cute pet like that someone approaching called out when quite close to me "Here is the desert rat" and in a moment a group of students were inspecting and discussing the characteristics of the desert or kangaroo rat. The most surprising thing I learned from these biologists, in the making, was that this gentle, inactive appearing little rat could, when occasion demanded, put on a real speed show. Using his strong long tail as a spring board he could cover twelve feet in one leap.

Did you send boxes of specimens home? This question was prompted by the common belief that good specimens may be picked up everywhere in Death Valley. There is material there in abundance suitable to add to the finest collections; but to collect specimens you must "know your rocks" and learn where they are located or else have the leisure to go out in search of them. The interests of the group as a whole were so diversified that time and effort could not be alloted to favor the interest of any one special group. I procured the best specimens I brought out with me from dealers.

How did you keep clean? The Expedition provided wash bowls and a portable shelf on which to place them, also hot water each morning. A public ablution restricts the body area covered. Anticipating this situation I had carried with

me the making of what is known in colloquial as a spit bath. The equipment consisted of listerine diluted with water from my canteen in a small container, a supply of small squares of old linen and paper bags in which to deposit the pledgets as used. These baths gave a sense of cleanliness and served as a good substitute for soap and water when the water was so hard it would not lather with soap. They proved especially effective in keeping my feet in good condition. And what adds more to the pleasure of a long outing trip than comfortable feet? (Hope the discussion of this subject will not offend those with over-sensitive delicacy.) The one opportunity for a bath was at Furnace Creek Ranch or a swim in the pool at Furnace Creek Inn.

Was it difficult to find water for your canteen? The printed instructions gave the stops at which potable water was available and indicated places where the water was not safe to use because it contained a high percentage of magnesium sulphate or other substances. On one occasion a group ignored this warning. The next morning the culprits stood in line to see the physician who was busily administering bismuth.

What is the most impressive feature of that wonderful desert land? I now regret that I did not think of this question myself and in time to take a poll by our bus group as we drove back to Stockton. What a diversity of expression would have come from those thirty one members with their difference in background, education, training and experience! I venture a guess on a few responses. The artist would say "scenic beauty", and her folio of sketches held proof of this for her and others who had seen them. The musician would say "the organ in the $150,000 music room in Scotty's Castle" and those who heard her play that instrument would vote with her. The gentleman with get-rich-quick ambitions would express his wishful thinking in two words "lost mines" and to himself would add "could I find one of them, oh boy!" The student votes would fall in line with their favorite science courses and be distributed among geology, astronomy, biology and others. For myself, with the picture of the valley in mind as seen from a height, stretching in a shimmering soft haze between its boundaries of high mountains, and with some realization of the complexity of its formation through the long geologic ages, I would feel I was performing a vivisection if from that marvelous whole I dissected a part. Therefore my vote would be cast for "Death Valley in its entirety."

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Any member who has news items for the News-Letter please send them to the Editor, who will see that they are printed.

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GEOLOGICAL NEWS LETTER

OFFICIAL PUBLICATION OF THE

VOL. 8 NO. 12 **PORTLAND, OREGON** June 25, 1942

GEOLOGICAL NEWS-LETTER
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Occupation . . . . . .Hobbies. . . . . .

I am particularly interested in the following branches of geology: . . . . . .

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(signature) (member)

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LUNCHEONS: Every Thursday noon, in the banquet room of the Treasure Island Restaurant, 815 SW Broadway (50¢ minimum). A table is also reserved every day except Thursday and Sunday for the men of the Society in the "Barnyard", 8th floor, Lipman Wolfe & Co.

Friday June 26 Subject: "GEOLOGY OF THE PHILIPPINES"
Speaker: Dr. Warren D. Smith - Head of the Departments of Geography and geology, University of Oregon, Eugene, Oregon.

Dr. Smith headed the first scientific expedition across the island of Mindanao, and is the author of a book on the mineral resources of the Philippines and had planned to make further studies on the islands for a revision of this book but the war has interfered with that work.

NEWS NOTES

The business manager thanks Dr. Packard and Lloyd Pepper of the Salem Geological Society for back numbers of the News Letter. He also is specially thankful for back numbers covering several years sent by Professor Jesse Watson. This "haul" is doubtless the result of a paragraph in the bulletin of the Salem Geological Society. This cooperation is greatly appreciated.

***

The Salem Geological Society has recently enjoyed lectures by Dr. Dake and J. A. Dement on uses of ultra-violet light; Dr. Edwin T. Hodge on the Geology of Mt. Jefferson, and Dr. Ethel I. Sandborn on Paleobotany.

***

J. C. Stevens has recently attended committee meetings of the American Society of Civil Engineers in Madison, Wisconsin, and Iowa City, Iowa.

***

Dr. Lester Jones was in Portland on leave from his duties with the Navy at Bremerton, to attend the meeting of the Medical Society. He looks fine in his naval uniform, nicely trimmed with gold stripes of assorted widths.

***

The recent death of R. R. Poppleton was a shock to members of the Geological Society of the Oregon Country even though it was known that he had been seriously ill. The Society extends deepest sympathy to Mrs. Poppleton and Grace.

***

Mary Robertson became the bride of Bernard D. Beckerlegge of Pasadena, Cal. at Trinity Episcopal Church, Thursday, June 4.

Following a dude ranch honeymoon the young people will be at home in Pasadena, Cal. The Best wishes of the G.S.O.C. go with them to their new home.

***

Clarence Phillips is now Most Worshipful Grand Master, Grand Lodge of Ancient Free and Accepted Masons of the State of Oregon. Practice using this title so that you can rattle it off glibly when you meet him.

***

This is the last copy of the News Letter you will receive unless and until you have made satisfactory arrangements with the Secretary. Permit us to suggest that you pay your dues in full now that you can't spend money for sugar or tires.

***

Mazama Outing

The attention of geologists has been called to the Mazama outing in the Three Sisters country, beginning July 15 and lasting two weeks.

The trip will be made by bus and the total cost is to be $45.00.

This is a region particularly rich in volcanic study, and will be made more interesting by lectures by Dr. Hodge who will be a member of the party.

***

Claire Holdredge's Lecture

On Friday evening June 12, Claire Holdredge explained to an audience of sixty geologists, the relationship that the geology of the Pacific Coast has to national defense.

He thinks that the rough northern coast backed by high mountains would make the country difficult to attack and easy to defend in general, but if the enemy could break through in great numbers to the "Rocky mountain trench", occupied by the Flathead, Columbia, Kootenai, Canoe and Laird Rivers he would have nearly half the mineral belt in the country as well as many of the large power plants.

The coast of Oregon has many places where an enemy could land, but they are also accessible by a land defense force. Most of the Pacific Coast between Canada and Mexico is well inhabited and therefore could give warning of attacks.

Mr. Holdredge thinks the most vulnerable part of the coast is that of Mexico, the Gulf of Mexico being an ideal place because of topography, climate and lack of population.

*****

LUNCHEON NOTES
by
Donald O'Connell

June 11

Dr. Adams returned with a degree of Bachelor of Arts which he recently received from the University of Oregon. This is Dr. Adams' third degree.-o- Mr. Libbey brought an extremely rare specimen of stibiconite from Baker County, Oregon. -o- Dr. Hodge had an interesting piece of pure metallic magnesium from a plant in California. -o- Mr. Allen showed a portable flourescent lamp which he built himself. He volunteered to show anyone interested how to make one. -o- Donald O'Connell exhibited a lovely specimen of dark Brazilian amethyst xls. -o- Our thanks to the anonymous benefactor who placed the charming pot of gloxinias on our table.-o- School vacation was reflected in the attendance of the Misses Myrtice Fowler, Almeda Smith, Kate Roza, and Dr. Edwin T. Hodge.

*****

AND THIS IS NO FABLE

There was a famine of rubber in a certain country. And the governor of that country said unto his people, "Go easy on your tires, for I know not when you will get any more!" And most of the citizens took the matter to heart and eked out their mileage with care.

And behold, there was a certain man and he had five tires which had only gone a few thousand miles. And he said, "I will gather together my neighbors that we may go to town together - each man driving his car but one day in the week." Then his neighbors rejoiced - especially those whose casings were about shot.

Again, he said to his wife and offspring, "Let us not drive the car anywhere that we can reasonably travel on shoe-leather. Let us seek our pleasures nearer home. Let none drive unless three or four are gathered together!"

So it came to pass that after twelve months of famine this wise man had plenty of mileage left in his tires. And his name shall be called A.

Now there was another who owned a car, which is to say that he had kept up some of the payments on it. And this youth harkened not unto the advice of his uncle but burned up the road in daily dalliance with his devoted girl friends.

His delight was in demonstrating his quick pick-ups, his rounding of corners on two wheels, and when the spirit entered into him, his merry game of tag with unwary pedestrians. What shall he do, then, when the fabric appeareth on his treads and the air leapeth out with a loud noise? Shall he grieve that he cannot purchase any tires in the bazaar, even for cash? Will he bow his head in shame and stay put?

Not on your life. He'll swipe A's tires. You see.

--Anonymous

*****

THE EDITOR'S WANDERINGS

To be awakened an hour earlier than usual by the radio blaring raucously "This is the end of a perfect day" is one way to start on a vacation trip. And to load, and to ride all day in a downpour of Oregon's wettest rain is one way to continue the trip. But even such a beginning and such a rain cannot entirely crush such seasoned "trippers" as the editor and his wife when they have their mind made up to scout for scenery with geology on the side.

Heavy rain, however, is something of a deterrent in the matter of photographing the landscape and the fewer stops for pictures the further one can drive in a given time, so the end of the first day brought the excursionists to Port Orford where,after a short exploratory hike in the neighborhood of the camp, they were glad to eat their frugal supper and retire to a restful bed.

An interesting gravel cut was discovered but since no faceted pebbles, no nuggets nor fragments of petrified wood were discovered it was marked zero on the geological score card.

(continued on page 93)

Additions to the Gray Ranch Wood Flora

by

George F. Beck

Since the writer completed an account of seven fossil wood types from the Gray Ranch, Central Oregon, (Fossil Woods, Vol. II, Nos. 1-6, Apr.-Sept., 1942) another small collection has been made available through the generosity of the University of California. The specimens in this new collection were sectioned some years ago by Prof. Lyman Daugherty of San Jose State College and the slides carry his identification labels. Apparently Prof. Daugherty is entitled to credit for the discovery of four types (Sequoia, Platanus, Quercus, and Juglans) at Gray Ranch. I have checked his Juglans (walnut) slides with care for this seems to be the original listing of this genus, based on the wood, for the entire West.

Fortunately for this purpose there are at hand various species of the known genera of the walnut family, and many walnut-like woods as well. For these we are indebted to Dr. S. J. Record of Yale University and others. Use has been made of Krib's key to the modern Juglandaceae (Tropical Woods, 12, 16-21, Dec. 5, 1927). In consequence I feel that Prof. Daugherty's reference of this fossil wood to Juglans can be accepted with only the slightest reservation--this last with respect to the marked en echelon arrangement of the pores and the conspicuously numerous and large strand crystals, features which are more typical of other members of the family. The five genera remaining in the family (other than walnut) have been eliminated for reasons as listed:

Platycarya--Whose spiral vessels and ring porous arrangement, as well as wide and strongly heterogeneous rays are not suggested in the fossil wood.

Carya--The various species of this genus seem to be at least "grade porous" (largest pores on the inner margin of the ring, reducing gradually across) as opposed to the strictly diffuse (first pores often smaller than those further out in the ring) character of the fossil. Nor does Carya typically duplicate the marked en echelon pattern of the fossil wood. Principally, I have rejected the hickories on the basis of the strand crystal series. Hickory apparently reveals these in vertical series of one to two. The fossil (and walnut and engelhardtia) carry these consistently in series of 1-4 (with intermediate members sometimes reduced).

Engelhardtia--No barred perforations have been observed in the Gray Ranch specimen but may have been missed. The markedly heterogeneous rays and the elongate, often scalariform vessel-parenchyma pitting of Engelhardtia have not been found in the fossil. On the other hand only the American members of this genus seem to show annual ring boundaries (but not nearly as pronounced) as in the fossil wood.

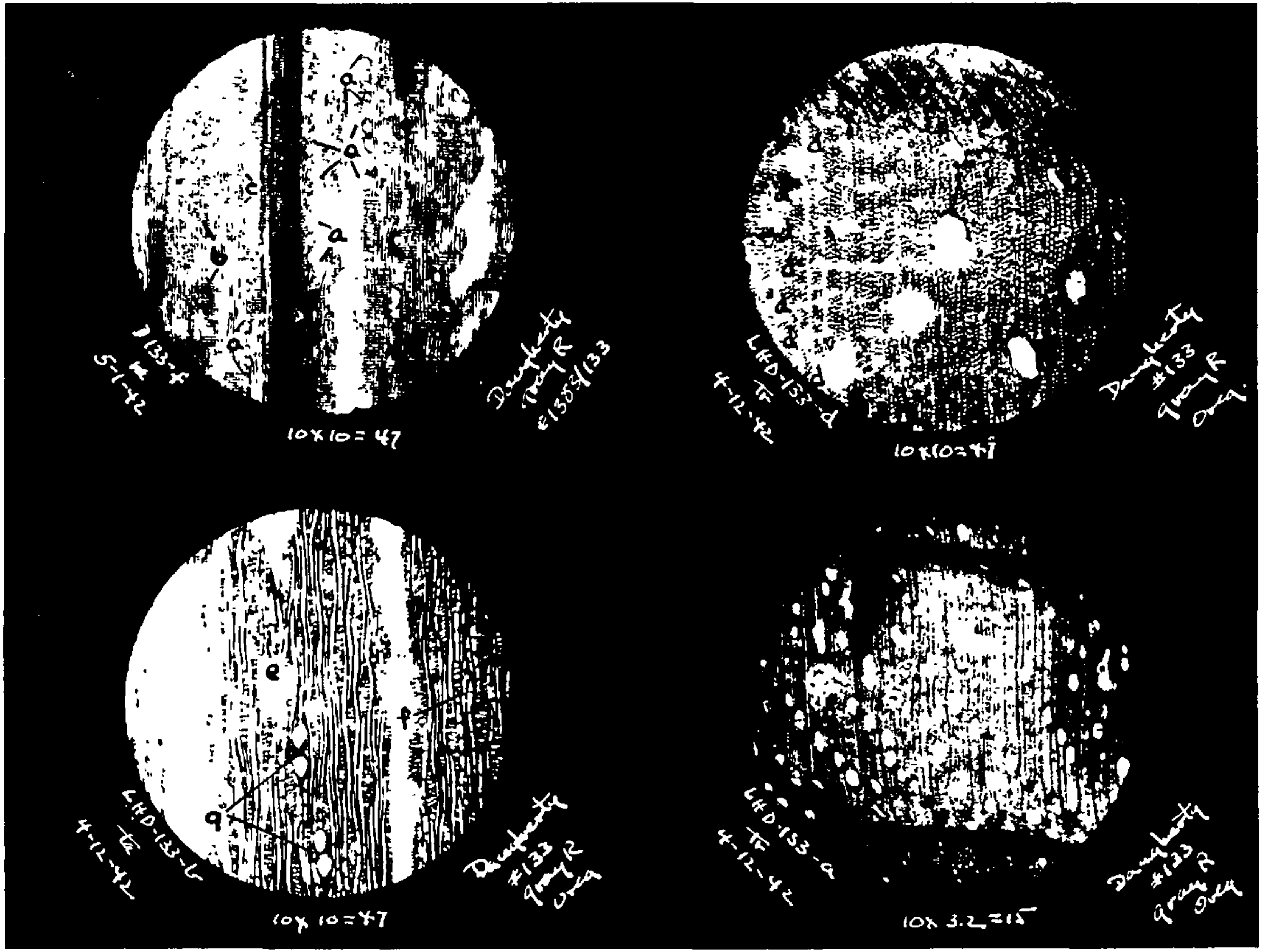
Alfaroa--This modern genus apparently has pronounced scalariform perforations between vessels, and pitting which can be mistaken for the same, between vessels and parenchyma. The rays are narrow and strongly heterogeneous.

Pterocarya--I have made sections of some half dozen modern species of this genus, all of which show narrow 1-2 seriate rays (essentially homogeneous) and the questionable presence of strand crystals at all. Pterocarya, occasionally too, shows vessel segments with attenuate, pitted tips.

If the Gray Ranch walnut-like wood does not in fact represent an extinct genus of the family--always a possibility in the naming of fossils--it seems more logical to assign it to the walnuts than to any other modern genus of the Juglandaceae. This reference is made because of the typical walnut character of the rays and pitting, and because of the 1-4 crystal strands, notwithstanding the more Pterocarya-and Engelhardtia-like transverse topography. It would be highly desirable to confirm this reference through the recognition of "chambered" pith--which is not present in the specimen and may not appear in any Gray Ranch fossil within our own time.

Significance: This is a second (to mine) collection of woods from Gray Ranch carrying a modern rather than an "exotic" element. Since three of Daugherty's genera duplicate as many of my seven, there are now a total of eight generic types known from the Gray Ranch woods, thereby accounting for about one-fourth of the thirty some trees listed by Dr. Chaney (Publication 346, Carnegie Institution, page 70, 1927)--Sequoia (redwood), Celtis (hackberry), Platanus (sycamore), Quercus (live oak), Tilia (basswood), Corylus (hazel), and now Juglans (walnut). Since there has been no consensus of opinion concerning the identity of all the walnut-like leaves found in our Tertiary--hickory, pterocarya and walnut being in question especially--this wood is welcome evidence that at least Juglans was present in the Gray Ranch (Oligo-Miocene) forest.

Specimens: Juglans LHD 133/1383, available as 4 photographs under my label LHD-133-a (tr x 15), -b (ta x 47), -f (ra x 28), -d (tr x 47). Quercus LHD E175, photos LHD-175-a (tr x 28), -b (ta x 28), -c (ra x 28). Sequoia LHD 50/1347, photos LHD 50-a (ra x 200), -b (ra x 200). Platanus LHD E/176 (no photos). The live oak (Quercus) could come from the same trunk section as mine, even to the "core-like" feature included in a swollen ray. The sycamore (Platanus) shows even wider rays than mine, but undoubtedly represents the same type. The redwood (Sequoia) shows the longitudinal parenchyma to better advantage than my one small specimen, and in addition I have been able to obtain very satisfactory photos of the pitting in ray cells and longitudinal tracheids. But as yet no "duct rows" have appeared.



J133-f
5-1-42
10x10=47
Daugherty
Tary R
#1383/133
LHD-133-d
TF
4-12-42
10x10=47
Daugherty
#133
Gray R
Orig.
LHD-133-b
TF
4-12-42
10x10=47
Daugherty
#133
Gray R
Orig
LHD-133-a
TF
4-12-42
10x3.2=15
Daugherty
#133
Gray R
Orig

Additions to the Gray Ranch Wood Flora

Plate D133-f
Radial x 47

(a) Parenchyma strands exhibiting crystalliferous cells in series of 1-4.
(b) Parenchyma strand without crystals.
(c) Rays slightly heterogeneous (marginal cells higher vertically than internal cells--but not erect).

Plate LHD-133-d
Transverse x 47

(d) Narrow parenchyma lines, more or less paralleling each other around ring and independent of pores.

Plate LHD-133-b
Tangential x 47

(e) Rays 1-3 seriate ---body of rounded cells---uniseriate wings of somewhat elongated (heterogeneous) cells.
(f) Zone of septate wood fibers (ordinary wood cells with several cross-walls)
(g) Two pairs of unusually large crystalliferous strand cells.

Plate LHD-133-a
Transverse x 15

Showing the conspicuous diagonal or "en echelon" alignment of pores across the annual ring---wood crushed near both ring boundaries.

*****

WAR METALS SHORTAGE

Among the many problems facing the country metal requirements for production of war materials are taking on ever increasing importance. It has been realized for some time that current supplies of metals are inadequate for both war and all civilian needs, and so some supplies for "nonessential" civilian use have already been largely cut off. Since production essential to our success has not by any means reached its peak, shortages of certain metals for direct war use seem inevitable.

Undoubtedly the magnitude of the demand for metals was not fully realized in time by those who planned for procurement of mineral supplies. The attention given to stepping up plant capacity and installing new manufacturing facilities was out of proportion to the attention given to the procurement of an adequate supply of raw materials - mainly metals - to supply these plants. Even now it is at least questionable if those in high authority have a clear understanding of the time-consuming problems connected with finding new ore deposits and putting them into production.

It is idle, however to point out the deficiencies of past planning except in so far as their recognition will help to avoid future mistakes. What we shall do now to reduce the looming shortages is the all-important matter.

First, every practical assistance should be given legitimate mine operators and exploration projects. The situation is so critical that money considerations should not govern. Neither private nor public financing is available; taxes and regulations have driven "risk money" into hiding. The Government is the only source of capital left for financing mining enterprises; but Government agencies for procurement and Government agencies for financing are separate and distinct; they look at the problem from different viewpoints, unfortunately. Unless they can work together expeditiously and in harmony the financing of new projects will be in the future as it has been in the past bogged down in departmental delays. The situation is showing great improvement, but Governmental action appears ponderous and hesitating when, in times like the present, prompt action seems so vital.

Second, substitutes for the very critical metals should be used when ever practical. The necessity of using substitutes has been recognized for over a year. Some substitutions have been made which were not successful because the substitutes themselves became critical. Molybdenum of which we have a relatively adequate supply has replaced tungsten in some alloys. Steel is being used to replace brass in shell casings, and this substitution will have a definite effect on copper and zinc demand when the production of the steel shell casings gets into full production. Substitution of silver for copper in Government-owned power plants has been advocated by engineers for several months. Opposition of congressmen from silver states has held up this program, but the shortage of copper will eventually, if belatedly, overcome present opposition.

Third, collection of scrap metal should receive an immediate "shot in the arm". The time has come when delays and indifference should give way to action. Drives should be organized along the same lines as the present rubber drive. It should be brought home to every individual that our war needs urgently require that he collect and deliver every pound of scrap metal that he can find. Means for easy delivery to a government agency should be made available to every householder. People will cooperate in such a drive if they realize the need and are told what to do.

In connection with the subject of shortage of metals the Engineering and Mining Journal has recently published a list of "essential critical" metals as so designated by the War Production Board. These are as follows: aluminum, cadmium, chromium, cobalt, copper, iridium, magnesium, nickel, rhodium, tin tungsten, vanadium, and high-grade zinc. It will be noted that the old classifications of "strategic" and "critical" have ceased to apply. Such metals as antimony, calcium, lead, manganese, platinum, quicksilver, and ordinary zinc, formerly classed either as "strategic" or highly "critical" do not appear in the "essential critical" group. Because of increased production, larger imports from Cuba and Mexico, and conservation in use, these metals appear to be available in sufficient quantities to meet our essential needs. On the other hand, demand for the "essential critical" group is so huge that our supplies of certain of them may not be adequate. Practically all of our nickel, tin, and cobalt must be imported. Production of aluminum and magnesium is expanding but not rapidly enough to meet the demand. Particularly in the case of magnesium, expansion has been disappointing, and it would appear that attempts to put some experimental processes into commercial production before proper pilot plant work

had been done were ill-advised. This does not apply to the large plant of the Dow Chemical Co. on the Gulf coast where magnesium is produced from sea water.

Iron and steel is not included in the above lists although steel is the backbone of our war production. There is not now nor has there been any lack of iron ore available. There is, however, a shortage in furnace and steel-making capacity, and a great need exists for iron and steel scrap.

F. W. Libbey

*****

Editor's Wanderings

(Cont'd from page 87)

The second day started without the fanfare of the radio and less rain fell. Battle Rock at Port Orford was given a casual glance, the old Knapp Hotel-- said to be the oldest hotel in that part of the State--now owned and soon to be removed by the State Highway Department to make room for a change in the road location, was passed by without a full realization of its historical significance, and the travellers were soon skirting the landward flanks of Humbug Mountain. Coming in sight of the ocean again a fine new concrete bridge over Hubbard Creek was discovered. It is inaccessible except by long ladder or by wings.

Lunch, including the most excellent cherry pie tasted since leaving the home nest, was eaten in a roadside restaurant in Brookings. It developed that the cherry pie was by "special request" of a young soldier stationed at Brookings. He was one of 13 men in the uniformed service of his country eating at this place, and no two of the men wore uniforms that matched except in a general sort of way. Only one was equipped with a gas mask and the editor quite envied him after the previous day's experience with "fresh" salmon, the odor of which haunted him through the hours and miles of a long afternoon.

At the California border a soldier cautioned against photographing "recognizable features of the coast" which rather spoiled the trip photographically except for such flowers and small objects as could be approached closely enough to exclude a recognizable background.

The aquarium at Crescent City was found to be less attractive and more expensive than the one at Depoe Bay, but the two mussums (one free) were found to be quite interesting. Some coral specimens were available in the "free" museum and the profits on sales doubtless offset the lack of admission charge.

Leith's cottages at Gold Beach are comfortable and reasonable in cost. Steam heat backed up by a fire place and plenty of wood assured sufficient warmth. The beds are excellent and the rooms are large enough to allow tenants to move about without bruising each other.

Mr. Carter's Shell Oil Station sells tickets for the Rogue River boat ride to Agness at $3.00 for the round trip, and taxies passengers to the boat landing about six miles up the river. One's car may be left in a locked garage at the service station.

The mail boat doesn't look any too inviting but the seats were found to be comfortable, though crude. A canvas roof and a glass wind-shield kept out the rain, but spray occasionally dampened the passengers.

Green forests come nearly to the water's edge most of the distance to Agness where the Illinois river joins the Rogue river. Bars of sand or gravel rise to heights of six or more feet above the water surface as of May 29, 1942, the date of the excursion. Possibly some of them contained gold but heavy shovel work would be required to prove this. Deer were seen on the bars and in the brush above them. Sheep were numerous on the hills.

Landings were brief and casual. Mail was thrown as far back on the bars as the boatman's strength could manage, but packages for the boat were handled more carefully.

The "V" shaped canyon is not spectacular but has a beauty all its own. It defies photography but will be hard to forget even without pictures.

The only house in Agness found by the excursionists was the hotel, but a sign pointed along a road to the store and postoffice. Waiting for, and eating luncheon left no time for exploration before the boat left for the down stream trip, which was rougher on account of greater speed and a head wind. No nuggets were picked up by the party, and all the fish caught were small and had to be thrown back. What few pictures were taken were doubtless light-struck, as the bottom came off the camera while rewinding the film.

Rhododendrons were plentiful and attractive along most of the coast highway, and to lovers of beauty, made the trip well worth while.

The summit on the highway between Florence and Junction City is uptilted soft sandstone, chunks of which rolled into the road making the taking of specimens easy.

Gasoline shortage began to make itself felt at Corvallis but did not cause any delay.

By making use of excellent roads paralleling, in a general way, the main highways, week-end traffic was avoided so the vacationist's names were not seen among those who started out for a holiday excursion and failed to return home.

O. E. S.

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Business Address . . . . . Phone . . . . . .

Occupation . . . . . .Hobbies. . . . . .

I am particularly interested in the following branches of geology: . . . . . .

. . . . . .

I enclose $. . . for the year's dues, March 1 to March 1. (Checks payable to the Society).

. . . . . Sponsored by . . . . . .
(signature) (member)

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FRIDAY EVENING MEETINGS

July 10th and 24th-

Scoop! We have arranged a journey "Through the Oil Lands of Europe and Africa". We will visit oil fields for which great battles are now being fought. We will see the people in the time of peace, going about their daily tasks, without thought of the present. Many of the scenes cannot be duplicated after this war ends. Here is the itinerary of the trip:

July 10th - Visit Germany, France, Spain, Morocco, Algeria, Italy, Hungary and the Danube, and Rumania.

July 24th - Visit Poland, Greece and Egypt.

Don't miss the sailing. Your tickets and reservations have all been arranged.

FIELD TRIP

Sunday Leader: Walter Lundberg.
July 12 Trip: VISIT TO SAUVIES ISLAND.
The group will visit Sauvies Island, where several miles of new dikes have just been completed exposing many rare Indian Artifacts. Will leave Front and Yamhill at 1:00 p.m., return at 6:00 p.m. Those wishing to take picnic lunches may do so.

LUNCHEON NOTES
by
H.B.S.

June 18, 1942

Prof. Glenn C. Ware of the School of Chemistry, Oregon State College, was the guest of Mr. Libbey.

Miss Arline Shaw made her first luncheon attendance.

Miss Nella White passed a collection of Mexican curios.

Miss Clara Nelson told of the recent Audobon Society trip to the Malheur Bird Sanctuary.

Mrs. Lincoln Doney made her first luncheon visit in a long time.

Miss Eva Catlin is looking for a permanent location in Portland.

The entire group stood in silent meditation, over the passing of Mr. Ralph R. Poppleton.

LUNCHEON NOTES
by
O.E.S.

June 25, 1942

Among the twenty-two members and guests present, we feel that special mention should be made of Mr. Bates (who has spent three weeks in California on a business trip), Miss Clara Nelson and Miss Nella White and Mrs. Arthur C. Jones and her son. Dr. Jones was present, also, but he is a more frequent visitor than the others mentioned.....o.....Mr. Graham John Mitchell, now with the R.F.C. and formerly connected with various mining firms as geologist and engineer was introduced by Dr. Hodge with whom he attended Columbia University. He told about some of his experiences in South Africa. He says the South African Natives are some of the finest miners in the world.....o.....Dr. J. C. Stevens had returned from a trip to Milwaukee, Chicago and Iowa City where he had attended meetings of various committees of the American Society of Civil Engineers.....o..... President H. B. Schminky showed a miniature "gold pan" sent to him by Lloyd Ruff who is now at Kalispell, Montana.....o..... Dr. Jones passed around a few photographs of scenes of tree-wells and beaver dams taken on the G.S.O.C. trip in the vicinity of Zig Zag under the leadership of Mr. Orr. As each person around the table thumbed through the whole package before passing the pictures to his neighbor, Mr. Bates began to calculate how much time would be saved by passing each view along as soon as it was inspected, thus allowing several people to be enjoying them at the same time. Assuming that there were twenty people and ten pictures with a viewing time of ten seconds for each picture, the saving might not be much, geologically speaking, but might be appreciable at a luncheon.....o..... Miss Hughes had a specimen of quartzite from Fishhook Creek in the Sawtooth Mts., Idaho and a rock from Mt. Heyburn, also in the Sawtooth range.....o..... Dr. Booth had a nice-looking piece of alabaster from Fort Collins, Colorado.....o..... A letter from Mrs. Poppleton thanked the Society for flowers sent to Mr. Poppleton's funeral.

LUNCHEON NOTES
by
O.E.S.

July 2, 1942

An attendance of twenty one on the hottest day in the history of Portland speaks well for the members of the Geological Society of the Oregon Country as "luncheoneers". Three of this number were guests of Dr. Booth, and one, Lt. Tom Roy, was a guest of Mr. Libbey. The heat (or something) must have slightly affected the reporter, for he has the names of only two of Dr. Booth's guests. They were Miss Jean Fowler who spent last summer travelling through South America with a motion picture camera, and the doctor's son, Charles Frazer Booth, who was graduated from Yale University on June 8 of this year.....o..... Dr. Arthur C. Jones told of cakes of clay bearing the imprints of human hands having been dug up from an unmentioned depth while early Portland settlers were excavating a well south of Mount Tabor near what is now Woodward Avenue. We will not hazard a guess as to whether the heat may have had anything to do with this tale.....o..... John E. Allen, back from a trip in southern Oregon, told of an auto ride from Agness to Powers with Ray Treasher. Five miles of the journey were made following a caterpillar tractor at the end of a tow rope since their car refused to move under its own power after the front bumper began to drag in the mud.....o..... There was not an opportunity to ask John if he had seen any of the "speckled" sheep the editor claims to have seen in the vicinity of Agness.

. . .Dr. Booth had several geological specimens and a bound volume of "Desert Magazine". He told of having used John Allen's portable lamp for testing minerals for flourescence in competition with several other more expensive lamps and finding that the Allen lamp is superior to any of the others.....o..... John Allen tested the knowledge of the group by passing a piece of rock containing a red substance. Many thought it to be cinnabar as he had expected them to, but a few of the wiser heads guessed the right answer: arsenic, in one of its forms.....o..... Mr. Baldwin had a letter from Tom Carney saying that Tom is in Southern Oregon working as electrician on one of the cantonments and will be busy for some time. Tom is finding good use for his trailer now, as he has on many of his pleasure trips--it gives him shelter where shelter is one of the scarcest things there is. We shall all be glad to welcome Tom back at the Thursday luncheons when he has amassed his "pile" as a defense worker.

Another possible effect of the intense heat is this story as told by Mr. Bates. According to Mr. Bates, Mr. Stanley had made application for membership in the First Church and was being examined by the committee. The questioning had proceeded for some time with fair satisfaction when the chairman inquired:

"Then, Mr. Stanley, you will be willing to do anything that the Lord may require of you?"

Mr. Stanley paused for a moment before answering:

"Yes, so long as it is honorable."

As the inquiry went forward things seemed to be getting worse and worse for the applicant. At last the chairman became quite vexed and asked:

"Mr. Stanley, don't you have any religious views at all?"

"No," was the reply after due deliberation, "I don't believe that I have. But I have got some darned good Kodachromes of Crater Lake."

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A GEOLOGIC HISTORY OF THE PORTLAND AREA

A full page story about the geologic history of Portland area, based on Ray C. Treasher's G.M.I. Short Paper No. 7 appeared in the Magazine section of the Sunday Oregonian for July 5, 1942. This is illustrated by use of Mr. Treasher's map of the area, a portrait of the geologist and two other photographs, and headed by an array of five volcanoes pouring forth red hot lava. The article is by Rex Tussing, and is well written. Our readers are referred to the Sunday Oregonian and to G.M.I. Short Paper No. 7 for further details. One gets a much better idea of how things happened in the vicinity of Portland before the Commission form of government came into being from reading this story. We are proud of Mr. Treasher's study of this subject. No doubt he will bring out many other papers of equal merit and interest if the war doesn't swallow him before he has time to make the studies.

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BLACK RAPIDS GLACIER, ALASKA

Members of the Society will recall that early in 1937 there were repeated news reports of a "runaway" glacier in Alaska, which suddenly began a sensational advance that continued for several months, threatening to reach the Richardson highway. In U. S. Geological Survey Bulletin 926-B, Geology of the Gerstle River District, Alaska, Fred H. Moffit gives a report on this unusual occurrence and an explanation therefor, which will be of interest to students of glaciology. Following paragraphs are quoted from that report.

"The Black Rapids Glacier is one of the many glaciers of the Alaska Range. It belongs to the Delta River drainage and occupies a basinlike valley with an

area of approximately 150 square miles west of the Rapids Roadhouse on the Richardson Highway. In the winter of 1936-37 the active front of this glacier made a sensational advance of more than 4 miles, an advance which clearly is a recurring event, as the evidence of several former advances is seen in old terminal moraines outside the present front. These advances take place after intervals of many years, during which snow and ice accumulate in the upper valley at a rate greater than that at which they are dissipated, till at last they overcome resistance to pressure and begin a brief, rapid movement. The pressure required to initiate the movement is greater than that required to maintain it after it has been started, and the advance of the glacier continues under diminishing force till it finally ceases and a new cycle begins.

"It is suggested that the rather unusual combination of high mountains, a comparatively large gathering basin, and a constricted outlet provide conditions for a superaccumulation of ice. The free movement of the glacier being obstructed, snow and ice continue to pile up in the basin till a pressure greater than that required to maintain free flowage under more usual conditions is built up. Any one of several causes, such as excess snowfall, excess rainfall, earthquake shock, or possibly other more obscure causes, might serve as an immediate occasion for the sudden yielding to accumulated stresses that evidently took place, although increasing pressure alone would eventually bring about the movement.

"Although the Black Rapids Glacier has shown an unusual advance only once since it was first seen by white men, this was not the first advance but rather the last of at least three advances, as there is clear evidence of the earlier two in the old terminal moraines. It is probably impossible to tell whether other more ancient advances took place, the evidence of which has been destroyed. It seems reasonable to conclude that the events of the winter of 1936-37 may be repeated some time in the future, although if we judge the future by the recent past we may assume that they are not likely to recur in the lifetime of this generation."

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WAR AND SHEEP AND LIBRARIANS

by

O. E. Stanley

It is admitted to begin with that this publication is not the proper medium for an article on the war; and that unpetrified sheep and wide-awake librarians have as little right to space in its pages, but as my knowledge of geology is so limited that I dare not do more than mention the word in my own writings lest I become the laughing stock of the geologists of the Oregon Country, I shall therefore proceed to discuss the above subjects.

Beginning the early days of the War with Spain, which, by the way is nearly far enough back to be noticed in geological reckoning, I, being quite green in practical military affairs, volunteered for guard duty the first night in camp. Thus I came to know these unforgettable words: "I will walk my post in a military manner, keeping constantly on the alert, and observing everything in sight and hearing", etc. It is quite beside the question that I, with these words still whirling through my brain, leaned sleepily against the rain barrel at the corner of the Colonel's office and nearly went to sleep standing up. A kind fate in the person of a stall-mate (we were quartered in the cow stables at the state fair grounds) came down with the measles and those on the guard detail who were members of his company were called back to the barn to be quarantined, so I got a fair night's sleep without being shot at sunrise.

During the intervening years I have been reasonably alert and have observed many, many things. While I can still hear the dinner bell and can still read six-point type, a question as to my vision has now arisen. And this is how it came about:

We were riding back to Gold Beach after having enjoyed the thrill of a boat ride to Agness and back down the Rogue River to the starting place when the better ½ turned to me and inquired:

"What kind of sheep do you think those speckled ones are that we saw on the north side of the river?" Just like that.

"I don't know, but we can probably find out when we get back to the library," I replied.

"Don't you think they were wild ones?" she asked.

"Oh, no," said I, wisely. "I don't think there are any wild sheep in these low altitudes". And there the matter dropped, for in spite of having been intimately associated with me for something like two score years, (look that up in the old arithmetic) she still thinks I know a few things.

Days passed. At length I found myself in the library and hunted up a book about sheep. I learned many things about the intimate family life of the source of mutton and blankets, but not a word about speckled sheep. I replaced the book on the shelf and hesitated a moment before wandering into the Mark Twain room to see if they had received a photographic book that I had not read as yet, and as you know, "He who hesitates is lost". I found that I was looking square into the eyes of Miss Jones.

"Can I help you?" she asked.

Caught unawares, I blatted out the truth, that I was looking for some information about sheep to settle a family argument; instead of lying glibly that I was looking for my wife.

Miss Jones appears to be a peace loving young lady so she immediately set to work to prevent intra-family strife by getting out something like a cord (another reference to the old arithmetic) of books, all having more or less to say about sheep--but no speckled ones.

Time did not permit reading all the references provided at that time so I returned when I had more leisure and boldly tackled the books again. I had deserted the flock of works on photography and devoted myself to a diligent search for the lost (speckled) sheep. Miss Jones again came to my aid with many interesting suggestions which at length led me to the reference room and to other helpful young persons whose entire mission in life seemed to be to help me find a book that would give me the information I sought.

There I got hold of a directory of the sheep owners of Oregon, and found the names of several located in the Gold Beach area.

Did you ever pick out a name from a list with the idea that a person by that name must certainly know all the answers? It is an interesting experiment.

The first man to whom I wrote had not seen any speckled sheep, but he knew sheep pretty well and suggested several cross breeds that might produce the phenomenon about which I had inquired. However, to be dead sure, he suggested that I write to the county agent. That seemed like a very sensible idea and I promptly did so.

My very great respect for the staff of the Portland Library Association is undimmed, but the reply I received from the county agent of Curry County caused me to have doubts about my vision.

The letter follows:

Dear Mr. Stanley:

This is answer to your letter of June 13. I have never seen any speckled black and white sheep in Curry County, nor do I know of any such breed. Occasionally we find a sheep that has more or less black wool, but never speckled.

We do have quite a few hogs running in the acorns and sometimes due to crossing or breeding with Poland Chinas, we do get speckled black and white hogs.

Incidently I thought you would be interested in the statement I obtained from one of the up-river boat operators when I made inquiry in order to answer your question. His answer was, "Find out what kind of whiskey the gentleman drinks."

Yours very truly,

R. M. Knox
County Agent

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STUDY MADE OF NORTHWEST

"The Pacific Northwest," an authoritative study of the regional, human, and economic resources and development of the northwest, has been published by John Wiley & Sons, New York, and received by the University of Oregon library.

Dr. Warren D. Smith professor of geology and geography at the university, was advisory editor for the publication, which was edited by Otis W. Freeman, professor of geography at the Eastern Washington College of Education, and Howard H. Martin, professor of geography at the University of Washington.

Dr. Smith contributed a chapter on geology and geomorphology of the region west of the Cascade mountains. Other Oregon contributors were:

John B. Appleton, acting director, northwest regional council, Portland; R. F. Bessey, consultant, national resources planning board, Portland; Ivan Bloch, chief, market development section, Bonneville power administration, Portland; William L. Finley, vice-president, National Wildlife federation, Portland; Irene Finley, Portland; Edwin T. Hodge, professor of geology, Oregon State college, Corvallis; A. L. Lomax, professor of business administration, University of Oregon, Eugene; Willis B. Merriam, assistant professor of geography, Oregon College of Education, Monmouth; J. C. Rettie, associate consultant, national resources planning board, Portland, and Stephen N. Wyckoff, director, Pacific Northwest forest and range experiment station, U. S. forest service, Portland.

- Oregonian 5-17-1942.

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GEOLOGICAL NEWS LETTER

OFFICIAL PUBLICATION OF THE

VOL. 8 NO. 14 PORTLAND, OREGON July 25, 1942

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THE GEOLOGICAL NEWS-LETTER
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MEMBERSHIP APPLICATION
GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

Qualifications and Dues: Applicant must be sponsored by a member and recommended by the Membership Committee. A knowledge of geology is not a requisite. There is no initiation fee. A Member shall be over 21 years of age; or a husband and wife and all children under 18 years of age. The dues are $3.50 per year, payable in advance, which includes one subscription to the Geological News-Letter. A Junior is an individual between the ages of 18 and 21. Dues are $1.50 per year, payable in advance, and include one subscription to the Geological News-Letter.

Date . . . . . .

I, ... (please print full name) do hereby apply for membership (junior membership) in the Geological Society of the Oregon Country, subject to the provisions of the By-Laws.

Home address . . . . . Phone . . . . . .

Business Address . . . . . Phone . . . . . .

Occupation . . . . . .Hobbies. . . . . .

I am particularly interested in the following branches of geology: . . . . . .

. . . . . .

I enclose $. . . for the year's dues, March 1 to March 1. (Checks payable to the Society).

. . . . . Sponsored by . . . . . .
(signature) (member)

PORTLAND CHAPTER ANNOUNCEMENTS

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FRIDAY EVENING MEETINGS

July 10th and 24th-

On the second lap of a journey "Through the Oil Lands of Europe and Africa" we will visit oil fields for which great battles are now being fought. We will see the people in the time of peace, going about their daily tasks, without thought of the present. Many of the scenes cannot be duplicated after this war ends. Here is the itinerary of the trip:

July 24th - Visit Poland, Greece and Egypt.

Don't miss the sailing. Your tickets and reservations have all been arranged.

FIELD TRIP, SUNDAY, JULY 12, 1942

A. W. Hancock, chairman of the field trip committee made the arrangements with Walter Lundberg, transitman of the Multnomah county road department for him to lead the caravan along the levees of Sauvies Island to locations where old Indian camp sites had been discovered when excavating material for the dikes and roads.

There were twelve automobiles in the caravan carrying nearly forty seekers for hidden treasure in the form of Indian artifacts. A few of the number were unsuccessful in finding relics of definite Indian origin while others, luckier or more persistent, found broken or whole arrow points, some of which were very beautiful specimens.

Two members of the party picked up elk-horn prongs that had evidently been used by native warriors for shaping arrow-points and other stone weapons or tools. We have not heard definitely, that they are starting the manufacture of aboriginal weapons, but under the present war conditions it is not entirely unlikely that they might be able to get the necessary priority ratings on materials for starting another thriving war industry in this vicinity.

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EUROPEAN OIL FIELDS

The films showing the human side of life in the European oil fields before the outbreak of the present war were shown by President H. Bruce Schminky at the Auditorium of the Public Service Building Friday evening, July 10 to a

group of about fifty members and guests of the Society. These pictures are the property of the United States Bureau of Mines.

It was interesting to note that it is, or was, a few years ago, possible to transport goods by other than automotive vehicles. The yoked oxen, lumbering along the dirt roads, and the little mules, hitched tandem, four in a string, were probably better motive power than our gasoline driven cars would be over the same roads.

Women were shown laundering their clothing in tubs hewn from logs--a far different process from hitching Bonneville power to a neat enamelled machine in one's basement, or setting a bag of soiled clothing on the back porch on Monday morning and taking in a neat package of clean clothing on Wednesday evening, then simply writing one's name on a check on the first of the month and dropping the letter in a box at the nearest corner. Life seems more pleasant over here.

The oil derricks varied from crude low wooden towers to tall and strong steel ones in the different fields. But they were all producing the oil that nations are now fighting for.

Mr. Schminky has a second showing of pictures that will extend our travels into Poland, Greece and Egypt on the 24th of July at the same place--the Public Service Auditorium. They will be well worth seeing.

******

LUNCHEON NOTES
July 9, 1942
by O.E.S.

In spite of summer vacations, or because of them, there were twenty two geologists at the luncheon; our secretary, Mrs. Mahony being one of the number.

President Schminky's guest, Mr. Caruthers had several copies of "Sky and Telescope", a magazine for amatuer astronomers and telescope builders, which he passed around. Mr. Caruthers is an employee of the Traffic Bureau of the City of Portland, during the daytime, and an ardent telescope maker in his "leisure hours". --o-- Louis Oberson is now one of the army of shipbuilders. --o-- Geary Kimbrell had just returned from Seattle where he had attended a ten day course in Civic Protection, given by the War Department. The daily sessions were from 8:30 a.m. to 5:00 p.m. with three evening lectures. You can ask him about anything in the way of handling bombs or sniffing the various kinds of gas. --o-- Paul Fitzsimmons, an employee of the Oregon State Bureau of Geology and Mineral Industries,was a guest. --o-- Mrs. Mildred L. Fuller was a guest of Miss Stevens.

July 16, 1942

An attendance of nineteen on a rainy day and in rather cramped quarters speaks well for the geological enthusiasm of those present. . . .Guests were Mrs. King of Burley, Idaho, introduced by Dr. Booth who told us that his guest is an enthusiastic collector of rocks; and Donald O'Connell's cousin, Myrna Kay Maloney of Butte, Montana --o-- Mr. Minor had a piece of agatized wood, yellow in color, and capable of a very high polish. (different from some humans having the same tint.) --o-- Miss Henley had a beautifully colored rock, said to be linarite. It is from the Funeral Range in Death Valley. --o-- Mr. Libbey brought plenty of specimens of calcite rhombs on apophyllite from Coffin Butte Quarry, about ten miles north of Corvallis on the west side of highway 99 W. These were collected

by Hy. Wood. The additional note: "Occurs in vugs and pockets in ellipsoidal serpentinized basalt" caused some wrinkling of brows on the part of members who had hitherto believed themselves to be possessed of more or less geological information.--o-- Donald O'Connell showed Crystalline specimen resembling aragonite, found in geode at 2800 foot of level of mine in Butte. (Mr. Libbey has taken a bit of this to determine its nature). --o-- Dr. Booth was justifiably proud of a large piece of rock containing delicate zeolitic crystals. He discovered this specimen when he got out of his car to argue with a rattlesnake. The special mention he made of the snake leads us to believe that he considered this place to be too dangerous for other members of the society unless competent medical attention is convenient. (Not a paid ad)--o-- Mr. Vance exhibited a black agate and an unusual piece of fossilized wood. --o-- O. E. Stanley, in his usual modest manner, (reminding one of a violet or a skunk cabbage blossom, depending upon the viewpoint of the observer) made mention of the book: "Cone Bearing Trees of the Pacific Coast" by Nathan A. Bowers, B.Sc.,C.E., Ph.D. Pacific Coast Editor of Engineering News-Record. Naturally (for him) he did not fail to call attention to the colored frontespiece photographed by the speaker on Mt. Revelstoke especially for this book. He also mentioned the part that John A. Lee of Portland, attorney, naturalist and Mazama had in the preparation of the manuscript. "Any person who is interested in knowing the names of the 56 varieties of conifers along the Pacific Coast" says Mr. Stanley, "will do well to obtain a copy of this book and carry it with him on all excursions into the forests." The book, it was noted, by those who were privileged to examine it, has a stout fabricoid cover with round corners, which, with the modest thickness, (only half an inch) make it ideal as a pocket reference work. Kenneth Phillips will act as purchasing agent for members of the Society.

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The Geological Society of the Oregon Country thanks the members of the Salem Geological Society for back numbers of the News Letter that have been sent in answer to the pleas of Business Manager Raymond L. Baldwin. Very special thanks are extended to Mrs. Stockwell who generously sent four complete volumes.

******

John Eliot Allen says that he has an article brewing for publication in the News Letter in the near future.

******

TERTIARY JUGLANDACEOUS WOODS
1. Hickory (Carya)

by George F. Beck

We have already introduced one member of the walnut family--a possible true walnut (Juglans) from the Gray Ranch on the Crooked River, Central Oregon.(News-Letter, Vol. 8, No. 12, June 25, 1942). In this article attention was called to the fact that while leaves of the family have been found in relative abundance in the various Tertiary beds, no agreement exists as to whether one or the other genus is represented (Juglans, Carya, Pterocarya, especially--with Engelhardtia vouched for by its characteristic winged seeds).

In this series we propose to introduce the several known fossil woods of the family in question. We begin with hickory (Carya) in this paper to be followed

by Pterocarya and Engelhardtia. Possibly, later, we may return to true walnut again, for we hope still to find a specimen with the pith included. It is only by referring to the pith that some of the hickories can be distinguished with certainty from the walnuts.

Number 1731 here chosen as the type for Tertiary hickories approaches the "diffuse porous" condition characteristic of the walnuts, though it is to be noted that walnuts show a strong tendency towards a grouping of larger pores at some distance in from the ring boundary. Hickories, on the other hand, seem always to carry at least a suggestion of the ring porous condition --- more or less prominent "initial" pores with a considerable reduction in size across the ring. It seems, too, that hickories typically carry more parenchyma lines or bands around the annual ring than do the walnuts.

This specimen from Vantage, Washington displays the "cellular" pith which distinguishes the hickories from the "chambered" pith of the walnuts. Comparison has been made with some twenty diverse specimens of living walnut and hickory, kindly sent to us for this purpose from the Arnold Arboretum by Dr. I. W. Bailey. In these twigs a clear distinction is to be drawn between these two genera of the family.

Plate 1731-e
Transverse x 15

Annual rings extend from "a" to "a" within which limits the pores decrease gradually in size as in the pecan hickories. Note the many fine parenchyma lines which further subdivide the annual ring into some 15 parallel bands. This last feature is a characteristic of all members of the walnut family (but of some other woods as well). The rays crossing the rings are fairly abundant and neither (all) extremely narrow (uniseriate) nor wide.

Plate 1731-b
Radial x 28

(b) Boundary of the pith with normal wood cells to the left.

(c) Strands of flatish, thick-walled cells of the pith proper.

Plate 1731-c
Tangential x 47

(d) Portion of vessel strand as seen in side view.

(e) Two narrow uniseriate rays.

(f) Several multiseriate rays with narrow projecting wings.

Plate 1731-k
Radial x 47

(g) Open "simple" perforations at vessel ends.
(h) Parenchyma strands (some with crystalliferous cells as seen at higher magnifications).
(i) More or less heterogeneous ray as seen from side view.
(k) Ring boundary, large springwood pores seen at left.

Hickory is not abundant in the Vantage forest. This particular forest, apparently a huge raft in some ancient inter-lava stream (the Okanogan?) is made up dominantly of Douglas fir (and spruce?) (50%), elm (10), oak (5), sweet gum (5), maple (5). Walnut (apparently) and hickory play a secondary role along with a whole host of common and "exotic" species. Only one Pterocarya specimen has been found among the thousands of known Vantage logs and no Engelhardtia has come to attention to all.

Hickory seems to be one of the most wide spread of all woods in the various Tertiary western collections that I have seen--- but never is it dominant. Pterocarya appears in many collections. Walnut seems to be absent from most collections and Engelhardtia has been found but in one (Eocene?).

******

Did you read about the geologist who didn't know we are in a war? He said that he had been too busy with his work to read the papers. Doubtless he could tell more about the movement of the Polar Ice Sheet than some of us who have been trying to chart the 1942 battle fronts.

***

Two headlines on one page of a recent issue of a daily paper read: "Man has wallet containing $100.00 stolen while asleep." and "Wounded soldier from Dutch Harbor has pulse taken by nurse." We have been wondering if the man who lost the wallet might not have gotten off the cheaper.

******

"IS YOUR NAME WRITTEN THERE?"

If you have paid your dues for the current year and your name does not appear in the list of "Members paid up as of July 1, 1942" it is apparent that a mistake has been made in the accounting of the Society.

If your name is not in that list because you have not paid your dues, it would appear to the News Letter Staff that a mistake has been made by you; a mistake that you should hasten to rectify by getting the necessary cash into the hands of the Secretary, Mrs. K. P. Mahony, P.O. Box 148, Oak Grove, Oregon.

If you have not paid your dues because you do not like the News Letter you can still help to rectify that mistake. The Staff is not omnipotent. It can not know everything that should be included in your publication. A postal card from each of a dozen members each week, telling a bit of personal news would pep up these pages wonderfully. An article, one page or longer, from each of the members competent to write on geological subjects with authority, would make the News Letter a treasured possession of all the other members.

The News Letter is your paper. Your help will be appreciated by the harried editor.

Members paid up as of July 1, 1942

Name	
Adams, Dr. and Mrs. W. Claude	2614 N. E. Bryce, Portland
Allison, Dr. and Mrs. Ira S.	2310 Harrison, Corvallis, Oregon
Bahrs, Dr. Alice M.	Martha Washington Hotel, Portland
Baldwin, Mr. and Mrs. Raymond L.	4804 S. W. Laurelwood Drive, Portland
Barr, Mr. and Mrs. Amza	5417 S. E. 99th Avenue, Portland
Bartow, Leslie W.	6515 S. W. Burlingame Avenue, Portland
Bates, Mr. and Mrs. E. N.	5639 S. W. Menefee Drive, Portland
Bickner, Miss Ava A.	Oswego, Oregon
Booth, Dr. and Mrs. Courtland L.	2444 S. E. Clinton St., Portland
Bowie, Margaret	5325 S. E. Hawthorne Blvd., Portland
Boyrie, Mr. and Mrs. Edward A.	6326 Reed College Place, Portland
Brady, Helen C.	1354 Monroe St., Washington, D. C.
Butler, Mr. and Mrs. J. Dean	Route 10, Box 108, Milwaukie, Oregon
Calef, Mr. and Mrs. M. H.	2405 N. E. 41st Avenue, Portland
Catlin, Eva	1016 Sixth Street, Tacoma, Washington
Cleghorn, J. C.	219 High Street, Klamath Falls, Oregon
Cooper, Dr. H. C.	206 N. E. 31st Ave., Portland
Dake, Dr. and Mrs. H. C.	703 Couch Building, Portland
Davis, Mr. and Mrs. F. L.	C/O P. U. Com., Salem, Oregon
Doney, Mr. and Mrs; Lincoln L.	6222 N. Montana, Portland
Fowler, Myrtice E.	4933 N. E. Garfield, Portland
Hancock, Mr. and Mrs. A. W.	2704 S. E. 84th Avenue, Portland
Henderson, Mr. and Mrs. Dwight J.	838 S. E. Peacock Lane, Portland
Henley, Mary Ada	2015 S. E. Pine St., Portland
Hodge, Dr. and Mrs. Edwin T.	2915 N. W. Luray Terrace, Portland
Horton, W. V.	2720 S. E. 84th Avenue, Portland
Hipkoe, Maxine	315 West 35th, Vancouver, Washington
Hughes, Margaret	1524 S. W. 10th Avenue, Portland
Iverson, Florence	5125 N. E. Couch St., Portland
Iverson, Helen	5125 N. E. Couch St., Portland
James, Mrs. Mildred P.	135 S. E. 52nd Avenue, Portland
Jennings, Rose H.	206 N. E. 31st, Portland
Jennison, H. J.	1561 S. E. Linn St., Portland
Jewett, Miss Jeanne	Box 104, Lake Grove, Oregon
Johnson, Mr. and Mrs. E. C.	Route 9, Box 786, Portland
Jones, Agnes B.	1208 S. W. Montgomery, Portland
Jones, Dr. and Mrs. Arthur C.	3300 S. W. Heather Lane, Portland
Jones, Dr. Francis T.	210 North A St., Forest Grove, Oregon
Kellmer, Mr. and Mrs. Earl B.	6105 N. E. Rodney, Portland
Kimbrell, Mr. and Mrs. Geary	2522 N. E. 57th Avenue, Portland
Klatt, Joseph F.	7315 S. E. 52nd Avenue, Portland
Kurtichanof, Mr. and Mrs. L. E.	8014 S. E. 35th Avenue, Portland
Lange, Mrs. Nellie V.	1534 S. E. 56th Avenue, Portland
Lawrence, Dr. and Mrs. Donald B.	2420 34th Avenue S., Minneapolis, Minn.
Libbey, Mr. and Mrs. F. W.	2259 N. W. Everett St., Portland
Macleod, Hannah E.	1915 N. E. 62nd Avenue, Portland
Mahony, Mr. and Mrs. K. P.	P.O. Box 148, Oak Grove, Oregon
Marshall, Mr. and Mrs. Earl	1172 S. E. 55th Avenue, Portland
Marshall, Emily	3471 S. W. Patton Road, Portland
Mattern, Alfred E.	2214 N. E. 39th Avenue, Portland
Meyers, C. R.	3919 S. E. Grant Ct., Portland

Minar, Mr. & Mrs.	3666 S. E. Woodstock Ave., Portland
Moltzner, Emily	1015 S. E. 26th, Portland
Neikirk, Abigail	5231 S. E. Lincoln, Portland
Nelson, Clara	9529 N. Edison St., Portland
Nixon, Mr. and Mrs. Earl K.	702 Woodlark Building, Portland
Nordgren, Emma	4936 N. E. Going St., Portland
Oberson, Mr. & Mrs. Louis E.	3569 N. E. Stanton St., Portland
O'Connell, Donald	424 S.E. 20th, Portland
Phillips, Mr. & Mrs. Clarence D.	7630 S. E. 30th Avenue, Portland
Phillips, Mr. & Mrs. Kenneth N.	2213 S. E. 52nd Avenune, Portland
Poppleton, Grace	Route #1, Oswego, Oregon
Mrs. R. R. Poppleton	Route #1, Oswego, Oregon
Reeves, Mr. and Mrs. W. A.	1055 N. 16th St., Salem, Oregon
Reichen, Mr. and Mrs. Sam	Box 516, Route #3, Portland
Reid, Margaret	1915 N. E. 62nd Avenue, Portland
Reimers, Mr. and Mrs. Fred	6535 S. E. Clinton St., Portland
Richards, Mr. and Mrs. Carl P.	530 N. 19th St., Salem, Oregon
Rosa, Miss L. Kate	807 S. W. 14th Avenue, Portland
Ruff, Mr. and Mrs. Lloyd	3015 N. E. 45th Avenue, Portland
Rydell, Mr. L. E.	P.O. Box 895, 2185 N. W. Flanders, Portland
Sandoz, M. E.	708 S. Cushman Ave., Tacoma, Washington
Schminky, Mr. and Mrs. H. Bruce	1030 S. E. 54th Avenue, Portland
Shaw, Arline	
Simmons, Mr. and Mrs. V.	1134 S. W. 11th Avenue, Portland
Simon, Mr. and Mrs. Leo	711 S. W. Ankeny St., Portland
Smith, Mrs. Norman M.	741 S. W. St. Clair Avenue, Portland
Smith, Mr. and Mrs. Ben F.	1350 S. E. Flavel St., Portland
Smith, Mr. T. C.	3104 N. E. 24th Avenue, Portland
Smith, Dr. Warren D.	1941 University St., Eugene, Oregon
Snow, Mr. and Mrs. Wm. A.	1904 N. E. 9th Avenue, Portland
Stanley, Mr. and Mrs. O. E.	2601 S. E. 49th Avenue, Portland
Stevens, Eliza	#11 Cooks Add'n, Bonneville, Oregon
Stevens, Dr. and Mrs. J. C.	434 N. E. Royal Court, Portland
Taylor, George C., Jr.	503 N. E. Laurelhurst, Portland
Teeters, Glenna	3107 N. E. 32nd Avenue, Portland
Thompson, Ethel L.	Apt. 201, Ongford, 1417 S. W. 10th, Portl.
Treasher, Mr. and Mrs. Ray C.	Rt. #2, Box 2, Grants Pass, Oregon
Underwood, H. L.	5226 S. W. Menefee Drive, Portland
Vance, Mr. and Mrs. A. D.	5516 N. E. Rodney St., Portland
Wade, Mr. and Mrs Tracy	3560 N. E. Klickitat, Portland
Weber, Mr. and Mrs. J. Martin	4051 N. E. 23rd, Portland
Weber, Dr. and Mrs. D. E.	404 S. E. 80th Avenue, Portland
Weinzirl, Dr. and Mrs. Adolph	3536 N. E. 27th Avenue, Portland
White, Mella C.	435 N. E. Laurelhurst Place, Portland
Whitney, E. H.	9920 N.W. Germantown Rd., Portland
Wiegand, Mr. and Mrs. C. F.	1100 Imperial Ave, Portland
Williams, R. W.	Taft, Oregon
Zimmer, Ruby M.	805 S. E. 60th Avenue, Portland

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IT PAYS TO ADVERTISE (OR DOES IT?)

A paragraph in the last issue of The News Letter mentioned the fact that the editor had "some darned good Kodachromes of Crater Lake". And now comes Carl Richards, chairman of the program committee of the Salem Geological Society with a request for a show-down, (or maybe it was only a showing) of the Kodachromes at the meeting of that society on August 20.

***

The Aluminum News Letter is a broad minded publication and is not above quoting from Iron Age an item about steel. Since geologists should be interested in both steel and aluminum, the item is reproduced herewith:

"The War Production Board's recent order cutting down the use of steel in corsets moved a WPB stenographer to write:

To keep our ships on even keel
Takes tons and tons of corset steel.
The die is cast; their fate is written;
The ladies now must bulge for Britain."

***

PRACTICAL EVOLUTION

To a geologist who counts time by millions of years, and who traces the evolution of man from the original single living cell to the present state of civilization(?), it should be a small task indeed, (perhaps too small for his consideration) to undertake a few worth-while developments in plant and animal life.

Here are two ideas, not copyrighted as yet.

There has long been a demand for cubical peas that will not roll off one's knife when being eaten. Of course one may mix them with mashed potatoes and handle them without mishaps, but by so doing, one loses some of the delicious flavor of well-cooked green peas fresh from the garden that is so relished when the peas are eaten without the addition of the more lowly vegetable.

Branching off into the animal kingdom, one can see the desirability of having a breed of robins that could be easily trained to pick cherries on shares, carrying the owner's share daintily by the stems and placing them, unbruised, in suitable containers. It would be a hard hearted cherry grower, indeed, who would begrudge the robins all they could eat if they would save him the trouble of climbing ladders or skinning his shins while imitating his prehistoric ancestors by swinging from limb to limb of the old cherry tree.

***

C'EST LA GUERRE

by

O.E.S.

"I'll go over to the store and get some milk," said I.
"Wait till after supper," said the wife.

"It will only take a few minutes," I argued.

"I'll have my supper eaten before you get back," said she.

"Ha, ha," thought I, as I walked up the street juggling an empty milk bottle. "I'll be back in three minutes---five at the outside."

I strode through the chromium turnstile with a haughty air as befits one on an important errand, opened the glass door of the big cooler and got my bottle of liquid sunshine.

There were two women ahead of me at the counter, and two women clerks transferring the purchases from the wire baskets to cartons for the homeward journey. I still thought it would be easy and quick, but I didn't know.

"These are three for a dime," said the clerk holding up two chocolate bars. "Don't you want another one?"

"The customer did, and strolled back to the candy counter for her third bar. Meanwhile, business at the wrapping counter was at a standstill.

When the packages were all weighed and tallied on the cash register the customer decided that she would get her allottment of sugar on her number seven stamps so she ordered fourteen pounds. A boy brought it from the back of the store.

"Ninety-one cents," said the clerk.

"That is more than I paid the last time", said the woman.

"It is sixty-one cents for ten pounds and seven and a half cents a pound for less than ten pounds," the clerk explained.

"Oh," said the woman.

"What is fourteen pounds of sugar?" the clerk asked a boy in the back of the store.

"Let's see," he said, reaching for an empty sack and a pencil, "Ten pounds for sixty cents, and-----"

"I thought it was sixty-one cents for ten pounds," said the woman clerk.

"No," said the boy. "This kind is only sixty cents. And then each two pounds is fifteen cents after the ten," he continued. "That makes ninety cents."

The customer had paid the ninety-one cents and gone with her packages.

"Here's your cent," said the clerk, "Oh, she's gone, has she? Well, I'll try to remember her if she comes back."

By this time the second woman customer had shoved her carriage in front of the counter where both clerks were grabbing packages. One was weighing and tallying them. The other clerk dropped a box of raspberries which sifted through the meshes of the basket to the floor. The carriage was backed up while the berries were picked up one or two at a time and the customer went for a fresh box full. It takes quite a while to pick up a box of spilled berries, but time wears on, and I reached the pay station at last. The clerk took my fifteen cents without a mishap, and I got home a little inside a half hour.

And, believe it or not, the wife did not say: "I told you so."

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GEOLOGICAL NEWS LETTER

OFFICIAL PUBLICATION OF THE

VOL. 8 NO. 15 PORTLAND, OREGON August 15.1942

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Official Publication of the
Geological Society of the Oregon Country
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THE GEOLOGICAL NEWS-LETTER
Official publication of the
GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

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MEMBERSHIP APPLICATION
GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

Qualifications and Dues: Applicant must be sponsored by a member and recommended by the Membership Committee. A knowledge of geology is not a requisite. There is no initiation fee. A Member shall be over 21 years of age; or a husband and wife and all children under 18 years of age. The dues are $3.50 per year, payable in advance, which includes one subscription to the Geological News-Letter. A Junior is an individual between the ages of 18 and 21. Dues are $1.50 per year, payable in advance, and include one subscription to the Geological News-Letter.

Date . . . . . .

I, ... (please print full name) do hereby apply for membership (junior membership) in the Geological Society of the Oregon Country, subject to the provisions of the By-Laws.

Home address . . . . . Phone . . . . . .

Business Address . . . . . Phone . . . . . .

Occupation . . . . . .Hobbies. . . . . .

I am particularly interested in the following branches of geology: . . . . . .

. . . . . .

I enclose $. . . for the year's dues, March 1 to March 1. (Checks payable to the Society).

. . . . . Sponsored by . . . . . .
(signature) (member)

PORTLAND CHAPTER ANNOUNCEMENTS

LECTURES: On 2nd and 4th Fridays of each month at the Auditorium (3rd floor) of the Public Service Building, 920 SW 6th Ave., at 8:00 p.m.

TRIPS: On Sundays following lecture meetings, or as otherwise arranged. Meeting place at Public Market, Front and Yamhill.

LUNCHEONS: Every Thursday noon, in the banquet room of the Treasure Island Restaurant, 815 SW Broadway (50¢ minimum).

FRIDAY EVENING MEETINGS.

Friday, Aug. 14 — Mr. Wayne Thoms will talk about the "Geology of New Zealand" at the Public Service Auditorium on Friday, August 14, at 8:00 p.m. Mr. Thoms spent four years as a geologist for one of the major oil companies in New Zealand and will doubtless tell much about the people and customs of those interesting islands besides explaining how the islands are put together geologically.

Friday, Aug. 28 — ANNUAL PICNIC!
Picnic dinner at the picnic ground near the crater in Mt. Tabor Park. Bring your own dinner. The Society will furnish coffee or tea, cream and sugar. Coffee will be ready at 6:30 p.m.
Program to begin at 8:00 p.m. in the crater. Come prepared to enjoy an evening of geology dug from the lighter veins. Anything said that resembles facts will be purely coincidental.

Friday, Sept. 11 — Dr. E. L. Packard will lecture on "Fossil Marine Vertebrates of the Pacific Coast". Further announcement of this meeting will appear in a later issue of the News Letter.

FIELD TRIP.

Field Trip: Aug. 23, 1942 — Leaders Richard Lewis and A. D. Vance. Leave S.W. Front Avenue and S.W.Taylor Street at 8:00 A.M. The party will arrive at Wilark at 9:45 A.M. where it will be joined by Mr. Lewis who is Senior in Geology at Oregon State College. At 10:30 A.M. the fossil bed on the Nehalem River near Mist will be reached.

This fossil bed is where Mr. Lewis has collected specimens of complete crinoids. It is the only place in the United States where Tertiary crinoids have been found and described in the Paleontological literature. Excellent specimens may be collected.

On return trip a new fossil locality in a R.R. cut will be visited where other invertebrate fossils are to be found.

If time will permit, a coal deposit will be examined.

PERSONAL AND IMPERSONAL

The Agate and Mineral Society held an enjoyable picnic at the home of Mr. and Mrs. A. W. Hancock late in July. According to Mrs. Hancock's count, there were seventy-five people there and after their dinner they were shown motion pictures of Bali Island and the Marshall Islands.

Mrs. Eliza Stevens has donated several copies of "The Mineralogist" for 1937 and 1938 to the Society's Library.

Dr. H. C. Dake recently talked to the Lions' Club about the uses of ultra-violet light in blackouts.

A letter from Tracy Wade was read at the last luncheon meeting. He had received the bound volume of the News Letter and says that he hopes soon to be able to read it. His improvement has been slow, but we shall be looking for him to take his usual place at the table before too long.

It is with great regret that we have to report the recent death of Frank I. Jones, a former member of the Geological Society of the Oregon Country and a photographer of rare talent. At an early annual meeting Mr. Jones showed pictures of the Valley of Ten Thousand Smokes which he took as a member of a scientific party which was sent to investigate that region in Alaska.

The editor is pleased to note that due, in part, to his frantic appeals for geological articles he has received some very interesting ones from Dr. Hodge and Dr. Smith. Such as are not printed in this issue will be presented in later numbers of the News Letter. There is still room in this "hold-over" file for additional material which will be welcomed from other contributors. The compensation will be the same that the editor receives for his voluminous output, and will be exempt from income tax, even under the revised law.

LUNCHEON NOTES
JULY 23, 1942.

Twenty-five hungry geologists filled the tables at the Treasure Island restaurant on July 23, causing four other members of the party to occupy a booth nearby.

In addition to the members who are more or less regular in their attendance were Mr. and Mrs. Carl Richards of Salem. It was a real pleasure to have them with us again. Unless Carl has reformed since moving to the state capitol we have reason to believe that he was glad to find a restaurant which still sets a full sugar bowl on the table.....Florence Iverson smiled across the table, apparently as glad to be with us as we were glad to have her.....Dr. A. E. Mattern, Leo Simon, and Dr. Courtland L. Booth made their impressive entrances after the table was well filled. We have been told that it is very good advertising to enter a room after most of the guests have assembled. Nothing personal in this, of course, except that "one thing brings up another".....Mrs. Eulalie Oates, a grade school teached from Chehalis, Washington was a guest of Miss Mella White.....Mr. Libbey's guest, Mr. Wayne Thoms, a graduate from Oregon State College, who has but recently arrived from New Zealand where he has completed a four-years engage-

ment as petroleum engineer, gave a brief word picture of the country and its inhabitants. He made the trip home on a returning transport and will visit his parents for a while. "The country", said Mr. Thoms, "is a green country, much like Western Oregon, and its principal exports are meat, wool, and dairy products, which although not exactly classed as mineral are still products of the soil." There is some lode and placer mining for gold, and a small amount of petroleum is produced. As to the native inhabitants, he reports that the Mauris are supposed to have originated in India, but have been forced to retreat before the attacks of stronger tribes. Their migrations have been by means of large canoes, and this has made them expert navigators. They are still a warlike people. Their civilization, which Mr. Thoms characterized as being "advanced Neolithic", depends upon force from the individual to the head of the government.....Dr. Harrison introduced Mr. Ralph, superintendent of Portland's fire alarm telegraph system which he has brought to a high state of perfection. Mr. Ralph has been helping Dr. Harrison with the installation of new equipment in the spectrographic laboratory in the office of the State Department of Geology and Mineral Industries. He is also the inventor of a device for detecting the presence of bodies of mineral beneath the surface of the earth. It has been already used with some success.....Mr. and Mrs. John Robinson were guests of John Eliot Allen..... Donald O'Connell had an interesting specimen of selenite from Mexico. It had several water "bubbles" in it. He also had a piece of galena from Montana and a piece of "Peacock Copper" from the same state.....Miss White brought some pieces of volcanic tuff from the Malheur bird refuge. One piece was nicely carved making it an interesting souvenir.....Miss James' specimen was classified by Dr. Hodge as "Eocene basalt--Coast Range of Oregon--vesicular--some of the vesicles containing zeolites (chabasites) also some malachite stains."

JULY 30, 1942.

The twenty geologists who met at Treasure Island restaurant for luncheon on July 30 did not fill all the chairs, but welcomed a little elbow room for a change.....Clarence Phillips joined forces with the two "late" doctors, Booth and Mattern, and made his impressive entrance after the others were all seated. It appears, however, on further investigation, that the primary object of these professional men in arriving rather tardily at the luncheons is not self advertisement, as has been insinuated, but even though they are very busy men, they are so deeply interested in meeting their fellow geologists that rather than miss the luncheons, they come as soon and as often as their business permits. Their spirit and actions are to be commended and emulated. .....Mrs. Crogster had as her guests two very bashful young ladies from Idaho, her daughter Annette and Miss Helen Brookhart. They were greatly interested in what Mr. Nixon had to say about the mining operations in Idaho. Mr. Nixon generously put his talk into manuscript form so that it can be printed in the News Letter.....John Eliot Allen had specimens of ores containing tungsten and antimony from Idaho, and conducted one of his guessing contests. No one present (other than employees of the State Department of Geology and Mineral Industries) could name the minerals from inspection of the samples.....Donald O'Connell exhibited a piece of chromite, and a mineral map of Montana on which were glued samples of many of the mineral products of that state in the relative locations in which they are found.. .....A. D. Vance showed a quartz crystal which had been picked up as a water-worn pebble and had been polished on opposite sides to show a flaw through it. From this we learn the bad effect of stopping the process of making a quartz crystal before the job is finished.....President H. Bruce

TAXATION OF MINES

There is the Law of Diminishing Returns and the fable concerning the demise of the goose that laid the golden eggs - both pertinent to the probable effects of taxing mines under the latest Federal tax bill.

These effects are however primarily concerned with the amount of money to be collected.

Based on an entirely different viewpoint, there is another effect which we wish to emphasize as strongly as we can - that of the effect of such tax regulations on production.

Nobody can successfully deny that we need to raise all the money by taxation that we can possibly raise to pay on the war costs. But maximum production of metals is paramount in our war program - much more important than raising money to pay the costs.

Any plan then to increase tax revenue at the expense of production at this period of our trial by fire would be ill-advised, to put it mildly. More definitely the full program advocated by the Treasury would throttle down mine production, scare away venture capital and effectively stop exploration projects by experienced operators.

Mr. S. H. Williston, President of the Oregon Mining Association, gave testimony before hearings of the Senate Special Sub-Committee which met at Reno July 16 and 17, Salt Lake City July 20 and 21, and Denver, July 24, to investigate at first hand tax difficulties of mine operators.

Knowing of Mr. Williston's intimate knowledge of the subject, we asked him to prepare the following paper of the probable effects of the proposed tax program on Oregon's mining industry.

It should be emphasized that most strategic mineral projects are short-lived. They are "war babies". As Mr. Williston points out, profitable operation of most of them after the war would be unlikely. Experienced capital will not be risked on a project which stands little chance of recovering even capital costs

It has been reported that the Treasury has labelled depletion allowance "special privilege" and advocated abolishing it. Experienced mine operators find it difficult to understand how such a position may be taken intelligently

Mines are not the same as manufacturing enterprises whose capital investment is continually renewed by replacement. An ore deposit is the capital of a mine. Each ton of ore removed depletes the mine's capital and likewise proportionally shortens the mine's life. Without a depletion allowance a tax on receipts from sale of ore is a capital tax. If we must have a capital levy, let's have it applied fairly and universally--not on a single industry whose maximum effort is considered essential to winning the war. Surely even the Treasury must realize the importance of producing all we possibly can of copper, lead, zinc, chromium, manganese, quicksilver, tungsten, antimony, etc.

Statements have been reported from those in authority that profits from some large mines have more than repaid capital and interest and that these mines continue to operate at a profit, still taking advantage of depletion allowance. If all facts could be assembled and balanced by an unbiased accountant, we think there would probably be presented a different picture; but assuming that such statements are one hundred percent accurate, a whole industry should not be punished because in a few cases exceptionally fortunate enterprises have been quite profitable. Without some such cases to brighten a history containing so many financial failures, the industry would certainly present a dubious investment opportunity.

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Mines are not the same as manufacturing enterprises whose capital investment is continually renewed by replacement. An ore deposit is the capital of a mine. Each ton of ore removed depletes the mine's capital and likewise proportionally shortens the mine's life. Without a depletion allowance a tax on receipts from sale of ore is a capital tax. If we must have a capital levy, let's have it applied fairly and universally--not on a single industry whose maximum effort is considered essential to winning the war. Surely even the Treasury must realize the importance of producing all we possibly can of copper, lead, zinc, chromium, manganese, quicksilver, tungsten, antimony, etc.

Statements have been reported from those in authority that profits from some large mines have more than repaid capital and interest and that these mines continue to operate at a profit, still taking advantage of depletion allowance. If all facts could be assembled and balanced by an unbiased accountant, we think there would probably be presented a different picture; but assuming that such statements are one hundred percent accurate, a whole industry should not be punished because in a few cases exceptionally fortunate enterprises have been quite profitable. Without some such cases to brighten a history containing so many financial failures, the industry would certainly present a dubious investment opportunity.

of them wear clothing of one kind or another, there is a difference in the way they walk and a greater difference in what they think a well-dressed individual should wear.

So far as the outward appearance of the Egyptian hills is concerned, some of the pictures might as well have been filmed in Hancock's Happy Hunting Grounds in Eastern Oregon, but Eastern Oregon has no pyramids, no sphinx, and no such marvelous temple ruins as were pictured in Egypt.

An Egyptian wedding procession appeared to be quite as disorderly as some that have been seen in Portland, except that the people were on foot or on camel back instead of dashing madly through the streets with strings of tinware wired to their automobiles. The bride was carried secretly to her new home in a covered palanquin, which is--perhaps--a good scheme if the carriers are true friends of the groom. Otherwise there is no particular advantage over the Portland method of whisking her away in a covered automobile, to the groom's discomfiture.

The making and transportation of pottery were shown to be quite primitive. The methods of elevating water for use in irrigation, while effective, would not appeal to an Oregon farmer as a proper substitute for Bonneville power connected to a good pump and pipe line. The shadoof, a well-sweep with a lift of but a few feet, is not an example of efficiency to be copied widely in America.

Oxen and camels are used for cultivating the fields, as they have been for thousands of years, but if electrically driven pumps and farm tractors were to be substituted for hand and animal power, what a lot of idle people there would be in Egypt! And idle people usually stir up some kind of trouble.

A three-man power pump for loading oil was shown. It is one slight concession to modern ideas.

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TUNGSTEN, ANTIMONY AND MERCURY DEPOSITS OF THE YELLOW PINE DISTRICT OF IDAHO.

by Earl K. Nixon

For many years, the Yellow Pine district has been a producer of gold, but it was only a little over two years ago that the present importance of the area became known because of its deposits of tungsten and antimony. The U. S. Bureau of Mines and the U. S. Geological Survey while making investigations by diamond drilling (primarily for antimony) found that substantial deposits of scheelite--calcium tungstate--are present. This led to more extensive development, until at the present time the district is the largest producer of tungsten in the United States. It is also expected to be the largest, or one of the largest, producers of antimony in the country. The principal operation, near the village of Stibnite, is in the hands of the Bradley Mining Co. Both open pit and underground mining work have been carried on for the past several months, and metallurgical work of important nature has been done by a group of experts on the separation of tungsten and antimony from the ores. A large mill is now in operation, and its capacity is being increased.

A half dozen miles east of the tungsten and antimony operation is an

important quicksilver mine known as the Hermes. This property has been under intense development during the past 1½ years by the Bonanza Mines, Inc., of San Francisco. A quicksilver furnace has been producing for several months and an additional furnace is now being added to the plant. Diamond drilling is under way at this property by the U. S. Bureau of Mines. It seems to be the concensus of opinion that this should be one of the outstanding quicksilver producers of the United States in the present war emergency.

The outstanding difficulty that has hindered development in the Yellow Pine district is its inaccessibility. It is located in the Idaho National Forest about 50 miles airline east of the towns of McCall and Cascade, which are in the broad valley of the Payette River. McCall, located on Payette Lake, is almost directly west of the Yellow Pine district, and is the point from which a permanent road is proposed that will give all-year access to the mining country. The present road, however, leads northeastward from Cascade, also on the railroad, at a distance of some 87 miles, over summits, one of which is 7300 feet in elevation. The present road, which is being maintained by the U. S. Forestry Service in cooperation with local agencies, goes to pieces during the spring thaw and is all but impassible, or entirely impassible to heavy hauling, for a month or more each spring. As a summer road it serves admirably and is one which tourists greatly enjoy. It leads in a sinuous course along mountain streams, around gullies and chasms, through forested country, to the village of Yellow Pine, on the east fork of the South Fork of the Salmon River. From Yellow Pine the course of this now tremendously important road leads east a dozen miles to the Bradley tungsten-antimony operation. Between Yellow Pine and Cascade, almost virgin area not yet traversed by a suitable permanent road, there is an estimated 500 million feet of standing timber. This must be tapped soon by the logging interests who now have mills in the valley, otherwise, the actual production from this area in the present war emergency will be lessened.

Geologically the country is as monotonous, except for local metallic mineralization, as the country is diverse and interesting in its topographical and recreational aspects. The entire area seems to be covered by an acid igneous complex, so far as our casual observation went. We saw square miles of biotite granite of medium grain, with here and there a coarse-grained face and spots of pegmatite. In road cuts little aplite dikes cut the granite. At the higher elevations, particularly above 6,000 feet, the granite is rather deeply disintegrated and furnished hard road material but was difficult to obtain. At lower elevations, notably near Yellow Pine where the slopes are steeper and the runoff more rapid, decomposition seems to be much shallower and more granite faces appear in most of the road cuts.

The deposition of tungsten and antimony at the Bradley operations seems to be directly related to two important faults that intersect in wedge fashion. The scheelite seems to be deep-seated and earlier than the stibnite. There seems to be no definite relation between the deposition of the two minerals, judging by the emplacement of their respective enriched zones. Gold seems to have a more definite relation to the antimony, and also to sulphide of iron and arsenic. The relation, if any, of the gold deposition to that of the scheelite is obscure.

As the writer's trip was made in connection with the status of the transportation problem, there was no opportunity to examine the mine workings,

either at the Bradley operation or at the quicksilver property. However, we shall long cherish a desire to return to that beautiful part of the Salmon River country of central Idaho, with time on our hands to poke about up streams and over trails. This is the area where the "natives" allege that travellers must keep their pockets buttoned as they pass along the streams, otherwise the fish will jump out of the water and into pocket or creel--they are that anxious to welcome you. We escaped any such embarrassment as we scarcely got out of our cars, but on various occasions we were obliged to slow down to keep from hitting deer or porcupine.

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THE ALEUTIAN LAND
by Edwin T. Hodge

It was early in June, 1929, and our ship had been following the Great Circle. About ten in the morning, far ahead, one could see small dark masses rising above the horizon. A sailor said they were the Aleutian Islands. We were fortunate, at this time of the year, to have such clear weather. The persistent Great Low of the Alaskan Gulf had been pressed northward into the Bering Sea by a high pressure mass of air. We learned that the captain would pass through the islands and continue the short passage of the great circle route. And so we did, passing west of Chuginadak and Four Mountain islands, into the Bering Sea. By noon the great group of the Andreanoff Islands lay off our lee beam. All day these islands were visible as dark low mounds floating in a low gray fog. It was night when Saturday stepped over into Monday, and we slipped through and to the south of the Aleutians.

It was something for a geologist to put in his note book. "I have sailed on the Bering Sea". Otherwise it was monotonous. Small, even-crested waves came out of the low fog and disappeared again in the distance. Once we saw, about a mile away, a whale blowing and then leaping from the sea and to fall back with a splash.

However, there were mental pictures to contemplate. As I trod briskly; for it was chilly, I saw below me a great fault scarp that rose 10,000 to 15,000 feet from the floor of the sea. This scarp was bounded by a very active fault or series of fault extending in a line from Japan past the south side of the Aleutians, up Cook's Inlet and beyond toward Fairbanks. The Japanese current, running northward along the sides of the Kurile Islands, impinged against this cliff, and was deflected eastward into the Gulf of Alaska. To the gulf it yielded its warmth. It is this warmth over the gulf that produces the warm air of the Alaskan low. The low as if fond of its birthplace, lies steadily though lightly over the sea. It is this idleness playing with the Polar Front, that produces the evil of our cyclones. Indeed the gulf is the crucible out of which are distilled the storms which pass dripping with warm Alaskan water over Oregon.

The same warm current bathes the broad sea shelf of northern southeastern Alaska and produces one of the largest sea gardens in the world. Living upon and swimming and creeping amid this forest of sea plants are countless creatures upon whose ancestors the first visitors to North America lived.

The fault, along this gigantic scarp, also had--and still has--other pro-

found effects. It stimulates vulcanism. Along and adjacent to it are built a whole chain of extinct and active volcanoes.

However, at the crest of the fault, and to the north, lies a high plateau. This plateau, compared to the abyss to the south, is similar to the high Tibetan plateau and its surrounding lowlands. Its top is almost flat and it extends northward to the Arctic sea. On its west lies the low coastal plain inhabited by the Chuckees. To the east lies the tundra-covered, almost drowned deltas of the Noatak, Yukon, and Kuskokwin Rivers, broken by the low mountains of the Seward Peninsula.

The plateau lies but little below the Bering Sea. In fact, it need be lifted but little more than one hundred feet to bring a large part of it above the level of the sea. If one examines the soundings on a hydrographic chart, it becomes evident that at one time rivers flowed across its surface from a divide running from Cape Wales, through the Diomede Islands, to East Cape of Siberia. To the north, rivers flowed on the plateau surface into the Arctic Sea. To the south, the Kuskokwin and Yukon, continued beyond their present debouchures on land, were joined by a stream from the land of the Chuckees and flowed southwest and entered the Ocean near Kiska.

Only about 100 feet deep! When the Pleistocene glaciers gathered up the waters of the Deep and froze them into continental glaciers, this plateau would, if at its present level, have been dry land over which streams would have flowed. In the "Ice Age" no glaciers occupied the tundra-clad surface of the Chuckees, nor that of the land to the east. The primegenitors of the Chuckees, or other people, as well as other animals could have walked over this land surface.

We need not postulate the withdrawal of the Bering Sea by the Pleistocene glaciers. The great fault, might have lifted the whole area up. If so the tundras would not have been low, impassible deltas, but a dry and level land.

Whatever the cause, the fact is that the basin of the Bering Sea bears old river channels, now submerged but little below the sea. We may be certain, too, that men and animals roamed this land surface in search of a promised land a few thousand years ago.

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BEYOND THE DON
by Edwin T. Hodge

The Caspian is the largest inland salty sea in the world. It was cut off from the Persian Gulf by the Caucasian uplift. To the east lies a great low plain with no rivers and many deserts. From the north the Volga and Ural rivers bring silts of loessal origin (they resemble our own Paloose soils), and these silts have built a scimitar-shaped coastal plain around the north end of the lake. Both rivers have huge deltas and at the head of the Volga's delta is the great trading city of Astrakan.

The deltas and the coastal plain are below sea-level!

To the northwest and stretching to the Ukraine are a succession of steps

(Steppes). The steps are cuestas of limestone with gentle dips to the west. Between the limestones are beds of clay, coal, and iron ore. The limey soil supports great fields of wheat and sunflowers. The faces of the cuestas hold the river Don and other rivers to their courses.

In the spring the Don and Volga carry the waters of the melting snow to the Caspian. By now (July) they are very low and easily fordable.

This is the land of the Don Cossacks.

The salts carried by the rivers never escape from the Caspian. Here the sea whose surface is below sea-level gets saltier and saltier.

On the northeast side of the sea is the Gulf of Kara Bogaz separated by two spits from the Caspian Sea. Only in the late spring does the water of the sea rise to resupply the gulf with water. At all other times of the year, the water of the gulf evaporates. Its waters become so saline that the fish die. The dead Caspian cadavers lodge against the shore or become buried in the accumulated brines. Before they disappear from sight, however, they yield an odor that floats through the dry hot desert air of Kara Kum and calls stinkingly all vultures, crows and gulls. It is said that the stench is so profound that only Russian geologists have been able to explore the area. (It is too bad the gulf of Kara Bugaz is not located just across the sea at Baku).

This gulf is the type example of what would happen if salt beds were formed in the manner stated in all but Grabau's Textbook of Geology. All salt beds would, were such the case, bear numerous fossils of creatures which died during the evaporation of the inland sea.

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U.S. Department of the Interior--Geological Survey, Washington, D.C.
Bulletin 931-N. Quicksilver deposits of the Opalite district, Malheur County, Oregon and Humboldt County, Nev., by R. G. Yates, 1942. pp. i-iii, 319-348, pls. 52-58, figs. 34-36. Price 60 cents.

The Opalite district, in Malheur County, Oregon and Humboldt County, Nevada, produced 22,174 flasks of quicksilver between January 1927 and January 1941. Nearly all this was taken from the Opalite and Bretz mines in Oregon, but the Cordero mine in Nevada should contribute materially to production in the near future. The rocks in the district are flat-lying Miocene lavas, which range in composition from basalt to rhyolite. They are overlain by late Miocene tuffaceous lake beds. All these rocks are cut by steep normal faults, which locally have acted as channel ways for rising hydrothermal solutions. In places the tuffs and lake beds were silicified by these solutions into lenticular masses of chalcedony, producing a rock locally called "opalite". The ore mineral cinnabar occurs partly in these chalcedony zones and partly in unsilicified rocks immediately adjacent to them. All the ore bodies mined were within 100 feet of the surface. Siliceous ore mined in the past has yielded an average of 6 pounds of quicksilver to the ton; nonsiliceous ore has yielded about 19 pounds to the ton. Reserves in the district are estimated to be more than 3,000 flasks of quicksilver, but minable ore containing several times as much as this might be found by further ex-

ploration. New deposits may be discovered by prospecting tuffs and lake beds near faults along which quicksilver-bearing solutions may have risen. The report contains a geologic map of the district and maps of the Opalite, Bretz, and Cordero mines. It is one of the chapters of "Strategic minerals investigation, 1941."

U. S. Department of the Interior--Geological Survey, Washington, D. C.
Bulletin 933-A. Mineral industry of Alaska in 1940, by P. S. Smith. 1942. pp. i-iii, 1-102, pl. 1, figs. 1-3. Price 35 cents.

This report is the latest of the general annual statements issued by the Geological Survey to record the production of mineral commodities from Alaska mines and the principal mining developments that took place during 1940. This record shows that the value of the total annual production of the Territory in 1940 was $28,470,000, or nearly $3,174,000 more than in 1939, and was greater than in any other year except the four years of the first World War, 1915-18, inclusive. The value of the gold produced from Alaska mines in 1940 marked an all-time high, surpassing even that of the so-called "boom days" of the great gold rushes to Alaska. The quantity and value of platinum metals, tin, antimony, quicksilver, and coal produced in 1940 exceeded that of 1939. The value of the silver produced in 1940 was somewhat more than that produced in 1939, though the quantity was less. Slight decreases were apparent in the quantity and value of the copper, lead, and limerock produced in 1940 as compared with the records for these commodities in 1939, but the total value of these commodities constitutes little more than one-half of 1 percent of the total mineral output of the Territory.

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MEMBERSHIP APPLICATION
GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

Qualifications and Dues: Applicant must be sponsored by a member and recommended by the Membership Committee. A knowledge of geology is not a requisite. There is no initiation fee. A Member shall be over 21 years of age; or a husband and wife and all children under 18 years of age. The dues are $3.50 per year, payable in advance, which includes one subscription to the Geological News-Letter. A Junior is an individual between the ages of 18 and 21. Dues are $1.50 per year, payable in advance, and include one subscription to the Geological News-Letter.

Date . . . . . .

I, ... (please print full name) do hereby apply for membership (junior membership) in the Geological Society of the Oregon Country, subject to the provisions of the By-Laws.

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I am particularly interested in the following branches of geology: . . . . . .

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I enclose $. . . for the year's dues, March 1 to March 1. (Checks payable to the Society).

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Portland Chapter Announcements

LECTURES: On 2nd and 4th Fridays of each month at the Auditorium (3rd floor) of the Public Service Building, 920 S. W. 6th Ave., at 8:00 p. m.

TRIPS: On Sundays following lecture meetings, or as otherwise arranged. Meeting place at Public Market, Front and Yamhill.

LUNCHEONS: Every Thursday noon, in the banquet room of the Treasure Island Restaurant, 815 S. W. Broadway (50¢ minimum).

FRIDAY EVENING MEETINGS

Friday, Aug. 28 — ANNUAL PICNIC!
Picnic dinner at the picnic ground near the Crater in Mt. Tabor Park. Bring your own dinner. The Society will furnish coffee or tea, cream and sugar. Coffee will be ready at 6:30 p. m.

Program to begin at 8:00 p. m. in the crater.. Come prepared to enjoy an evening of geology dug from the lighter veins. Anything said that resembles facts will be purely coincidental.

Friday, Sept. 11 — Dr. E. L. Packard will lecture on "Fossil Marine Vertebrates of the Pacific Coast". Further announcement of this meeting will appear in a later issue of the News Letter.

LUNCHEON NOTES
August 13, 1942

Number present, twenty..... Maryada Henley had visited friends and studied birds in Seattle..... Miss Hughes had spent some time at Cannon Beach,..... F. W. Libbey showed specimens of cinnabar in breccia from Horse Heaven Mine in Jefferson County, Oregon.....Lloyd Ruff distributed samples of high grade lead ore from the Jack Waite mine in the Couer d' Alene mining district, Shoshone County, Idaho.....Mr. Vance showed specimens of fossils collected while scouting for the field trip.

August 20, 1942

Our professional geologists were well represented today, Dr. Hodge, Mr. Nixon, John Allen and Hy Wood being with us again, as well as Mr. Nixon's guest, Mr. Lowry, who has been working in Eastern Oregon on his doctor's thesis. Mr. Kimbrell presented as his guest Mr. C. B. Cox, formerly a member of the engineering force in the City Hall, now a government engineer located at Coulee Dam. Dr. Booth was accompanied by his daughter, Mrs. Wharton.

Some unusual Egyptian relics were shown by Dr. Hodge, including a bit of mummy case, an Egyptian lamp, a head carved in clay, and a specimen of the asphaltum which is used in liquid form around the mummies and the mummy cloth.

Donald O'Connell brought a small box of stones from Yellowstone Park, repre-

(Continued on Page 130)

in the special applications to particular conditions.

If I were going to write a book on this subject I would add two main topics to this list: (1) the study of topography and hydrography and (2) strategic minerals.

As I see it the work of the geologists can be subdivided into two great fields--work with the armies in the field, and work behind the lines helping to find and extract the important raw materials needed for munitions and construction material.

Furthermore as geologists are usually widely travelled men who have had much experience in foreign lands they should be invaluable in planning the broad strategy so vital in a global war such as we are engaged in.

Of course, a geologist who is going to be attached to some active branch of the army must have among other qualifications the following:

1. He must be well trained and have had much field experience
2. He must be in excellent health and able to withstand hardships
3. He must be resourceful and have imagination
4. He must be able to handle all sorts of transportation equipment, be able to hike, swim, row a boat, ride a horse, motorcycle, pilot a plane and sail a boat.

To accomplish the most effective work and stand up under it he should not be under 25 nor over 50 years of age. If he can handle several foreign languages he will be that much more useful in a war such as the present one.

Here are some of the things, it seems to me, our society might do right here at home:

1. Educate the public to understand the role of geology and geological materials in the war.

2. Sponsor classes for prospectors in a practical knowledge of strategic minerals.

3. Establish a bureau of information in this subject relating directly to the Pacific Northwest.

In closing this very sketchy statement about a basically important subject let me call attention to Douglas W. Johnson's article on "The Role of Geology in the First World War" published by the Geological Society of America. Let me quote a story related by him in this article:

"We had to establish a big aviation camp at the Y, and I sent an officer who is a trained geologist to report on the matter of water supply. After a careful examination he reported that for the number of men to be assigned to that camp, so many wells must be dug to assure adequate quantities of water throughout the entire year. This report was sent to the commanding officer of the camp for his information and appropriate action. It soon came back with the endorsement: 'What is the use of digging wells in a country which is already saturated with water?'

"The report was filed away. Summer came, the surface water disappeared, springs gradually diminished in volume, and the small number of previously existing wells could not begin to supply the demands made upon them. Then we got a distress call from the commanding officer: 'For Heaven's sake come dig us some wells. We have no water.' Now my geological officer got his revenge. He sent a reply which read something like this:

"' Referring to your request of even date that some wells be sunk in your camp, your attention is respectfully called to my report of February------, specifying the number of wells you would need, and to your endorsement of said report to the effect that there was no use in digging wells in a country already saturated with water. I regret to report that all our drilling parties are at present engaged on pressing work duly authorized; but as soon as a party is free, it will be sent immediately to your assistance.'"

LAND OF THE FELLAHAH

by

Edwin T. Hodge

The Nile River separates the Arabian desert on the east from the Libyan desert on the west. Both of these deserts gradually merge into the wide, indefinite flood plain of the Nile. The flood plain is so low and so warm that much of it is covered by a rank growth of papyrus. This water-lily-like plant chokes the Nile and forces it to spill onto the marginal deserts. In the waters of the flood plain the papyrus quickly takes root and soon thereafter their tall stalks rise above the water level ten to twelve feet, to form a dense thicket. As a result of this process the Nile wanders aimlessly, now here and now there, ever shifting and occasionally dammed by the floating mattresses of the sedge that have broken loose and floated into the channel of the river.

However, this region was not always a desert nor the Nile a low sluggish stream.

There was a time in the Pleistocene when the Nile flowed on a grassy plateau and the lands on either side bore many lakes.

The lakes then occupied mostly basins formed by down-dropped blocks (or grabens).

These angular-walled depressions were bounded by fault scarps. Some of these grabens are the Sea of Galilee, Dead Sea, Gulf of Arabia, Birket Qarur (just northwest of El Fayum), and the Quattra Depression. These faults were active in the Pleistocene and have continued to be active to this day. A recent shake brought down the walls of Jericho.

When the grabens were filled with water, stone-working people lived on the plateau surface and along the canyon walls of the Nile. I vividly recall the feeling of the sweep of time when I first looked upon a fellahin. There stood a man who had not changed since his fathers helped to dig the tombs in the flat lying rocks of the Valley of the Kings. Indeed the Pharaohs who sleep in the tombs near Thebes were living but "yesterday" as compared to the stone age inhabitants of the Nile plateau. Some students trace the descent of the pure fellahah back to the stone chipping men who dwelt around the lakes of Quattra and Fayum.

The Nile had long since cut four terraces in its canyon walls when these ancient men appeared and chose for their home the flood plain of the Nile and the shores of the lakes.

On flood plain and lake shores Chellean and Acheulian people chipped great quantities of the oldest type of well-worked flints.

Later the river cut below the flood plain leaving it as a fifth terrace. Upon the new level lived a new people, the Mousterian. These people were of the same age as the Neanderthal of Germany and Czecho-Slovakia. At this time the lake near Fayum filled most of the Nile valley. But when the river had cut through its barrier it quickly entrenched itself as the Mousterian or sixth terrace.

Below the sixth terrace are a series of smaller ones. These are sites of flints also. The age of the flints is presumably Cro-Magnon, but since they are unlike the Cro-Magnon the correlation is based wholly upon their place in the sequence of terraces. It was these later people who began to learn the arts of civilization and who settled the present flood plain of the Nile. They watched the rain diminish and the desert appear. Changing their arts with the climate, they invented mathematics, surveying, irrigation and philosophy. They also learned the art of war.

ATTU ISLAND

Washington, D. C., July 28.--A few weeks ago Attu Island, nearest spot to Asia under the American flag, was only a name on the map.

Today it has become a vital spot in the defense of the North American Continent.

It is, according to experts of the Smithsonian Institution who have studied its fauna, flora and geology, the westernmost island of the Aleutian archipelago, a curved chain of lofty mountains more than 23,000 feet high, only the summits of which rise above the level of the sea. In fairly recent geological times the ocean level was much lower and there was a nearly continuous strip of land joining Alaska and Siberia.

The present climatic conditions on Attu are rather rigorous, the average summer temperature being only about 50 degrees, with a maximum of 66. The winter temperatures, however, are not excessively low, the average being about 12 degrees Fahrenheit. It is one of the rainiest spots on earth--the yearly humidity average being about 90 percent. The mountains are enveloped in almost perpetual fog. There may be 250 rainy days a year and as few as 8 wholly clear days. In the mountains, temperatures, rainfall, and winds are much more severe.

Under these conditions, say Smithsonian botanists, it would be expected that the plant cover would be sparse. There are no trees on any of the Aleutians, except for a few planted spruce trees at Dutch Harbor. This makes the problem of firewood complicated and building possibilities limited.

Most of Attu Island is covered with a monotonous heath consisting chiefly of crowberries. In the valleys, where plants are protected from the winds in winter by a heavy snow cover, there are meadows where are found many plants familiar in mountain meadows of the continental United States, such as lark-

spurs, violets, anemones, and buttercups.

In these valleys underground streams are common. They are sometimes separated from the surface by only a thin crust and people have been known to break through.

Attu Island naturally is very sparsely inhabited. The small population subsists entirely by fishing. There are no large mammals except whales. Some foxes and rats live there. Ravens and eagles are common, as well as various water fowl. There are no ants or butterflies. Bees are few, but flies often are abundant and sometimes are an almost intolerable nuisance.

Owing to the short growing season and low temperature, and especially to the prevalent summer fogs, the region is not suitable for agriculture. The most important food plant is a kind of lily which grows on most of the Aleutians. It is called the "sarana," and Sarana Bay, one of the most important harbors on Attu, takes its name from this plant.

The bulbs of this lily are about the size of garlic cloves. When roasted in embers, they take the place of bread better than anything else the country affords. After they are baked in an oven and pounded they make an acceptable substitute for flour. In this form they are mixed in all the native soups, and in most other dishes as well. Capt. James Cook, who visited the Aleutians in 1778, wrote that these bulbs were rather tasty and that they could be eaten every day without cloying the appetite.

The stems of some kinds of docks are cooked and eaten like rhubarb. Young stalks of the cow parsnip, a familiar plant through most of the United States, are eaten raw much like celery.

Native fruits are restricted to various kinds of blackberries, whortleberries, crowberries and cranberries. Tea is made from geranium leaves and from the plant commonly known as "Labrador tea."

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BUREAU RECEIVED MANY "RAIN MAKING" PLANS

from

"The Federal Employee"

Each time the country faces a threatening dry spell, the U. S. Weather Bureau receives many hundreds of letters from possessors of ideas and devices for making rain. And it is worthy of note that rarely are there any new ideas. The same old ones turn up again and again and, with hardly an exception, they are familiar indeed to the weather men.

Nowadays, the favorite "cure" for drought appears to be to stop radio broadcasting. The use of explosives still, as of old, has many advocates. Sprinkling dust or hydroscopic chemicals from airplanes is another popular suggestion.

Some of the proposals are not quite so stereotyped, though they are similar in principle to notions often put forth before. One writer suggests installing enormous deflecting planes along the crest of the Rocky Mountains to alter the

course of the transcontinental air currents. Another advocates drawing down cool air from aloft through tubes a mile long attached to balloons, thus cooling the air at low levels and causing condensation of its moisture. But he does not explain how the descending air is to be kept from being heated by compression. Still another genius proposes to discharge steam into the upper air through towers built up to cloud level. One man said he had discovered a mysterious "ray", which, when swept over the sky, would cause rain to fall.

Other correspondents who claimed to know how to produce rain applied for Government jobs as rainmakers but did not divulge their methods, while others, equally reticent, offered to sell their secrets to Uncle Sam at various prices ranging up to $25,000,000.

During a severe drought in Australia many years ago, one learns at the Weather Bureau, several people wrote to the government of that country offering to pray for rain if paid for doing so. One man wrote to the President of the United States from a place in the eastern part of the country stating that he would pray for rain in the then drought-stricken Middle West if provided transportation thither. His letter was referred to the meteorological branch of the Government and elicited a courteous reply. He was thanked for his offer, but the suggestion was made that the earnestness of a prayer is generally believed to be more important than the place where it is made. Hence it would be unfair to ask him to take an unnecessary journey; to say nothing of the fact that no existing appropriation of public funds could be legally drawn upon to pay his traveling expense.

Even when no drought or other great disaster is afflicting the land, wild schemes for regulating weather and climate continually crop up, official records show, and it is one of the steady jobs of the professional meteorologists to throw cold water on them. Strange to say, one of the most chimerical of these schemes was proposed by a meteorologist--James P. Espy, the famous author of "The Philosophy of Storms"-- who flourished, however, when meteorology was an infant science.

It is now a well-known fact, scientists point out, that when atmospheric conditions are particularly favorable, enough moisture may be condensed in the updraft of air over a big fire to produce a local shower. Espy was familiar with this rain-making process but greatly overestimated its efficacy. Hence in 1845 he put forth the following proposal:

"Let masses of timber to the amount of forty acres for every twenty miles be prepared and fired simultaneously every seven days in the summer on the west of the United States, in a line of six or seven hundred miles long from north to south. Then the following results seem highly probable, but not certain until the experiment is made: A rain of great length north and south will commence near or on the line of fires; this rain will travel eastward; it will not break up till it reaches far into the Atlantic Ocean; it will rain over the whole country east of the place of beginning."

Espy supposed that the rains, once started, would be carried eastward by the prevailing westerly winds, and he saw in his Utopian project a means of relieving farmers of both drought and excesses of rainfall. He seems to have overlooked the fact that great forest fires often rage for weeks in the western states without appreciably affecting the rainfall to the eastward!

One of the popular recipes for making rain is to jostle the droplets in a cloud together by explosions until big rain drops are formed by the coalescence of little cloud drops. The scientific objections to this idea were stated as follows by the late Prof. R. DeC. Ward:

"The physical processes at work in bringing about our general rains are on an immense scale, and involve great masses of air, many cubic miles in extent. Our great storm clouds are produced by the forced ascent of immense masses of air. The water vapor is imported, often, from great distances. Producing larger drops in place of smaller droplets, locally, is not the line of attack for any effective result. Even small drops will fall if the ascending currents of air are weak and slow. Our general rains result from cooling, and continued cooling, of masses of air imported from a distance, and not from any local cause. Even if we could bring down, as rain, all the water in a great cloud mass overhead at any one moment, the resulting precipitation would be practically negligible. The experiment of nature which gives the earth its beneficent rains are on far too vast a scale for men to deal with."

Most famous in the long and picturesque history of rainmaking experiments, according to weather men, were those carried out in 1891 and 1892 by Gen.Robert Dyrenforth with the aid of funds provided by the United States Government. The methods consisted of exploding dynamite, rackarock, and a mixture of oxygen and hydrogen (sent aloft in balloons), and Dyrenforth himself believed that the experiments, though not conclusive, indicated that, under favorable conditions, rain could be produced in this manner. Scientific experts who observed the experiments, however, did not agree with him, and neither does any scientific authority of the present day.

The experiments were conducted under the auspices of the United States Department of Agriculture. In response to numerous letters inquiring about the results, the Secretary of Agriculture, J. Sterling Morton, sent identical replies as follows:

"Replying to your letter as to rainmaking experiments, I have to inform you that in no case did they pass the merely experimental stage, and that the prospect of ultimate success is not such as to justify farmers or other citizens in rainmaking experimentation. In this determination, judgment and opinion I am supported by the scientists connected with the U. S. Weather Bureau.

"The bombardment of the skies for water, as carried on by this Department under the special appropriation made by Congress for the purpose, did not produce results calculated to inspire the hope that any method of concussion can be made commercially successful in precipitating the moisture from the clouds."

The late Charles W. Post, Michigan breakfast food manufacturer, records show, was an enthusiastic believer in the efficacy of explosives as a means of producing rain. Besides writing a good deal on the subject, he staged some spectacular experiments in Texas and Michigan, in 1911 and 1912, in which many thousand pounds of dynamite were set off. Showers occurred in conjunction with some of these attempts, but they were not confined to the localities of the explosions and had, moreover, been duly forecast by the Weather Bureau.

Popular faith in this rainmaking process still flourishes and is probably immortal. Not so many years ago bombs charged with TNT were exploded

over the "dust bowl" district of Texas in vain efforts to bring rain.

The idea of building large storage reservoirs as a means of increasing rainfall is a perennial one. Meteorologists do not regard it as hopeful.

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KATIE THE STRONG AND THE BROKEN FRAME

By O. E. S.

The house was still. A short inspection showed that for the moment it was uninhabited save for the editor, just home from a trying day at the office and craving the welcoming smile and words of greeting from his wife.

Oh, well! This was not the first time that such a thing had happened. Perhaps she had taken a sudden notion to go to the store for tomorrow's groceries. Yes, that must be it.

The hat which shelters the source of these thoughts was hung on its peg, and the rain-coat, having done its duty for the day was draped over another peg. Maybe there would be time to look at a magazine and get a good rest on the couch before the homemaker should return and demand that supper be eaten "so we can get things out of the way for a nice long evening."

Such thoughts were short lived, however, for right there by the hall-tree lay a favorite picture, face up, with the corners of the frame shattered and the little pieces of gilded putty, or whatever it is they make the fancy work on picture frames out of, neatly placed near the corners from which they were broken.

"Aha! So! She cracked up this pretty frame and then beat it to a movie till I could cool down. Never mind. I'll start gluing this thing together now and finish it after supper."

So with Duco cement, the harassed editor set about the pottering job of fitting the tiny pieces of plaster into their proper places.

As the job progressed and fingers became thickly coated with the cement that mends everything, it slowly dawned upon the editorial mind that his good wife was not to blame for this accident. No. Katie had been on the job a day ahead of schedule. Katie the Strong. Katie the Magnificent. Katie the Miraculous. Katie who in the morning came into a house that looked like a lived-in, habitable and comfortable place, and left it at noon spotless, orderly and sedate; a place where it might be a week or a month before one could find the magazine or the manuscript one had been working with but yesterday.

But how the heck had she managed to drop this picture?

Now, an editor must have an inquiring mind you know, and this one pondered the question as he painstakingly fitted the fragments together. The wire was not broken. The hook was still in its place in the wall, and the plaster was not torn or broken around it. There did not seem to be an answer.

At length the last tiny scrap had been garnered from the corner back of

the easy chair, the editor on hands and knees, flashing the beam from a penlight into the uttermost recesses, and the frame put into condition that from across the dimly lighted room could not be told from new. An hour and a half of editorial time had faded into eternity and no sentence written---no manuscript blue pencilled---no rejection slip mailed to an anxious contributor. And no wife yet in the kitchen to prepare the evening meal!

But not even an editor will wait forever for his supper. Hunger awakens memories of how he has seen culinary activities carried on. With his thoughts still on the mystery of the shattered frame, and with his fingers sticky with the cement that won't come off, he wandered into the kitchen, set the teakettle on to heat and took an inventory of the refrigerator. And then the front door opened and in stepped his wife. A little flustered, a little apologetic, but very welcome. She took immediate charge, and after a few brief instructions to "Do this. Do that. Bring something or other from somewhere or other" supper was ready. And eaten. But still the puzzled editorial brain was busy with the question: "How did that frame fall without pulling out the hook or breaking the wire?"

"Katie hung it up, and pretty soon it dropped," said the wife.

The editor took the picture down and looked at its back again. There was the wire from one screw-eye to the other, neatly twisted and tied. But, ah! There was a long loose wire that the wee bit o'Scotch in the editor's make-up had kept him from cutting off and turning in on the "save the scraps" campaign. It had been twisted loosely around the properly fastened part. Katie, though mighty, is short. She had had to stretch to hang the frame. She had looped the loosely twisted part of the wire over the hook. It held for a second, then slowly became untwisted and dropped the picture. The editor yanked open a desk drawer, took out a pair of pliers, snipped off the offending "tag end" and cast it into outer darkness, then flopped, exhausted, onto the couch, where you might probably see him this minute, if you were possessed of Superman's X-ray vision.

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(Continued from Page 121)
sented to him to be rubies but pronounced by the experts to be merely garnets - much to Donald's disgust.

Two specimens said to be granite were shown by Miss Henley, with the request that they be properly classified, which brought out some interesting opinions, but it was finally agreed that one was pegmatite, the other a porphyry with hornblende and feldspar. (Says Dr. Hodge in humorous vein,"Don't take it for granite.")

Mr. Carney was present after a long absence in Medford, looking fit, and promises to tell us later something of his activities.

Ken Phillips told of having paddled a canoe down the Willamette River from Eugene to the Sellwood Bridge on his vacation - a four-day trip. He reports seeing quite a bit of geology from the river, including several cliffs where fossils might be found by Messrs. Vance and Hancock.

Mr. Nixon gave us some pointers - gained from the hard school of experience - on how to avoid sunburn.

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MEMBERSHIP APPLICATION
GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

Qualifications and Dues: Applicant must be sponsored by a member and recommended by the Membership Committee. A knowledge of geology is not a requisite. There is no initiation fee. A Member shall be over 21 years of age; or a husband and wife and all children under 18 years of age. The dues are $3.50 per year, payable in advance, which includes one subscription to the Geological News-Letter. A Junior is an individual between the ages of 18 and 21. Dues are $1.50 per year, payable in advance, and include one subscription to the Geological News-Letter.

Date . . . . . .

I, ... (please print full name) do hereby apply for membership (junior membership) in the Geological Society of the Oregon Country, subject to the provisions of the By-Laws.

Home address . . . . . Phone . . . . . .

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I am particularly interested in the following branches of geology: . . . . . .

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I enclose $. . . for the year's dues, March 1 to March 1. (Checks payable to the Society).

. . . . . Sponsored by . . . . . .
(signature) (member)

PORTLAND CHAPTER ANNOUNCEMENTS

LECTURES: On 2nd and 4th Fridays of each month at the Auditorium (3rd Floor) of the Public Service Building, 920 S. W. 6th Ave., at 8:00 p. m..

TRIPS: On Sundays following lecture meetings, or as otherwise arranged. Meeting place at Public Market, Front and Yamhill.

LUNCHEONS: Every Thursday noon, in the banquet room of the Treasure Island Restaurant, 815 S. W. Broadway (50¢ minimum). See notice below.

FRIDAY EVENING MEETINGS

Friday, Sept. 11. Dr. E. L. Packard will lecture on "Fossil Marine Vertebrates of the Pacific Coast." As a large attendance is anticipated it is advisable that you be in your seat in the auditorium before eight o'clock. The lecture will be illustrated by slides.

We are hoping to have Dr. Packard with us at a dinner meeting before the lecture, if he will be in town in time. So far we have not heard from him in regards to this matter. It is suggested, therefor, that all who would attend this dinner call the president, La. 3903, as early in the week as possible for further details.

FIELD TRIP

Sunday, Sept. 13. A hike of about five miles along Leif Erickson Drive. This trip will take us through some very rugged country along the west side hills. Most of the trip will be in the younger volcanics, which show some interesting weathering. Part of the area is covered by gravels which lie at an elevation of five or six hundred feet. It is possible to make all of the trip by auto if you do not worry about tires, narrow road, and overhanging brush. The party will assemble at the end of the Willamette Heights car line at 10:00 A. M. We will return on the Linnton Bus from Saltzman Road and St. Helens Road. Carry drinking water as well as your lunch. Bring Portland and Hillsboro topographical maps or Ray Treasher's "Geology of the Portland Area."

LECTURE

Friday, Sept. 25. Dr. Edwin T. Hodge will give one of his interesting talks on "Alaska, and why the Japs want it." You know that Dr. Hodge is a student of world affairs, particularly as they intermesh with geological facts. This will also be at eight o'clock, and it will also be desirable for all to be on hand promptly.

IMPORTANT NOTICE

Thursday Noon Luncheon. September 10 will be the last meeting of the luncheon group at Treasure Island. No new place for meeting has been found yet. Keep in touch with the president for further developments.

PRESIDENT'S MESSAGE

On behalf of the society, it is the wish of the president to thank all those who took active part in making the annual picnic another great success.

The picnic committee was called to duty about a month before the event. Mr. Amza Barr, Dr. and Mrs. Courtland L. Booth, Mr. A. W. Hancock, Miss Florence Iverson, Mrs. Mildred P. and Miss Ellen James, Dr. Arthur C. Jones, Miss Abigail Neikirk, Mrs. R. R. and Miss Grace Poppleton, Mrs. Leo and Miss lotus Simon, Mr. Donald O'Connell and Mr. and Mrs. A. D. Vance composed the committee. Mr. A. D. Vance was appointed chairman.

When rain threatened to put an end to the final carrying out of all our plans, Dr. and Mrs. Arthur Jones very thoughtfully came to our rescue by opening their home to the group. We owe them many thanks for their hospitality.

Those who made this change of locale known to as many of the members as possible by calling on the phone, also deserve a big vote of thanks. They were greatly handicapped by not having present phone numbers of many of the members. The ladies who took part in this work were Mrs. A. W. Hancock, Mrs. Ray Mackenzie, Miss Helen Iverson, Mrs. A. D. Vance, Miss Abigail Neikirk, Mrs. H. B. Schminky, Mrs. O. E. Stanley, and Mrs. A. D. Vance.

I also wish to thank the members of the society for their fine attendance at the picnic. That is what makes the committee and especially those who took part in the program, feel repaid for the time spent in preparing for your enjoyment.

Now just a word about the program itself. No one who was asked to take part had a single idea, to hear them tell it. Yet, as you all know, we did have a real show. The luncheon idea was batted around by the committee for some time. A bare outline was made up and handed to Mr. E. N. Bates with the simple (?) instruction to pick a cast and work out the dialogue. Again the answer -- "No ideas". However, the result was really worth a place at an annual banquet rather than at a common picnic. The three desert rats had been assigned to an entirely different skit. Again lack of ideas raised such a cloud of confusion that they completely lost sight of their original parts.

Oh well, many people believe that all geologists are given to letting their imagination get the better of them, so why shouldn't we have a good show with such a talented group who have no ideas?

H. B. Schminky, President.

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Miss Jean Bowman, junior geologist with the State Department of Geology & Mineral Industries, was married to Fred Gustafson at a church ceremony in Absarokee, Montana, Sunday.

The State Department staff honored Jean and her mother, Mrs. A. R. Bowman, at a luncheon held at the Hotel Heathman last Thursday. This explains the staff's absence from the last G.S.O.C. luncheon.

Mr. Gustafson, graduate in geology from Oregon State College, is employed by the Anaconda Mining Co. The couple plan to make their home near Columbus, Montana.

SUMMARY OF THE GEOLOGY OF THE PHILIPPINE ISLANDS

by
Warren D. Smith
Formerly Chief, Division of Mines, Bureau of Science, Manila, P. I.
Head, Department of Geology and Geography, University of Oregon,
Eugene, Oregon

INTRODUCTION

Reasons for this article

1. As the United States is pledged to regain the Philippine Islands from the Japanese our people are especially interested in this region.

2. This is one of the most active and strategically important areas in the geology of the Pacific Basin.

3. Many important biological problems can be studied there.

4. The islands have great mineral and other raw material resources.

5. The most comprehensive book on the geology of this archipelago is "Geology and Mineral Resources of the Philippine Islands" (1925) by the author of this article. This book is now out of print and available only in the larger libraries.

Lying opposite the great all-water world-way between the Orient and Europe is a group of islands about which at the present time much is being said and written. This archipelago is the home of the most progressive people of the Malay region.

Extent, Area, etc.

To quote from one of their excellent handbooks issued by the Bureau of Commerce and Industry, whose personnel is almost completely Filipino:

> "The land area of the Philippine Islands lies between 21° 10' and 4° 40' north latitude and between 116° 40' and 126° 34' east longitude. There are 7, 083 islands extending 1,152 statute miles from north to south and 682 from east to west. Of this number 462 have an area of 1 square mile or over; 2,441 are named and 4,642 unnamed. The northermost is Y'Ami Island, 65 miles from Formosa, the southermost Saluag, 4° 40 ' from the equator, and 30 miles east of Borneo. The total area is 114,400 square miles or about 1.6 times that of Missouri, twice the New England States, some 7,000 square miles less than the area of British Isles. Cuba is only about a third as large, and the Hawaiian Islands one-seventeenth.
>
> "The largest, Luzon, contains 40,814 square miles and Mindanao, the next in size, 36,906. Panay has 4,448; Cebu, 1, 695; Palawan, 4,500; Mindoro, 3,794; Bohol, 1,534; Masbate, 1, 255. Between and

about lie the other groups, including the better known Sulu or Jolo Islands in the south, the Babuyanes and Batanes in the North, the Catanduanes in the east, and Culion in the west."

Having given a few facts as to the extent and number of islands in this wonderful group, three important world-geographic points should be emphasized as they are paramount in relation to trade and international politics.

1. Situation at the entrance of the great all-water world-way from the China Sea to the Atlantic.

2. The proximity to the great continent of Asia. It is on the doorsteps of Asia. In fact, the Philippine Archipelago may be considered as a badly crumpled land mass at the edge of the Australasian continental platform.

3. It is more closely related to Indo-Malaya than to any other part of this region. A bathymetric map will easily show the connections with Borneo. A remoter connection existed with Formosa, the great camphor island, and with New Guinea to the southeast.

Climate

The climate of the Archipelago is known as tropical-insular, with emphasis on the second word. When the continental areas nearby, and such islands as Java and Borneo are sweltering in the heat, it is moderately cool in the Philippines due to the ocean breezes which blow in from all sides, and there are areas, such as the highlands of Luzon and Mindanao where a temperate climate is found the year around. On the highest mountains of Luzon, about 9,500 feet in elevation, a half an inch of ice forms sometimes in the early mornings in January and February. Light snow-falls have been noted by explorers on these highest peaks, but they melt as soon as they touch the ground. The climate of the Philippines can be divided into three types:

a. That of the "north-east monsoon" or trade wind. During this time the west side of the Philippines is dry and the eastern side wet.

b. The cyclonic storm--the type of climate in which the western side of the islands is deluged with rain and the eastern side is dry. This is in the summer months.

c. There is the intermediate type of climate which prevails in the central part of the Philippines, and a portion of the southern islands where the mountain systems are not so pronounced as to make a sharp definition of the seasons. This subject of climate in the Philippines is very long and interesting, and only a few salient features can be mentioned in this brief paper. Nearly everyone has heard of the typhoon. These storms of cyclonic origin are locally known as "Baguios," and are particularly prevalent in the summer months. They originate far out in the Pacific near the island of Yap and move westward with considerable speed and with a clockwise whirl. The majority of them pass across the island of Luzon, but strange to say, more damage often is done by them on the China coast than in the Philippines.

Flora and Fauna

A few of the significant features of the flora and fauna of this region should be mentioned as a matter of general interest. The forest trees belong

mainly to the Dipterocarpaceae, hardwoods. These are confined to the lowland areas. In the mountains are pines and oaks.

The open grassland areas are covered with lalang grass, cogan, talahib (Saccharum), Themeda, and other coarse grasses.

Of the flowers the Orchidaceae are by far the largest in number of species, between 850 and 900.

Among the living animals we should call attention particularly to the Tarsius, a primitive primate; the Timaro, a unique animal, found nowhere else in the world and one island only of the Philippines, Mindoro. It is related to the water buffalo, but somewhat smaller.

Such animals as the bears, elephants, tigers, lions, etc., are conspicuously absent. The crocodile and the python are the most conspicuous of the reptiles. The birds and fishes are represented by numerous interesting species.

The People

Four dominate groups of people are found in the islands:

1. The Aetas or Negritos

2. The Indonesians, such as the Igorot

3. The Malay, the modern lowland Filipinos; and of various European Nationalities as well as Chinese and Japanese. There are some fifty-seven different dialects spoken of which Tajalog is the principal one. All together there are some 16,000,000 inhabitants.

Geology and Physiography

GEOLOGY: Practically all of the principal geological formations though not all the eras are represented in the Islands. On a basement complex of igneous rock lie some small outcrops of Mesozoic rocks; and many thousand feet of Tertiary sediments succeeded in turn by andesitic lavas; great accumulations of more recent tuffs and considerable areas of firaminiferal and coral limestones. Contrary to the commonly accepted idea, the Philippine Islands are not dominantly volcanic. Active vulcanism in recent years has been manifested at three rather widely separated points only; at Taal (40 kilometers south of Manila), Bulusan in the extreme southeastern part of Luzon, and on Camiguin Island off the northern coast of Mindanao.

Structurally we may consider the Philippine archipelago as the crumpled edge of the Asiatic continental shelf. A study of the hydrographic chart of this region reveals a great "foredeep" close to the eastern margin of the group in which the deepest known part of the Pacific is located, 53 miles northeast of the island of Mindanao.

To the west of the archipelago is the much lesser deep of the China Sea, presumably a sunken area or "graben." This China Sea "graben" is undoubtedly analogous to the submerged area between New Zealand and Australia, and the Asiatic mainland may bear the same relation to the Philippines as Australia does to New Zealand.

The land areas of the Philippines are the higher portions of a partly submerged mountain mass, in part the crests of anticlinoria, in part the upthrust blocks or "horsts" caused by faulting. Some of the straits, consequently, are the down-folded areas or synclines, while others are "grabens". The structure of the archipelago is by no means simple and besides the folding and faulting mentioned there are volcanic intrusives and extrusives which further complicate matters.

As for the geological dates when the major deformations occurred we can state with a fair degree of certainty that there was a period of intense deformation prior to the Tertiary when some of the schists were formed, although some schists appear very clearly to have been made as a result of strong movements in Tertiary times. At the close of the Miocene, as a part of the world-wide "Miocene Revolution", the Vigo and Bataan groups (middle Miocene) were generally folded. In some places they were intensely crumpled and faulted. Again, at the close of the Pliocene, or early in the Pleistocene, as evidenced by the Malumbang formation, there was another period of folding, though not so pronounced.

Although the principal tectonic lines in the archipelago are in general north and south, the inner line of arcs makes a pronounced curve in the direction of Borneo, showing a tendency to fall in line with the principal tectonic lines of the rest of Malaysia which have in great part an east and west direction. It may be questioned as to how much emphasis we are to put on the word "arc." These may be a series of broken straight lines and not strictly arcuate. It is seen, therefore, that the Philippines are part of a region, including also Java, Borneo, and Sumatra, which, with reference to Asia and Australia occupies a position analogous to that of Central America and the rest of the Americas and therefore is a region of strategic importance in the study of the geology of the Pacific.

Becker, Koto, and others have pointed out the relation of the Philippine arcs to those of Asia as delineated by Richthofen.

As has been pointed out by Suess, and similar to what Omori has told us of Japan, and Andrews of Australia, the inner arc is a line of volcanoes such as Taal, Canlaon, and Camiguin. However, near the outer arc are two important cones, Bulasan and Mayon, that are active at intervals. The innermost arc consists of folded rocks also, but with no sign of volcanism, at least at the present time. As in the Australian region, the outer arc is the oil arc.*

On the western side of the archipelago there is much evidence of recent uplift, especially indicated by raised beaches and reefs, while on parts of the eastern coast, especially in the Paracale region, drowned river valleys are found. In the eastern half od the group, too, though not on the eastern coast, there are two great rivers, the Cagayan in northeastern Luzon and the Agusan in northeastern Mindanao, up which the tide runs for long distances. It seems to the writer that in spite of some local exceptions to this state of things, there has been a tilting of the Philippine block toward the Pacific, perhaps a down drag as a result of the subsidence of the oceanic block into the Mindanao deep. Certainly this has not been a uniform tilting as the facts would indicate a warping.

*No commercial deposit of oil has yet been located in this archipelago.

The archipelago, as a whole, has been subjected to a great uplift during the Pleistocene and Recent periods amounting to some 1,800 meters (6,000 feet). This is evidenced by the fact that fossil plants, very closely related to the flora of the lowlands near Manila, have been discovered in the extreme highlands of Luzon.

Residual plateaus in parts of the islands, notably around Baguio in northern Luzon, and even skylines in the uplands of Cebu furnish evidence of peneplanation, but these areas may also have had more complicated origins and may perhaps be explained in an entirely different way.

Of two things we may be certain; namely, the structure of the Philippines is very complicated, and we lack sufficient detailed surveys to enable us to pronounce finally on many of these points.

PHYSIOGRAPHY: There are several points of view in discussing the physiography of the Philippines and various ways of sub-dividing the country. For our purposes, the regional plan is best. Therefore, we recognize the following subdivisions:

(a) The Coastal Plains, which, as in the case of Mexico, we may term tierra caliente.

(b) The Interior Plains.

(c) The Intermediate Uplands, or tierra templada.

(d) The Highland Plateaus.

(e) The Volcanic Mountain Regions.

Physiographic History

The present land forms in the Philippines have come about through a complicated set of processes, elevation, subsidence, folding and faulting, vulcanism, and gradation. There have been repeated elevations and subsidences, with longer and shorter pauses between, during which approaches to peneplain conditions have been attained. Because the story is complicated, and we have not yet worked more than a few areas in detail, we are not in position to outline the physiographic story clearly.

From the beginning doubtless there have been archipelagic conditions in this part of the world, though the size of the island masses were much smaller. This we know positively in the case of Luzon and Mindanao, whereas in the case of the Visayas they may have been larger. Extensive faulting was the cause of this.

As soon as the original land areas emerged from the sea they were eroded and marine deposits formed. These were subsequently elevated, folded, and faulted and eroded again, how many times we do not know. Of pre-Tertiary conditions and events we have little to make deductions from, as the remnants of rocks dating from those periods are few and scattered. Perhaps in some areas old ersion surfaces dating from this time will be found preserved, but the probability is very great that they are concealed by later formations or have been modified by subsequent events.

During the Eocene much of the Philippine terrane was above water. As yet we have found no undoubted Eocene marine deposits nor any terrestrial deposits we can identify as such.

Following the deposition of the Batan Coal Measures and the Vigo Shales (Miocene) there was a period of pronounced folding, with faulting, elevation, and subsequent erosion. During this time there was also considerable extrusion of lava and agglomerate.

Remnants of this old surface are found in many parts of the Archipelago.

Previous to the Miocene there was undoubtedly sea connection with Europe by way of a greatly extended "Tethys" which reached from the Pacific to the Atlantic. This sea connection was cut off by the "Miocene Revolution."

Subsequently there was submergence and the deposition of vast amounts of limestone, tuffaceous materials, etc., and again elevation with erosion following.

Since the late Pliocene there has been chiefly elevation in Luzon and Mindanao, while in parts of the Visayas and Palawan submergence has been the rule.

Concomitantly with the elevation there has been extensive coalescing of the isolated land masses by gradation and vulcanism. This is particularly the case is Luzon and Mindanao. Prior to this time the Zambales were separated from the Eastern Cordillera by a stretch of sea from Manilla Bay to Lingayen Gulf.

Likewise, Mindanao consisted then of several isolated land areas. The Cotabato region was generally covered by an arm of the sea.

The remarkable thing about the physiographic changes in the Philippines is the undoubted rapidity of them, and the fact that they are continuing apparently undiminished today. This is only to be expected in a region of torrential wash where the record rainfall for the world occurred, namely 45.99 inches in 24 hours (July 1911).

Other physiographic features should be briefly mentioned. The principal rivers are north-flowing, as for instance, the Cagayan in northeastern Luzon and the Agusan in northeastern Mindanao. One of the smallest, but most important of all, rivers from the human standpoint, is the Pasig, which flows from east to west from Laguna de Bay to Manila Bay, on both banks of which near its mouth, is situated the metropolis of Manila. This small stream is generally choked with traffic, as most of the wealth, chiefly copra, of the rich interior to the east finds its way to the outside world by the waters of this stream.

There are many interesting lakes in the Philippines, of which the largest is Laguna de Bay, a three fingered body of water east of Manila. This evidently is the remnant of a former much larger lake, and earlier than that, of an arm of the sea. Taal lake, due south of Manila, is probably one of the most puzzling as to its origin of any in the Archipelago. Some have considered it as being a tremendous crater lake. It is probably due to the subsidence attendant upon volcanic eruptions. Within this large lake is the Isla de Volcan on which Taal volcano is situated, which, in turn, has in its interior a genuine crater lake about half a mile in diameter produced at the time of the 1911 eruption.

Mineral Deposits

The mineral deposits of the archipelago are considerable. Gold is the chief source of revenue, amounting in 1941 to over $40,000,000, exceeding that of Alaska.

Chromite is next in importance. This strategic mineral is found in three principal localities. The deposit near Masinloc on Luzon is thought to be the largest low-grade deposit of which we have any record.

Copper is mined on a small scale on Luzon.

An extensive deposit of lateritic iron ore exists in Surigao province of northeastern Mindanao. Other iron deposits on Luzon have been worked on a small scale for many years.

Lead, manganese, etc. have been found in several localities, but to date no large scale production has been noted.

Coal of sub-bituminous grade occurs on several islands, notably Cebu and Mindanao with some production.

Cement of high grade has been manufactured on Cebu island for a number of years.

Oil seeps on Luzon, Cebu, Leyte, and Mindanao have long been known, but no commercial production has as yet been reported.

The Philippine Government maintained a well-equipped Bureau of Mines, staffed by Filipinos at the time of the Japanese invasion.

Dr. H. Foster Bain, formerly director of the Federal Bureau of Mines, was mining advisor and when heard from was in the islands.

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THE 1942 ANNUAL PICNIC

by O. E. S.

Nearly seventy people responded to the calls by the telephone committee on change of location for the annual picnic and assembled at 3300 S.W. Heather Lane. Tables accommodating one or more family groups were set up on the lawn and in various rooms of the house, the baskets were unpacked and the picnic supper eaten decorously, with a pleasant chatter of conversation.

After the tables were removed and the chairs were rearranged the program began with everybody singing the Societys' own song: "The Oregon Country Ain't What She Used to be". This was followed by "It Happened one Thursday Noon", with past president Kenneth N. Phillips at the head of the table announcing himself as "the punk that sets off the fireworks". Of course the punk doesn't know what will happen when it touches the fuse and the chairman was apparently agreeably surprised at some of the forensic outbursts he ignited.

O. E. Stanley was asked to introduce his old friend E. N. Bates from Vermont, who had just arrived in time for the luncheon. He did this in a revealing talk

and Mr. Bates responded with equally revealing remarks. We should know these men much better than before if we can remember what they said about each other..... Miss Henley introduced her friend Farmer Baldwin who proved his interest in geology by passing samples of blackberry juice said to have been distilled by the sun and concentrated in a beautiful crystal at the foot of the ladder that he uses to gather his berries. Farmer Baldwin's explanation may not be remembered in its entirety, but the sparkle of the samples will remain in the memory of those favored by a close inspection.

Baron Munchdriller was not able to be present in person, but had written to his boyhood friend Edwin T. Hodge a brief autobiography, which nearly broke up the meeting with its humor.

Geological specimens were passed around the table until they reached collector Donald O'Connell who stowed them in his pouch. When he had them all "collected" he remembered an important engagement and left the table hurriedly with the rest of the group stampeding after him to retrieve their specimens.

Miss McElroy who came as a guest of Emily Moltzner played a delightful piano solo which brought the audience back to sanity.

"A Night on the Desert" was portrayed by A. D. Vance, A. W. Hancock and H. Bewhiskered Schminky in a realistic manner. Since these men were held strictly to actual happenings (according to their own statements) in their fireside talks, the audience was left with the impression that life in the desert is far more exciting than anywhere else. They might still be talking had not Carol Anne Schminky dashed into the night with a flashlamp and called to "Grandpa" that it was bed time.

Group singing of "Auld Lang Syne" concluded the program after Dr. Jones had given the physiological reason why a man always stands with his back to the fire.

The Society is under a heavy debt of gratitude to the Jones family for allowing this crowd to swoop into their lovely home for a hilarious evening.

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LUNCHEON NOTES FOR AUGUST 27, 1942
by O. E. S.

The twenty-four people who met at Treasure Island restaurant on August 27th were really crowded around the table which had been shortened to give more room for the kitchen but in spite of the close quarters they consumed their quota of cinnamon rolls, and discussed geological subjects as usual.

Tom Carney was back again, this time with a lovely slab of moss agate from Jackson County.... Mr. Minar had two pieces of black rock which appeared to be from the same quarry, but one was from Maine and the other from California - or should we say that "one was from California and the other from Maine"?.... John Allen brought a box of manganese specimens from a point about 17 miles northwest of Bend, Ore. He said the pieces had been exposed in a bed of tuff.... Miss Henley had specimens of aluminum silicate from Josephine County and chromite from Curry County....Dr. Adolph Weinzirl found time to be with the group again. His work at the Medical School keeps him very busy, he says....Mr. Platt, who has a long period of absence chalked up against him, was present....Dr. Booth brought his daughter, Mrs. Herman Aing, Burley, Idaho.

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MEMBERSHIP APPLICATION
GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

Qualifications and Dues: Applicant must be sponsored by a member and recommended by the Membership Committee. A knowledge of geology is not a requisite. There is no initiation fee. A Member shall be over 21 years of age; or a husband and wife and all children under 18 years of age. The dues are $3.50 per year, payable in advance, which includes one subscription to the Geological News-Letter. A Junior is an individual between the ages of 18 and 21. Dues are $1.50 per year, payable in advance, and include one subscription to the Geological News-Letter.

Date . . . . . .

I, ... (please print full name) do hereby apply for membership (junior membership) in the Geological Society of the Oregon Country, subject to the provisions of the By-Laws.

Home address . . . . . Phone . . . . . .

Business Address . . . . . Phone . . . . . .

Occupation . . . . . .Hobbies. . . . . .

I am particularly interested in the following branches of geology: . . . . . .

. . . . . .

I enclose $. . . for the year's dues, March 1 to March 1. (Checks payable to the Society).

. . . . . Sponsored by . . . . . .
(signature) (member)

PORTLAND CHAPTER ANNOUNCEMENTS

LECTURES: On 2nd and 4th Fridays of each month at the Auditorium (3rd Floor) of the Public Service Building, 920 S. W. 6th Ave., at 8:00 p. m.

TRIPS: On Sundays following lecture meetings, or as otherwise arranged. Meeting place at Public Market, Front and Yamhill.

LUNCHEONS: Every Thursday noon. Until such time as better accommodations are found, the Thursday noon luncheons will be held on the balcony of the Millionaires' Club, at S.W. 10th Ave. and Morrison St.

FRIDAY EVENING MEETING

Friday, Sept. 25. Dr. Edwin T. Hodge will give one of his interesting talks on "Alaska, and why the Japs want it." You know that Dr. Hodge is a student of world affairs, particularly as they intermesh with geological facts. This will be at eight o'clock, and it will also be desirable for all to be on hand promptly.

DINNER FOR DR. & MRS. PACKARD

A society dinner meeting held at the Cape Cod Tearoom, Friday, Sept. 11, for Dr. Packard, guest speaker for the regular meeting, was turned into a double event. The second part of the occasion was in honor of Dr. Arthur C. Jones, who left for San Francisco on Sept. 16, for service with the army medical corps. Dr. and Mrs. Packard and Dr. and Mrs. Jones were guests of the society at the dinner. Nineteen people were present. Those who were not notified of the meeting were not slighted intentionally, for the room available would only seat twenty, and time was too short to find larger quarters.

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J. Dean Butler reports the birth of two grandchildren, September 6, 1942 in Portland, Oregon. Girl, named Glena Kay, weighed 6 pounds; boy, named Glenn Kent, weighed 5 pounds. Parents; Mr. and Mrs. Orval Glenn Butler. The twins will be at home to the G.S.O.C. after October 1, 1942, at their home in Sandy, Oregon.

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Dr. Edwin T. Hodge will teach an introductory course in geology, dealing with the processes at work changing the face of the earth; the internal structure, composition and activities of the earth; the economic geologic deposits; a survey of the main events in the history of the earth; and a study of prehistoric life, including geological backgrounds of man and current events. This class will meet at 7;15 Thursday evenings in room 114, Lincoln High School building. It is a part of the work of the Portland Extension Center which has business headquarters at 814 Oregon Building at S.W. Fifth and Oak.

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CHROME*

TIME magazine for August 10th has some information that should be interesting to chrome miners. It reports Metals Reserve as saying that the chromite situation is well in hand by virtue of what TIME calls the "Montana Miracle". The article states that Pearl Harbor caught the United States with a six month's supply of chromite on the stockpile, 400,000 tons. So,-- Anaconda Copper Company, with Federal money, developed the Montana low-grade deposits and by the end of 1942 will have produced an estimated 50,000 tons of concentrates. The eventual peak is 500,000 tons a year. The article leaves one with the impression that the chromite problem is solved.

Let's analyze these figures. In 1940 our consumption was 660,000 tons. In 1941, estimated consumption was 800,000 tons. In 1942, estimated consumption will probably reach well above 800,000 tons. Practically all of this ore was imported, in fact, in 1940, 99 per cent was imported. Imported ore has dwindled to practically nothing at present so we are confronted with the necessity of raising over 800,000 tons domestically. These figures cannot be confidential as they are listed in various governmental reports and releases.

Our annual needs call for 800,000 tons. Our stockpile was 400,000 tons. Montana will supply 50,000 tons in 1942. Question? Where are the remaining 350,000 tons coming from in 1942?

Or, let's look at the picture for 1943 as estimated. Our needs are 800,000 tons plus. Montana will produce 500,000 tons it is claimed. Where are the remaining 300,000 tons coming from? The picture still doesn't look good.

At present our chromite resources are virtually confined to Cuba, Alaska, Montana, and our own area in southern Oregon and northern California. Cuban ore is not of metallurgical grade. Alaskan ore is not available. Montana ore has a chrome-iron ratio that would make a furnace man shudder. What is the answer? It looks as if the Oregon-California chrome deposits are going to have heavy demands placed upon them.

No mention has been made of the chromite concentrates from the Oregon beach sands, although official Washington is aware of this development.

Some of you may have heard Henry Kaiser speaking on Fulton Lewis' program last week at which time he said that some of the difficulties in the way of his building flying cargo planes include a serious shortage of chrome and nickel.

It just doesn't add up.

Anyway, chrome miners in this area need not fear that Montana chromite is going to put them out of business. Our steel furnaces still will need chromite ore, even after the Montana ore is in the pot.

* From a talk by Ray C. Treasher, August 11, 1942, on station KUIN.

TERTIARY JUGLANDACEOUS WOODS

by

George F. Beck

2. Pterocarya.

This member of the walnut family, for which we have no suitable common name, no longer grows native in western America, but is confined to a few species which occur in China and possibly adjacent Asia. Pterocarya, in our Tertiary seems to have been a widespread tree, for its leaves have been recognized in many fossil collections. This is perhaps the first announcement concerning recognition of pterocarya as a fossil wood.

Both the leaves and woods of this oriental "walnut" are with difficulty to be distinguished from those of the true walnut. The separation of the woods is here, and in most cases must be, made upon the basis of the rays. All the specimens of walnut that I have been able to check, involving some half dozen living species, run consistently to more than 2-seriate rays. We have many fossil walnut-like woods which never go beyond 2-seriation, and until some better means of recognition is available we must depend, in the main, upon this feature for a separation of the two genera. Pterocarya, to be sure, has also a finer detail to its cross section, and the small vessel segments often carry a conspicuous tip (1706-h).

Engelhardtia is excluded upon the basis of consistently rounded (never slit-like) parenchyma-vessel pitting (1706-g for tangential pitting, 1706-i for ray-vessel pitting). Likewise the above is excluded because of the absence of barred perforations from even the smallest vessel strands (1706-h and -k). The "chambered" walnut-like pith, of course excludes Carya (hickory), although the thickness of the tracheid walls (1706-b) suggests some of the hickories.

Number 1706, herein described, comes from the Yakima Canyon about two miles above the Selah tunnel and some 500 feet down in the basalt series. It derives from a rooted swamp cypress forest (at least none of this dominant Taxodioxylon type displays the traumatic duct rows of redwood and many are pale-colored and waxy as in Taxodium), ith Nyssa and Acer as conspicuous hardwood associates--but no oak and elm.

Pterocarya-like woods are to be found in some quantity, but never dominant in nearly all horizons in the Yakima basalts, seeming to thin out where either walnut or hickory become relatively conspicuous. Some of these pterocarya-like woods carry a pith much more resembling that of hickory than of walnut, a feature I have found in living pterocarya twigs sent to me for comparison. Number 1706, here accepted as the type for our Tertiary pterocaryas, has a distinctly walnut-like "chambered" pith.

Plate 1706-d
Transverse x 11.5

The annual ring, well defined, extends across most of the field from top to bottom (a-a). Pores in suggestion of an en echelon alignment are found in radial chains of 1-3. The parenchyma lines are fine and abundant, about 20 to the ring.

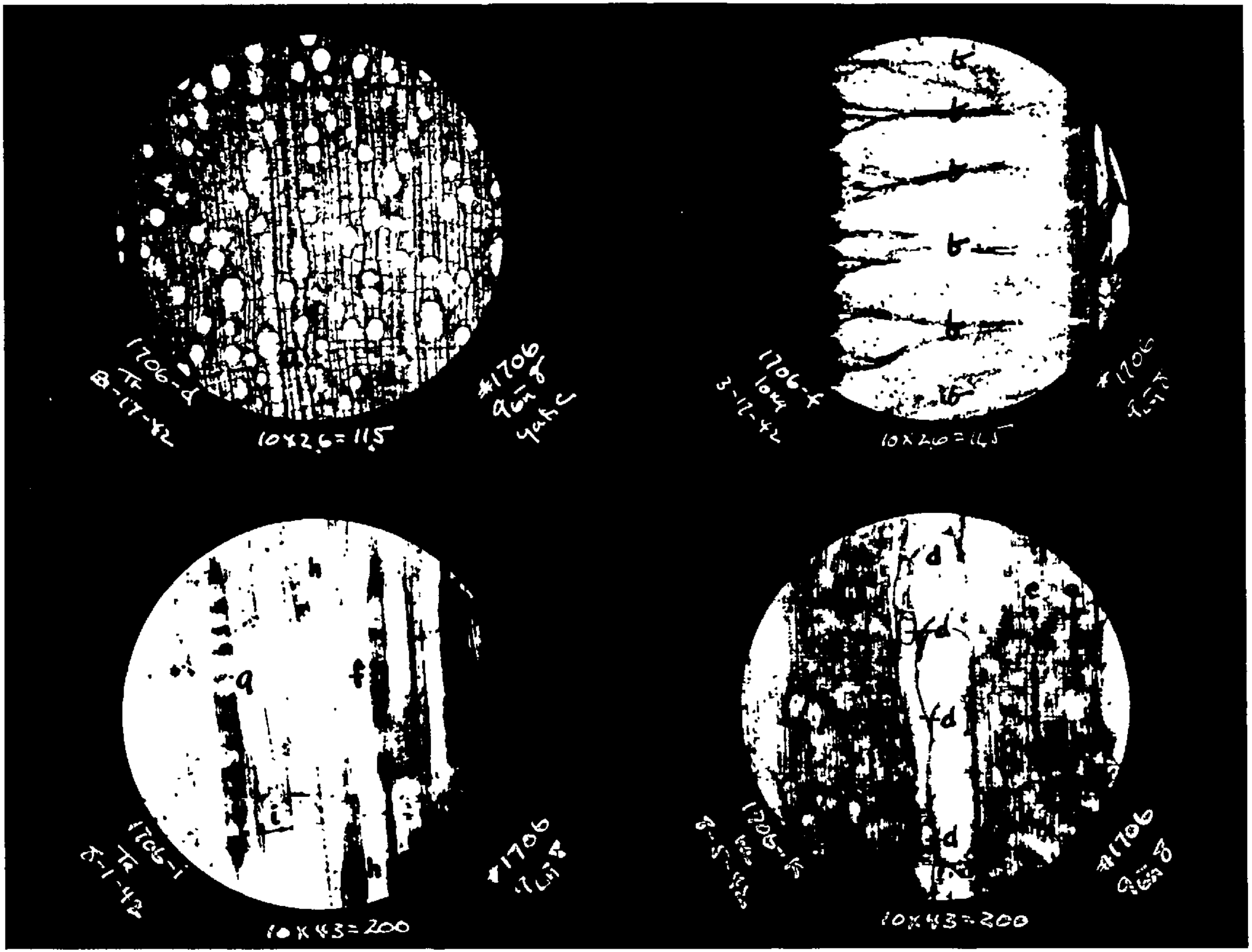
1706-2
8-17-42
10x26=115
#1706
1706-4
3-12-42
10x26=115
#1706
1706-1
8-1-42
10x43=200
#1706
1706-5
10x43=200
#1706

Plate 1706-f
Radial x 11.5.

This section shows the walnut-like pith, with the letter (b) in a series of six indicating the cross membranes.

Plate 1706-k
Radial x 200

(d) The letter in this case is placed in the middle of a simple perforation of a large vessel strand. The arrow points to the more significant open perforation found in a paralleling small strand.

(e) Parenchyma strands (parallel lines as seen in transverse).

Plate 1706-i
Tangential x 200

(f) At right--uniseriate, low ray made up of elongated (heterogeneous ?) cells.
(g) At left--uniseriate ray made up of squarish (homogeneous ?) cells.
(h) Rays expanding into biseriate central portion as they extend beyond field of view.
(j) Below--septation across wood fiber lumen.

Ten photographs have been used for this study, four of which, only, have been reproduced. Anyone who desires them all may secure them for 25 cents from the author, c/o Fossil Woods, Ellensburg, Washington. Some of these have been referred to in the text. Not reproduced are:

1706-a Tangential x 47. Ray topography and vessel strand.
1706-b Transverse x 200. Thickness of wood fiber walls.
1706-c Transverse x 47. Ring boundary, pores, etc.
1706-g Tangential x 200. Parenchyma about vessel, pitting.
1706-h Radial x 47. Small vessel strand, parenchyma strands.
1706-i Radial x 200. Detail of parenchyma cells in low ray.

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OREGON CITY TRIP, SUNDAY, JUNE 14, 1942

J. Dean Butler, Leader.

A group of nearly forty members assembled at the Butler Building in Oregon City for an afternoon of interesting wandering over the hills of that city. Dr. Edwin T. Hodge was the professional geologist of the party.

As Oregon City is Oregon's oldest town, Mr. Butler first took the group to view the burial place of its founder, Dr. John McLoughlin. Dr. McLoughlin and his French and Indian wife were buried in the yard of a little Catholic church overlooking the Willamette. When the church was enlarged to take in the cemetery, the two grave stones were set in the foundation of the new addition, but the graves were not disturbed. The markers may now be viewed from the sidewalk on Water St.

The next stop is at the viewpoint overlooking the falls of the Willamette. It was because of the power furnished by these falls that Dr. McLoughlin left Vancouver when he was relieved of duty at that post. He operated a grist mill and saw mill at his newly created townsite. In some cases at least, he took his pay for grinding flour in a portion of the finished product. Because he was a British citizen, he lost all title to his land when Oregon became a territory of the United States.

At this point, the attention of the party was called to the Columbia river type of basalt which forms the basement rock of the region, and through which the falls are being cut. Particular attention was called to the comparatively fresh appearance of this basalt, and we were asked to remember this condition when we viewed later flows at higher elevations.

Dr. Hodge led the discussion as to how the Willamette came to cut a water-gap at this point. Three suggestions were considered. The first was that the Clackamas river originally flowed southward to an outlet to the sea to the west. This outlet was blocked, perhaps by the uplift of the Coast range. The dammed waters rose until they overflowed to the northeast over the divide between the old Clackamas and a stream flowing in the general direction of the present Columbia. As this outlet was developed, the direction of flow through the old canyon at Oregon City was reversed and it became the outlet for the newly created Willamette valley. The barbed junction of the Tualatin with the present valley was given as further proof of an older southern drainage system.

A second suggestion was that the Portland - Oregon City hills formed an original divide between a southwesterly and a northwesterly drainage system. When the Coast range was formed, this divide offered the lowest passes over which the dammed waters could escape from the now closed southwesterly drainage system. Two overflow channels were started, one at Oswego and one at Oregon City. The Oregon City channel made the fastest progress and finally captured all waters from the present Willamette valley. The writer prefers this explanation best of all.

The third suggestion was that the Willamette and the Tualatin were original streams. The west side hills started as a fault block across their valleys. For a time both streams maintained their channels, but at last the smaller Tualatin was deflected into the Willamette at a new location.

Attention was also called to the benches seen on both sides of the canyon from this point. Were they formed by stream erosion, or were they ends of lava flows that had stopped before they reached the end of the older flow below them? The channeled surface of the one on which we were standing favored stream erosion. The fact that the benches appeared at the same elevation on both sides of the valley also favored the erosion theory.

The Pacific highway was followed southward to New Era, with a stop to view the balanced rock on the bluff above Coalco station. Such a rock could only be left in basalt by stream erosion, as is seen many times along the Columbia river east of the Cascade mountains. As this rock stands at the edge of one of the benches, it offers further proof that they were stream cut.

At this point, Mr. Butler told us of a theory offered by Mr. Ralph Milln,

engineer with the county surveyor, that a natural bridge spanned the river at Rock island. As the writer thinks about the second solution for the formation of the gorge, he wonders if this island might mark the remnants of a second fall.

We then doubled back to Oregon City over the old road across the hills. This made us cross several of the higher terraces. On these benches the observing noticed many large rounded boulders thrown along the edges of the fields or piled here and there in them. First guess might suggest that these were stream worn rocks, but no smaller gravels were noticed among them. The answer to this question was to be seen later in Oregon City.

The next stop was at the William Holmes donation land claim on the southern limits of Oregon City. The old original house, in which the inaugural ball was held for Governor Joseph Lane, first territorial governor, was undergoing a face-lifting. Several of the party found relics of early days in the old pack rat nests exposed between the walls of the old home.

The caravan entered Oregon City by way of South Drive. The cuts along this drive showed that the upper lava flows are the very vesicular grey rock which Ray Treasher is now calling the Boring lavas. Spheroidal weathering is very pronounced in this area among these lavas. Large rounded masses of residual rock were noted in these cuts in the weathered lavas from grass roots downward. Here was the answer to the origin of the rounded boulders plowed up in the fields.

One pocket of finely bedded sand and clay was the only true sedimentary deposit to be seen along this drive. These beds seemed to denote quiet water, rather than deposits along a stream such as would be required to cut the present canyon. We left their place in the story of the region unsolved for the present.

In the city park we saw one flow that seemed to have been subjected to later thermal action. This lava had been reheated enough to flow and drip as stalactites along the passages through which the steam or gasses had passed.

The last stop was at the so-called silica mine, and although the society had visited this deposit on two earlier trips, it was new to many in this group, and just as interesting. The material has been mined and marketed in limited amounts to be used as a polishing agent in tooth pastes and other cleaners. This material is found in a series of sedimentary deposits, and appears to be a fine white ash.

The party disbanded at the old McLoughlin house, which unfortunately was not open for inspection. H.P.S.

LUNCHEON NOTES FOR SEPTEMBER, 17, 1942

Twenty-one members met in the balcony of the Millionaires' Club cafeteria for luncheon on September 17th. While the food is good, the place is noisy, and it is difficult to hear a speaker half the length of the table away....Miss Hughes had a piece of teredo wood from the Nehalem trip. It shows that these destructive creatures are not a new invention....Mrs. Minar exhibited a beautiful piece of petrified wood from "east of the mountains". We shall expect that any member making a trip "east of the mountains" will return with enough petrified wood to last through the winter....Lotus Simon and Ellen James came for a "final fling" before settling down to the hard grind of acquiring a Reed College education....Dr. Booth was number 21..O.E.S.

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A LETTER FROM MR. MUNCHDRILLER TO E.T.H.

(Read by Dr. Hodge at the 1942 annual G.S.O.C. picnic)

At the request of Mr. E. N. Bates I wrote to Mr. Munchdriller asking him to give me some details of his life to present before our society at its annual picnic.

Deleting, necessarily, some remarks because of their professional wording, his reply is as follows:

When I was a boy I gave much thought to what I might be when I finished school. My parents and all of our friends who knew me, had no doubt as to what I would be. They thought, when I finished school, that I would be an octogenerian.

As a boy I was very ambitious, also I was a student of Nature. I made the discovery that the Mocking-bird could change its tune 87 times in ten minutes. That, I thought, is not only a mark for our national leaders to shoot at, but also, would be a worthy objective towards which I should point my life.

I had to help earn my way in school. Once I got a job with a blacksmith as a striker. He instructed me as follows: "I will lay the red-hot horse-shoe on the anvil and hold it there. When I nod my head you hit it with the sledge." I did as I was told,--but I never worked for that blacksmith again.

Often I went on whaling trips with my father,--to the woodshed.

Finally I got out of the first grade. The school-house was blown to pieces by a cyclone. Not only was the school-house wrecked but the cyclone destroyed all the other buildings in the neighborhood. I was unhurt, a splendid testimony to my type of construction.

Finishing school, I was sent to Alaska by a large financial concern to take up land for them. Having arrived in Alaska, I followed their instructions and took up a great deal of land for my principals--a shovelful at a time.

From the aeroplane that took me to Alaska I bailed out in a parachute. As I dropped and saw the ground approaching, I had a peculiar sinking feeling.

Alaska at the time of my arrival was a beautiful place.

The crocuses were crowing, the Southern zephyrs blowing; the nectarines were necking by the sea; the cat-tails were cater-wauling; the cauliflowers calling, and Spring was springing up along the lea.

When the yellow cow-slip is slipping, the cat-nip starts a-nipping and the raps along the streets begin to stir--one knows that Spring is springing, that the blue-bells bells are ringing and the pussy-willow's buds will soon begin the purr.

In Alaska once when lost, I had little to eat except blackberries which were red because they were green.

I climbed Mount McKinley and afterwards told a Frenchman about it. He said, "That was a foot to be proud of." "Pardon me, said I, "don't you mean feat?" "Eh bien! so you climbed it twice!" he exclaimed.

Erosion is very severe in Alaska, in fact; everywhere one sees bottoms turned up. It rains so heavily that people dare not turn rain-barrels on their sides with the bung-holes open. If they do the rain falling into the bung-hole is unable to escape fast enough from the top of the barrel and bursts its sides.

The wind blows so hard in Alaska that we did not nail the boards on the sides of the buildings. We simply laid the boards against the walls and the wind held them there.

There is one place in Alaska where the fog is thicker than any other place in the world. I can't tell you where in Alaska that place is. The fog was so thick when I was there that I could not see where I was.

The Haida Indians once worked hard catching fish and hunting. Now they are civilized and are taking up the white man's method of farming. They do this in order that they may get Federal Relief and bonuses and be able to live without working.

The Esquimaux family averages 3.4 members. The missing 6/10ths is accounted for by the ethnologists as due to the fact that father is a little short.

In the winter time the Indians have little to do. During the long winter nights the women fall back on their needles and the men sit on the logs and bark.

I often went hunting in Alaska. Once I was chased by a Kodiak bear. Looking, as I ran, I saw only one tree and its lowest branch was 20 feet above the ground. The bear was just behind me and his slobbering mouth was wide open just ready to seize me when I jumped for the limb. I missed it. But I caught the limb coming down.

I also hunted moose. In Alaska there is no penalty if one mistakenly shoots a man for a moose. It is the consensus of opinion there, that any man who could be mistaken for a moose might better be dead.

I tried farming in Matanuska Valley. Following Wallace's advice, I planted corn and had a good crop. However, I had to lather the fields in order to mow the crop.

As you will have noted, I was very busy in Alaska. Of the 365 days of the year, I worked 8 hours every day making a total of 122 working days. However, I took off 52 Sundays--leaving 70 days. Of these I did not work on the 6 National Holidays leaving 64 days. I took off one hour for lunch or 19 days, and Saturday afternoons or 16 days which left 14 days. Then took a two weeks vacation.

Returning to the United States I helped introduce the above working system into the A.F. and L.

I returned to teach in an American University. An American University is, as you know, an institution devoted to physical training but where a certain intellectual discipline is provided for the feeble minded students.

In conclusion, I want to say that I owe my success to the fact that I do not drink, smoke, nor run around with women; in fact, I have only one fault--I lie a little.

Truthfully yours,
O.P.M. Munchdriller

LIBRARY NOTES

by Margaret Hughes

"Books cannot always please, however good;
Minds are not ever craving for their food."
******

Some G.S.O.C. library books have proved so good,
So rich, so satisfying for minds craving food;
The LIBRARY must cry, "book! book! who has the book?
In home library and den, MEMBERS, give a good look
And bring back! Oh, bring back
Those books to me!

Paraphrase of the above lines. TEN books are still outstanding that were borrowed previous to the cataloging of the library. A list of these publications appeared in the News Letter of May, 10, 1942, page 59. Referring to this list you will find it contains such valuable books as:-

First Biennial Report of the State Department of Geology and Mineral Industries.

The Columbia River Gorge--its Geological History interpreted from the Columbia River Highway; by Ira. A. Williams. Two copies.

Members holding any of the books in the published list please return them to the librarian for cataloging. On request a book will be returned to the borrower if his, or her, mind is still craving the food the book has to offer.

The following publications have been cataloged recently and added to our book shelves.

Books

Fossil Woods of the Far West; by George F. Beck.
This furnishes the library with an additional copy of Vol. 2---it contains Bulletins 1 - 6 and 32 photomicrographs.

Progress Report on the Pre-History of Homo Notso Sapiens; by J. C. Stevens.
A humorous presentation at the 1942 Annual Banquet.

Forest Trees of the Pacific Slope; by George B. Sudworth. From Leo Simon.

Periodicals.

Geological News Letter. 1941, Vol. 7, nos. 1 - 24, two copies. One copy for circulation and one for reference to be used in the library.

The Mineralogist. 1937, Vol.5, No. 3, 4, 7, 9, 10, 11. From Miss Eliza Stevens.
1938, Vol.6, No. 2, 3, 4, 5, 6, 8, 9.
1941, Vol.9, No. 3, 4, 6, 7. From Mary Ada Henley
1942, Vol.10, No. 1.

The April number of the Mineralogist is of special interest to the members of our society. This copy of the magazine in enlarged form, published under a copyright, is in reality a book bearing the title:
The Art of Gem Cutting - for the Amateur and Professional. COMPLETE.
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GEOLOGICAL NEWS LETTER

OFFICIAL PUBLICATION OF THE

GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

VOL. 8 NO. 19 PORTLAND, OREGON October 10,1942

GEOLOGICAL NEWS-LETTER
Official Publication of the
Geological Society of the Oregon Country
413 Morgan Bldg. Portland, Oregon
POSTMASTER: Return Postage Guaranteed

THE GEOLOGICAL NEWS-LETTER
Official publication of the
GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

The Geological News-Letter is issued semi-monthly on the 10th and 25th.
Yearly subscription: $2.00 Single copies: $0.15
Communications and material for publication should be sent to the Editor. Change of address and subscriptions are required 30 days in advance of date of change, and should be sent to Emily M. Moltzner, Morgan Building.

MEMBERSHIP APPLICATION
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Date . . . . . .

I, ... (please print full name) do hereby apply for membership (junior membership) in the Geological Society of the Oregon Country, subject to the provisions of the By-Laws.

Home address . . . . . Phone . . . . . .

Business Address . . . . . Phone . . . . . .

Occupation . . . . . .Hobbies. . . . . .

I am particularly interested in the following branches of geology: . . . . . .

. . . . . .

I enclose $. . . for the year's dues, March 1 to March 1. (Checks payable to the Society).

. . . . . Sponsored by . . . . . .
(signature) (member)

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LECTURES: On 2nd and 4th Fridays of each month at the Auditorium (3rd Floor) of the Public Service Building, 920 S. W. 6th Ave., at 8:00 p. m.

TRIPS: On Sundays following lecture meetings, or as otherwise arranged. Meeting place at Public Market, Front and Yamhill.

LUNCHEONS: Every Thursday noon. Until such time as better accommodations are found, the Thursday noon luncheons will be held on the balcony of the Millionaires' Club, at S. W. 10th Ave. and Morrison St.

FRIDAY EVENING MEETING

Friday Oct. 9 — Lecture Meeting
"The Evolution of the Oil Industry". Four reels of moving pictures tracing the development of petroleum from its earliest used such as the building of Noah's ark and feeding the flames of the fire worshippers to the modern petroleum industry of today. Shows both drilling methods and refining processes. Produced by the U. S. Bureau of Mines in cooperation with the Sinclair Refining Company.

FIELD TRIP

Sunday Oct. 25 — Lloyd Ruff will lead a field trip on Sunday, October 25th. The route has not been determined, but it will be a hiking trip. Further details will be given in the next issue of the News Letter and in the daily papers and will be announced at the Friday evening meetings.

****

Mr. and Mrs. Kenneth N. Phillips entertained their Sunday School classes at their home, 2213 SE 52nd Ave., Friday evening, October 2nd. Mexican coins and handiwork were exhibited, and pictures of Mexico were shown by Mr. and Mrs. O. E. Stanley. Refreshments and games followed, making the evening more endurable for the eighteen young folks.

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The reluctant conscript faced the Army oculist who asked him to read a chart. "What chart?" asked the draftee. The doctor persevered: "Just sit down in that chair and I'll show you." "What chair?" asked the man.

Deferred because of bad eye sight, the draftee went to a nearby movie. When the lights came on, he was horrified to discover the oculist in the next seat. "Excuse me," said the conscript as calmly as he could, "Does this bus go to Toronto?"

.....The Pasadenan

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United States Department of the Interior
Geological Survey

Bulletin 931-H. Tin and tungsten deposits at Silver Hill, Spokane County, Wash., by L. R. Page. 1942. pp. i-iii, 177-203, pls. 32-36, figs. 16-19.

Tin and tungsten minerals occur in pegmatites and quartz veins at Silver Hill, 11 miles southeast of Spokane, Washington. No tin ore has been shipped from this area. The only tin ore body is 1 to 6 feet thick and has been prospected for 40 feet along the strike and 60 feet down the dip. It is estimated to contain about 3 percent of metallic tin. Cassiterite is disseminated throughout the other pegmatites, but mineralogic studies indicate that this rock contains less than 3 pounds of metallic tin per ton. Eight small lenticular tungsten-bearing quartz veins have been prospected by the Bureau of Mines. In places these veins contain sufficient scheelite and wolframite to be of commercial grade. The report contains a geologic map of Silver Hill, an outcrop map of some of the tin-bearing pegmatites, and geologic maps of the tungsten-bearing veins. It is one of the chapters of "Strategic minerals investigations, 1941".

Bulletin 935-A. Chrome resources of Cuba, by T. P. Thayers. 1942 pp. 1-v, 1-74, pls. 1-20, figs. 1-6.

Total imports of Cuban chromite into the United States, which are the best index of Cuban production, amounted to 710,069 long tons up to the end of 1940. Of this amount, about 600,000 tons came from the Camaguey district, about 100,000 tons from eastern Oriente, and about 10,000 tons from Matanzas Province. Approximately 100,000 tons was of metallurgical grade, the remainder being of refractory grade. The chromite deposits are irregular masses containing from a few tons to over 100,000 tons of shipping-grade ore in belts of serpentinized peridotite along the north coast for nearly the entire length of Cuba, but production has been limited to the eastern half of the island. Workable deposits of residual or float ore have been formed in some areas of low relief. Pure chromite from Cuba contains from 22 to 57 percent of chromic oxide and 9.7 to 14.4 percent of iron. The high-chrome chromite therefore makes excellent metallurgical ore, with a chromium: iron ratio of about 3:4 and the low-chrome chromite constitutes good refractory ore. The reserve of shipping-grade lode ore within 100 feet of the surface in Camaguey district probably approaches 500,000 tons; the district also has a large tonnage of recoverable float ore and an unknown but very large amount of milling ore. The known reserves of eastern Oriente are about 200,000 tons of milling and shipping-grade ore. This part of the island has not been prospected thoroughly, and new discoveries are reported from time to time. With improved methods of treatment and underground mining, Cuban chrome production probably can be maintained at its present rate for several years. The report contains index maps and detailed mine maps of the important mines in Camaguey and Oriente Provinces. It is the first chapter of "Geologic investigations in the American Republics, 1941-42".

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Mr. and Mrs. A. W. Hancock journeyed to Berkeley, California, on a nine-days' vacation, where they conferred with Doctors Chaney, Stirton and Camp on geology and paleontology. They report having had a very interesting trip.

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DR. HODGE'S LECTURE - Sept. 25, 1942

The Friday evening meeting on September 25th was well attended when one considers the counter-attractions; about 70 people being present, including Carl Richards of the Salem Geological Society who invited our members to meet with the Salem society on the third Thursday evening of any month, but particularly on the 15th of October when Claire Holdredge will speak to them.

President Schminky had just received, and Lloyd Ruff had identified an interesting collection of rocks and ores sent from Alaska by Dr. David Weber who is in that territory with the Engineering Corps., U. S. Army, on highway construction.

Dr. Hodge reviewed some of the early history and characteristics of the Japanese race as reasons why this race migrated to Japan and why their "half brothers", the Chuckee Indians, reached North America by a more northerly route over land and ice.

He gave as the four principal reasons why Japan wants Alaska as: (1) The climate is similar to that of Japan and the people prefer to live in a warm country. (2) The Japanese are a wood-working people and the softwood forests of Alaska, close to tide water, are a temptation. (3) Japan has no oil and little coal: therefore the water power is used, and the unused water power of Alaska is attractive: and (4) The extensive marine gardens warmed by the Japanese current would furnish all of Japan's population with their preferred food. Further, Alaska has been called the most important strategic place in the world.

The doctor's "cheering section" did not get properly warmed up until near the end of his lecture, but no doubt the majority of his listeners got more of the solid meat of his talk than they might if the atmosphere had been rent with loud applause after each of his clever and well-timed witticisms.

LUNCHEON NOTES, THURSDAY, SEPTEMBER 24, 1942

The editor was late in arriving, thinking that he might make his entrance with such prominent figures as Dr. Booth, Dr. Mattern and Clarence Phillips, but they were not there at all, and the members already at the table were so interested in Claire Holdredge's description of an airplane trip that no notice was taken of the late arrival. Mr. Holdredge mentioned that in another recent trip he noticed many gulls and wading birds on the shore of Lake Albert and that the lake had a black border about 30 feet wide which close inspection showed to be composed of trillions of flies. Just how many trillions was stated, but the News Letter is awaiting confirmation of the figures from its official statistician, E. N. Bates before making them public-----Lloyd Ruff had a slab of Grinnell Argillite from the Belt Series of Montana, Clark Fork river, Alberton, Montana. It had ripple marks showing additional transverse markings-----John Eliot Allen had returned from a trip up the Rogue river from Gold Beach--35 miles by boat and 12 miles on horse-back. The last part of the trip was a climb of 3000 feet which required four hours in each direction and covered an air-line distance of only one and a half miles. He cites these figures to justify bringing out only about 40 pounds of rock samples, some of them said to include a new element, so far as Oregon is concerned. Owing to poor connections between the bus and the boat he had nearly two whole days to stay in Gold Beach. The mere fact that he says he did not see any speckled sheep on the shores of the Rogue will not be taken as conclusive proof that there are none. Being a very good geologist does not necessarily include a wide knowledge of sheep.

SCRAP

In preparation for the scrap campaign I made a daytime visit to my garage a few days ago and clawed around among the half forgotten accumulation of twenty years for such bits of iron and steel as might be spared without crippling the day-to-day activities on the home lot.

There were two luggage carriers that had been transferred from car to car until models changed so much that there was no way to fasten them on the later cars. They had cost plenty but were worse than worthless, for they took up room that is needed for freer passage in and out of the building. So out they came.

When it came to tire chains it was a different matter, for one must sometimes travel when the roads are covered with snow. It would not do to cast them aside, even though the day was hot. One pair was hung back on its nail and other scraps that had been saved for patching the cross chains were placed with the luggage carriers.

A chromium plated bumper, broken in a too forceful contact with a heavier object, and replaced, came down from its place of honor, as did an old Ford rim whose tire had joined the rubber drive.

Then came the grates that had been used for out-door cooking in the good, old days when we could stop along the roadside, hunt up some wood and cook our dinner in the open and eat it with one hand while waving off the insects with the other. While I like the modern roads when I start for some distant spot, there were certain compensations in driving on the earlier highways, when passing motorists waved a friendly greeting if all looked well, or stopped to ask if they could help if there was a tire changing job, or a wheel in the deep mud. No. I wouldn't wish to go back to those days. I have come to prefer the easier habits of the present, when an A.A.A. card and a telephone save a lot of worry and wear and tear on the nervous system.

A corn-popper, rusted and bent, had been hiding on the southwall for no one knows how many years. And no one knows why it was put in the garage in the first place instead of being dropped into the garbage box when it was discarded. It did not add appreciably to the poundage of metal, but served to hold a handful of small pieces of iron. It may be that when it was brought from the house there were still memories of delightful evenings when the boys and their grandmother popped heaping pans full of fluffy corn and we all ate copiously, with no thought of expanding waist line or the pain and inconvenience of hard fragments of the grain "under one's plate". Time has a way of softening such memories and making it easier to discard the things that would tend to recall them.

An auto tow line made of steel cable joined the growing pile. It had been badly overstressed on the only occasion of its use when a friend lost his automobile key at Lucia Falls and had to be towed to his home in Portland. Many of the strands broke on that trip, and their sharp ends tore the tender skin of the office workers' hands which adjusted it from time to time on the long haul. Our present hope is that it may do its bit in a foreign land toward bringing back the days when we can motor gaily about this beautiful land of ours as we did when that piece of cable was new.

O. E. S.

****

BAUXITE

The Ore of Aluminum*

by R. C. Treasher

Aluminum has become one of the vitally strategic metals in this World War. This light-weight metal has found such an important place in airplane manufacture, as well as other war machinery, that a country which is deficient in it is in a serious way of being defeated. Almost overnight, our people have become aluminum conscious. No longer is it the lowly pots-and-pans material--it is bad news for Hiro Hitler.

Strangely enough, aluminum is not manufactured out of campaign promises nor is it conjured out of thin air. Raw mineral materials are required, for although our defense industries work 24 hours a day, 7 days a week, and although we wave our hands and make grandiose statements that we will produce so many planes in 1942 and 1943, the whole program begins with the raw ore in the ground.

The same story is true of all our defense work. The romance of producing planes, and tanks, and guns, and ammunition is attractive and appealing to the public's imagination. They tend to forget that none of these are possible unless the prospector goes to work and locates deposits of the various ores; unless the miner produces the ore by digging it out of the ground; and unless the furnaces and plants can and do produce the raw metal. It is possible to pass rules and laws that will help produce war machinery when the raw materials are at hand. But you can't legislate mineral deposits into the ground, and you can't legislate ore out of the ground.

It would seem, therefore, that some attention should be paid to locating and the production of these raw materials. We seem to have no hesitancy to paying big wages and big bonuses to those who produce the finished article. But so far, no comparable incentive has been offered the prospector, the miner, and the mine operator, except in a few isolated cases. In spite of these handicaps and these discouragements, the legal and patriotic prospector, miner, and mine operator ties into his job just as sincerely as if he were getting the recognition he deserves.

The Ore

The element aluminum, strangely enough, is next to the most abundant element on the earth. Chemically, it is very active and never is found free in nature. It usually is combined with oxygen to form the oxide alumina, or with silicon and oxygen to form the aluminum silicate, and many of these silicates are very complex. As aluminum readily unites with oxygen and silicon, it follows that it is very difficult to make the aluminum compound give up its oxygen or silicon.

For a long time, the problem of breaking down the aluminum compounds was too difficult. Finally a man named Hall discovered a method by which the aluminum oxide, alumina, could be treated, and metallic aluminum produced. Thus the aluminum industry was born, and the process has been improved so that the early price of several dollars a pound has been reduced to 15 cents a pound.

* Given over radio station KUIN, August 4, 1942, by R. G. Bassett.

The aluminum ore required by this process is called bauxite, spelled b-a-u-x-i-t-e. It is a type of clay containing 55 plus percent of alumina, and less than 7 percent silica. Any ore that has over 6 percent silica must be treated to remove the excess silica, therefore, the alumina and the silica must not be in chemical combination. Please remember this fact as it is of extreme importance as we will show.

Occurrence of Bauxite

World production of bauxite in 1940:

British and Dutch Guiana	1,315,434	or 1¼ million tons
France	700,000	or 3/4 " "
Hungary	700,000	or 3/4 " "
Italy	530,000	or ½ " "
United States	445,958	or ½ " "
Malay States	300,000	or ¼ " "
Netherlands Indies	274,345	or ¼ " "

Of these countries, that available to the--

United States	1,761,392	or 1 3/4 million tons
Axis Powers	2,504,345	or 2½ " "

That means that the United Nations now control 42 percent of the aluminum ore and the Axis controls 58 percent.

U. S. deposits: Of this bauxite resource the U. S. produced in 1940 about ½ million tons, mainly from Arkansas, Mississippi, Alabama, Georgia, and Tennessee. The U. S. Bureau of Mines has computed that it takes 4 tons of bauxite to produce 1 ton of metal; that the total reserves of all grades of ore is 29 million tons. They also estimate that this will last the U. S. 5.8 years, at a maximum. However, this is an extremely optimistic viewpoint and 3 years is considered much more conservative. Even this estimate will necessitate certain changes in the bauxite mining and aluminum production.

Aluminum from Clay

The question is asked,--if so many of our clays contain alumina why cannot they be used to produce aluminum? In the first place, most of our clays do not contain alumina! Oh boy! I can just see a bunch of you squirming in your seats and muttering, "Ha! Now we've got that guy where we really want him." But before you get too excited, lets look into the record.

It is true that when you send a clay away for analysis that you get back a percentage recorded as Al_2O_3, or alumina. You will also note that the SiO_2, or silica, equals or exceeds the alumina. The analysis tells you absolutely nothing about the form in which alumina is present,--whether it is really alumina or whether it is aluminum silicate. As a matter of fact, if the silica is high, the chances are excellent that the aluminum is present as aluminum silicate.

Aluminum silicate has not been considered an ore of aluminum, as it is much more difficult to extract the aluminum metal from the silicate than it is from the oxide. It has been done, however. At one time Germany had a plant doing it. But

at that time Germany was "over a barrel" for aluminum metal and cost was no object.

Our country is not entirely asleep however. Figuring pessimistically, it is probable that one day we may be short of bauxite and may have to use other clay. So the U. S. Bureau of Mines is working on various processes of extraction, and they are searching for deposits of the proper kind of clay. Not just any kind will do, even though the alumina analysis is high. The iron must be low, preferably under 2 percent.

A vast quantity of the clay samples submitted do not justify the amount of work necessary to analyze them. Our Laboratory is willing to assist you in evaluating your clay materials, if the material justifies the work. Bring, or send in your samples. If however, our analysts, from their experience in handling quantities of such materials, deem that an analysis is not justified, we know you will not wish to embarrass our war effort by insisting on an analysis that will be meaningless.

In regard to the bauxite resources of the United States, there is a very interesting free publication called "Bauxite Resources of the United States". Write to the Section of Publications, U. S. Bureau of Mines, Washington, D. C., and ask them to send you Reports of Investigation 3598.

FROM THE OREGONIAN

Earth Sciences

To the Editor: I was pleased to read in last Saturday's Oregonian (9-19-42) your editorial telling of the work of the curriculum committee of the Portland public school system. It is very gratifying to us students of the earth sciences to know that a subject in which we are all interested is going to be given greater recognition in our schools. I hope the other school systems of the state will follow the lead of Portland.

We do not maintain that geology and geography are the most important subjects with which we are concerned, but we do think that they are basic. How anyone can claim to have a liberal education in these days, with no knowledge of the earth, what it is made of, and something of its geologic history is more than I can see. Especially in wartimes, when our very existence depends upon the terrain and how the various armies make use of it and the strategic minerals with which wars are fought, a knowledge of these things is of paramount importance. I believe we should begin by studying our own northwest region as early as possible.

This war among other things, is showing up the deficiencies in our educational program in recent years. This is a step forward in real progressive education.

WARREN D. SMITH
University of Oregon.

This is the editorial referred to by Dr. Smith:

A Year's Course on Oregon

Beginning with the present term, Portland schools have taken the commendable step of introducing into the eighth grade a full year of the study of Oregon, its history and resources. That study has been too sketchy in the past. Mr. Dugdale's

office and the curriculum committee deserve public approval for making the correction, particularly at this time when a clear appreciation of our traditions is so necessary to morale.

And co-incident with the start of the course, there is a new text dealing primarily with the "resources" side of the study of Oregon. The book, entitled "Your Oregon", was written originally by John B. Woods and Nelson S. Rogers under the sponsorship of the northwest regional council. That version, however, was for adult use. Under the direction of Ray O. Wolf, social science supervisor for the Portland schools, and a committee of elementary teachers, it was adjusted to the eighth grade level. Several of the chapters were tried out in various classes last year, and revised in accordance with experience.

The arrangement is largely topical (climate, geology, wild life, Indians, lands, soil abuse, minerals, agriculture, fishing, etc.), and in view of the fact that the first problem with a child is to catch and hold his interest, we cannot believe that such material, so arranged, should be substituted for stirring narrative history. But it does fill a great gap, and present a mass of needed material in a lively manner. Geography, social lessons and so forth are mixed in according to the modern manner. We do think the revision committee was a little lacking in ruthlessness where it came to throwing out chapters where the original students dwelt too long on one subject--for instance, in connection with lands. But that is a minor criticism of a job generally well done.

The Oregonian.

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LUNCHEON NOTES FOR THURSDAY, OCTOBER 1, 1942

Apparently the ladies do not like our new meeting place, for Miss Henley was the only one to climb the stairs to the Millionaire's Club balcony. Eighteen men, however, were able to "make the grade" with their cargoes of food and drink. Conversation was confined to small groups within easy shouting distance---Hy Wood told of some interesting test drilling in the Tillamook area where holes as deep as 80 feet showed no indications of marine life---Lloyd Ruff had a specimen of argillite from Belt series of Coeur d'Alene near Lookout Pass east of Wallace, Idaho---Miss Henley had two pieces of serpentine from Cypress Island, Puget Sound ---Mr. Minar had a globular rock which we did not hear named. It had interesting raised markings on its surface---The meeting adjourned before one o'clock--- Mr. T. Sandoz, who had not attended any of our luncheons was present. He and Mrs. Sandoz are now living in Corvallis.

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NEW ADDRESSES OF MEMBERS

Below are new addresses of members of the G. S. O. C.:

Dr. and Mrs. D. B. Lawrence, Bridal Veil, Oregon
Miss Eva Catlin, 301 North J. St., Tacoma, Washington
Miss Sally McCoy, 3435 SE Alder St., Portland, Oregon
Mr. and Mrs. M. F. Sandoz, 304 Crees Bldg., Corvallis, Oregon
Miss Maxine Hipkoe, 2912 Main St., Vancouver, Washington
Miss Arline Shaw, 6956 N. Columbia Blvd., Portland, Oregon

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Date . . . . . .

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Home address . . . . . Phone . . . . . .

Business Address . . . . . Phone . . . . . .

Occupation . . . . . .Hobbies. . . . . .

I am particularly interested in the following branches of geology: . . . . . .

. . . . . .

I enclose $. . . for the year's dues, March 1 to March 1. (Checks payable to the Society).

. . . . . Sponsored by . . . . . .
(signature) (member)

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TRIPS: On Sundays following lecture meetings, or as otherwise arranged. Meeting place at Public Market, Front and Yamhill.

LUNCHEONS: Every Thrusday noon. Beginning Thursday, Oct. 22, the group will meet at the Winter Garden, 425 S. W. Taylor Street (north side of Taylor Street between S. W. 4th and S. W. 5th Avenues). Price of luncheon 60¢.

FRIDAY EVENING MEETING

Friday Oct. 23 — Lecture Meeting
"INDIA" by Dean Odgers of Multnomah College.

Dr. Odgers has spent ten years in India, and is a very entertaining speaker. He is doubtless the best informed man on the subject of India in the northwest. As a profound student of the country, its geography, resources and climate; the people, their origin, history and culture; he will discuss the significance of India in the present complex World situation.

FIELD TRIP

Sunday Oct. 25th — Leaders: C. P. Holdridge, John Robinson and Lloyd Ruff.

Leave N.E. Sandy Boulevard and N.E. 82nd Avenue at 9:00 A.M. and reassemble at Rose City Sand & Gravel Co., N.E. 82nd Ave. and Almeda Drive. Anyone living on east side and not having room for extra passengers may proceed directly to the first stop. The itinerary includes stops at the Portland Sand & Gravel Co. at S.E. 106th and Division Streets and the Bell Sand & Gravel Co. on Johnson Blvd. near Wichita. These pits are all located in Portland Terrace gravels which offer some interesting features of composition, structure and depositional history. Consult R. C. Treasher's "Geologic History of the Portland Area". Bring hammer, pencil, notebook and topographical maps of Portland, Oregon City and Troutdale. Only short hikes are necessary but heavy shoes or boots are recommended. Driving distance approximately 30 miles.

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Kenneth Phillips received a letter from Dr. Donald B. Lawrence mailed at Miama Beach, Florida as he was leaving for Texas with his newly acquired insignia which mark him as a Second Lieutenant in the Army Air Corps. He had just completed a six weeks training course and is assigned to teach meteorology to air corps cadets.

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"A statesman is a man who finds out which way the crowd is going, then jumps in front and yells like blazes." Edmund & Williams

LUNCHEON NOTES FOR OCTOBER 15, 1942

No women present, which, perhaps shows that the gentler sex is possessed of better judgment than the seventeen men who were there. As this was the last meeting in the Millionaire's Club we shall not mention the noise, and the cold draft, and poor light for examining specimens, but rather, shall mention the beautiful specimens brought in by Dr. Booth. There were azurite crystals; azurite and malachite from Bisbee; ruby copper; and malachite and quartz. From the Mammoth mine were shattuckite, dioptase, diabotite, willemite crystals, willemite crystals with wulfenite, wulfenite, and cerussite. The specimens were for sale at prices ranging from one to five dollars, and were such that a collector's fingers would itch to possess them.

The next luncheon meeting will be at the "Winter Garden" on the north side of S. W. Taylor Street between S. W. 4th Avenue and S. W. 5th Avenue. Luncheon will cost sixty cents. O.E.S.

****

Dr. Francis T. Jones, September 10th, 1942, married Miss Marjorie K. Gray, whom some of the Geology Society members will remember, having been on trips and to lectures with the "Jones Family" over several years. They were married at "Jones Haven" the beach cottage of Dr. and Mrs. Arthur C. Jones, at Lake Lytle, by "Father Jones" of all the Jones families, Rev. Burton H. Jones of Forest Grove.

Dr. Jones has accepted an appointment with the U. S. Department of Agriculture to do War Research work at their laboratory located in Berkeley. Dr. and Mrs. Jones are at home at 1765 Oxford Street, Berkeley, California.

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Dr. Arthur C. Jones is now serving with the Army at Letterman General Hospital, San Francisco, California. Dr. Jones entered the service knowing that the Army is in special need of doctors trained in rehabilitation work. His appointment to Letterman General Hospital was gratifying because of the large Physical Therapy Department which is located there, to which Dr. Jones was immediately assigned. He is at present in charge of that department, and while his time is full from 7:00 A.M. to 9:00 P.M. every day, the regularity of living and good "mess" has put nine pounds on the doctor in this three weeks. We hope we will be able to recognize him if he stays there very long. In this connection, it is expected that he will be permanently assigned in his present appointment.

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Business Manager Raymond L. Baldwin thanks, for the Society, Mrs. Ruth Campbell for the following bulletins: Oregon State College Bulletin No. 365, "Composition, Rating and Conservation of Willamette Valley Soils", State Geological Survey of Kansas Bulletin No. 24, "Geological and Coal Resources of the Southeastern Kansas Coal Fields in Crawford, Cherokee and Labette Counties", and five years, complete files of the "Geological News Letter".

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"A man should never be ashamed to own that he has been in the wrong, which is but saying in other words that he is wiser today than he was yesterday."

Pope

LEIF ERICKSON DRIVE TRIP
Sunday, Sept. 13
H. B. Schminky, leader

Fifteen hardy souls met at the end of the Willamette Heights car line for a walk along Leif Erickson Drive. That is, fourteen hiked, while Mr. Campbell drove his car to relieve the hikers of their lunches, canteens and coats, and to act as first aid car in case feet complained too much at such an unusual trip for the society. Leif Erickson Drive leaves the head of N. W. Thurman Street at an elevation of about 300 feet and winds along the easterly slope of the westside hills, climbing gradually to an elevation of 680 feet at Saltzman Road. During the past depression, much of the timber along this hillside was cut for fuel, thus robbing the walk of its former sylvan charm. However, the road cuts and the splendid views to the east served all of our needs for studying the geology of the area. There being no professional geologist with the group, Ray Treasher's "Geologic History of the Portland Area" served as textbook and guide, although much of the trip was off the map.

We found that the many deep, narrow V-shaped canyons cut all the formations at right angles to the face of the hills, thus giving two good exposures for study on opposite sides of each canyon. The canyons themselves made an interesting study. They all rise rapidly from river level and then spread into a wide fan-shaped drainage pattern at the summit of the hills. This appearance of both youth and old age in the same stream gives some support to the theory that the hills were formed, in part at least, by fault action. The earthquake on Dec. 29, 1941, may have originated along this fault zone.

According to Treasher's map, we began our journey in a region of Columbia river basalts. At several places along our journey we believed that we were looking at the Boring type lava, but due to the fact that all the lavas in this region have been more or less altered by the Mayger type of weathering, we could not be certain. We based our decisions on the characteristics of the vesicules in the two types of lavas, as described by Treasher. Had the professional geologist been with us, he probably would have shown us many errors in our judgment, but without his guiding hand, we stuck our necks out.

As we stood on a vantage point overlooking the country to the east, we tried to visualize the events that led up to the present scene. The ancient seas of the Eocene, the Oligocene and the early Miocene were perhaps the hardest to superimpose on the present picture. So, also was the volcanic activity that created the Clarno and the John Day beds to the east, and gradually pushed the ocean shorelines westward. It was much easier to picture the outpouring of the great basalt floods during the middle and latter part of the Miocene, and making a landscape similar to that east of the Cascades today. We could imagine that streams flowed through this new land, carrying or depositing their loads of debris just as the streams of today do, but why the great deposits of the Troutdale formation were made we could not see. We could trace the results of the folding that warped both the basalt and Troutdale and created the first Cascade mountains and the hills on which we stood. We soon found beds of these Pliocene sands and gravels perched high on our hillside, and it was not hard to picture them filling the trough between us and the Cascades. The glint of sunlight from present rivers, sloughs and lakes needed only to be multiplied several times to reproduce the braided channels of the ancient river that was then flowing at least 650 feet above today's water level. The finding of such rocks as granite, quartzite, shales and rhyolite among these gravels showed that this stream had had its source in

distant lands. With the passing of time, erosion was rapidly removing this gravel fill, leaving only such remnants as we were examining to prove its original extent. During this time the Cascade range did not reach its present glory. It took another period of vulcanism to do this. Many volcanoes were born and destroyed as the andesite was poured out to create the present mountains. The ice of the Pleistocene was needed to give them the final grinding. Most of the picture was completed during the early Pleistocene, for it was then that dying vulcanism built Rocky Butte, Mt. Tabor, the Boring hills, the many buttes across the river in Washington, and poured the Boring lava as a frosting over the hills at our back. Rounding and smoothing by erosion gave the final finish.

The beds of Troutdale formation extend for nearly a mile along the Drive, through sections 19 and 30, T. 1 N., R. 1 E. They should, but do not, show on Treasher's map. One canyon cuts across them, giving two good exposures to show that they lie against the lavas.

Most of the individual lava flows are easily recognized, for they are separated by ash or burned soil. As stated before, most of the flows have been altered by weathering, and in many cases the rock can be broken by the fingers. Some flows were highly inflated. One flow, exposed in Section 24, T. 1 N., R. 1 W., was quite intriguing to the group. It was about twelve or fifteen feet thick. The top and bottom three feet of this flow was very vesicular, although the bubbles were more or less in parallel bands. Between these areas there were many large gas cavities, ranging in size from a few inches to openings a foot wide and two feet high. The long dimensions were perpendicular to the flow. For some reason, these cavities became deflated and allowed the soft lava from below to push up into the opening. In some cases the openings were almost completely filled in this manner. One cavity showed evidence of additional lava pushing up between the central core and the cavity wall.

At the head of the canyon, which exposed this interesting flow, the party did their good deed for the day by making a fire line around a spreading camp fire.

A large bush of luscious blackberries served as a grand pick-up on the journey down Saltzman Road to the Linnton Bus line on St. Helens Road.

H.B.S.

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WAR, WEEDS AND THE WAIST LINE

by O.E.S.

For thirty years I have watered and mowed the weeds in my lawn and for thirty years I have threatened that "some day" I would have the whole place spaded up and a new lawn started but circumstances have never seemed to be right for such a major operation.

At first the weeds kept the children out of the mud as well as a fine sod would have done. Then the automobile tempted me away from home on week-ends and consumed so much of my income that there was nothing left to pay a man with a strong back to do the work for me. Then photography joined hands with the car, and the weeds continued to flourish.

My sons married and moved to homes of their own. Their lawns were a delight to the eye. The boys dropped hints about weed eradication methods. One of them

loaned me a "gets-um" gun which lay in the garage for months with no effect on the weeds.

My trousers were tight at the waist-band and my vests developed horizontal wrinkles that were not "nice" to behold.

Then the Japs cut loose; tires and gasoline became things to be hoarded, and having evenings and week-ends on my hands, I got better acquainted with the lawn. I went at the weeds with a sawed-off case knife. The lawn looked like a small pox victim, but a spring came into my walk and my belt could be buckled one hole tighter.

One weed at a time, where there are so very, very many to be eradicated, seemed an endless task, but I finally finished a small square directly in front of the house. The pock-marks filled with grass and I tried to concentrate my mind on this square, ignoring the rest of the yard. It couldn't be done.

I mentioned the weed problem to my friend, C. F. Wiegand of the Park Bureau. He said: "Huh! That's easy! Just get some sulphate of ammonia and a sprinkling can. Dissolve a half pound of the stuff to a gallon of water and sprinkle the yard. The weeds will die and the grass will be greener."

It sounded plausible and worth trying.

The next dry Saturday I was at it: filling the sprinkling can with the hose and wetting the weeds. My wife took occasion to remark to the neighbors that I wasn't really out of my mind, but had an idea that I could kill the weeds that way. The neighbors like her and generously refrained from making unkind remarks.

Well, some of the weeds actually did die--at least they shrivelled up and then came out nice and green again. Mr. Wiegand said: "Oh yes, they come back a time or two but finally they give up and you have a nice lawn."

So I sprinkled part of the yard again. And on another part I applied to each individual weed a small pinch of the sulphate of ammonia crystals.

The individual treatment appeared to produce better results, but some plants treated that way came to life again.

I still had some "gets-um" fluid, though my son had long since retrieved his "gun". I applied the fluid with a small oil can, squatting until my legs ached, then working my slow way across the yard on my knees or on the seat of my trousers.

Neighbors going past made facetious or encouraging remarks according to their temperaments. Long intervals of weed growing came between the short spasms of weed killing, but some improvement could be noted, and encouraged by that, I renewed my efforts and soon could pull my belt another hole shorter. A slight decrease in petrolatum consumption could also be noticed. Well-intentioned friends remarked that my cheeks looked fuller, and once in a while I was heard to whistle what was intended to be part of a tune. There are still plenty of weeds on the home grounds, but when, as, and if they should all die, it is possible--although not entirely probable--that for my health's sake I shall put up a sign reading: "Going out to weed extermination taken in here." But don't depend upon this. You'll get rid of the weeds sooner, and you'll feel better and live longer if you tackle them yourself.

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THE ASCENT OF MT. APO
by Warren D. Smith

Apo, which in the dialect of the primitive people means chief, the great chief, was our goal. For several months (in 1907-8) our party from the Division of Mines of the Bureau of Science in Manila had been traveling south in Mindanao, doing geological mapping and reconnaissance work, the first work of that nature to be attempted by the American government in that little civilized island. We had already passed through the Lanao country and the Cotabato Valley, passed the slopes of Matutum, the "Mountain of Mystery", and now sixty miles to the north, were preparing for the ascent of Apo, the grandfather of the mountains, which we hoped to be able to prove to be what its name implies, the highest mountain in the Philippines. As it rises close to the coast from almost sea level to nearly 10,000 feet one does not have any advantage of altitude to start with. It is climb, climb, climb, for five days, either straining through jungle, or scrambling over tuff slopes that continually slide under foot. On the slopes of the cluster of peaks of which Apo is the center live strange peoples whose habits are utterly different from those of the Filipinos, the Moros, the Igorots of which all Americans have heard more or less. There are Bogobos, Manobos, Bilans, and Tagekolas. Some of these are the most highly adorned peoples in the Islands, they ride horses with bells on them, from which they are known as "the Horse Indians" of Mindanao, and they worship Mandarangan, who is supposed to live in the crater of Mt. Apo.

At the foot of Mt. Apo, is the beautiful blue gulf of Davao, with the town of the same name situated at its head. Davao is a supply point for the hemp planters and pearl fishers and a few weeks visit to this place will repay one richly for the trouble it takes to get there. It is a tropical village and something more. It is one of the farthest outposts on the American firing-line which is rapidly advancing into the heart of the ignorance and squalor, inefficiency and mysticism of the fringe of the Malay world. It was the day before Christmas, 1907, when we reached Davao. On Christmas Eve, we danced in the home of the Governor, an old "Medal of Honor" man, who had "done stunts" with the bad men of the Texas border; on Christmas morning, we drank egg-nogs on the porch of Davao's pioneer planter with sea captains, hacenderos, missionaries, school teachers, constabulary officers, and pearlers; in the afternoon, we played base-ball with Macabebes and Moros; in the evening we attended the old stone Catholic church, at night, we drank copitas of cognac with Don V... in his spacious house by the sea; we played pool and smoked stout Manilas in the home of an Assyrian. Here we dined in the homes of refinement and plenty; later we were to see savages with hearts of kindness and the manners of gentlemen, for were we not on the Borderland between---no, I won't say civilization, but between what we have and they have not?

On the 28th of December, at 4 P.M., we left Davao by the steam launch, Mantrade, for Daron on the west side of the gulf from which point we were to start. Our party consisted of Harry M. Ickis, mining engineer, who was, poor fellow, to be stricken down ruthlessly by the hand of a savage in the neighboring territory not two months later, Maurice Goodman, our mining engineer, who had just arrived from Manila, and Messrs. Carrigan and McCall of Davao; to the last named we were indebted for the use of the launch. These two gentlemen were at the time interested in planting and trading in the gulf region.

We reached Daron on the west side of the gulf at 6:30 P.M. and were soon comfortably located for the night in the house of Sr. Gregorio Palacio, a Spanish

planter, which was close to the beach. I have nothing but pleasant memories of this, and likewise of all my visits to the homes of Spaniards in the Philippines. Don Gregorio had already procured Bagobo cargadores who had come down from the hills at his request.

At 7 A.M. the next day, we were ready to set out over the first long gradual slope toward Mt. Apo, which we knew was at least three days ahead, but as it turned out, nearly five. However we still did not have enough carriers. Goodman and Ickis left at 8:30 mapping the trail and adjacent country as they went. They carried packs of thirty pounds each and thus impeded, did their work. In the tropics, where the natives do all the packing, this is "some load" for a white man. McCall and I waited until noon for more cargadores from the Bagobo village and on their not arriving, set out with ten men loaned from the hacienda. The trail leads first through hemp, taller than any I have ever seen elsewhere. This hemp, known as abaca, the finest in the world and grown commercially only in the Philippines, is confined to the coastal plain. After we had passed beyond this, we began to ascend a long grassy slope which is strewn with occasional boulders. It ought to make excellent sugar land. We reached Tongkaling's on the river at 4:30 where the rest of the party had already established themselves.

Tongkaling is the chief of all the Bagobos and his wealth is measured by over forty agongs. An agong is a much prized hollow brass or bronze instrument which gains in value with age and hereditary associations. In appearance he and his people are much like the Manobos, whom we had encountered in our trip overland from Cottabato. He and all his followers are tattooed and their clothes are highly decorated with beads. The men are much finer looking than the women and, apparently conscious of the fact, decorate themselves much more profusely. It is a significant fact that this is true of many savage tribes, though not of all, and corresponds more nearly with characteristics of the lower animals. It is needless to refer to Darwin's well known remarks on this subject. The full weight of Darwin's point had never so impressed me as at this time when I could make my own observations on these "half-caught peoples".

In the evening, we were entertained by the same sort of dancing that we had been treated to at Inkal's, the chief of the Manobos, back on the Matutum divide a week or so earlier. This dance is quite different from the dances of the Moros and other Mohammedan peoples, in that the feet are used in rhythmic accentuation, instead of being merely a series of poses and muscle contortions. I shall not attempt to describe this dance too minutely as I might better leave it to some ethnologist. Briefly, the dancer, who is usually a woman, takes five steps forward, the first two being rather slow and light, the last three very rapid, each time bringing the bare foot down very flat and hard, so as to produce a resounding whack, this sound being increased by the sound of the brass anklets and the jingle of the silver bells, which are suspended in clusters from their belts. It is customary to have at least three and sometimes eight or ten taking part, the dancers moving into the center toward the music and outward again and often winding about in a most intricate manner. Viewed as a whole, there is a pulsation and rhythm wholly foreign to the Moro dances, and which, I must admit, I found quite pleasing. The time is kept by a rhythmic beating of agongs and drums, which is in itself quite catchy. Here we saw a Bagobo boy, beating on six or seven agongs and dancing at the same time.

Tongkaling is a very quiet old man, well disposed toward Americans, to whom he owes his present high standing. He told us of Major Mearns and Dr. Copeland*

* Later Dean, College of Agriculture, University of the Philippines.

and several others who had stopped more than once at his home. We had supper that night by the light of a torch made of a number of small round nuts, very rich in oil, which were spit through with a sharpened stick. Having lighted our pipes, we were sitting back making ourselves as comfortable as possible on the split bamboo floor when I noticed in the half light a couple of half grown boys, apparently not Bagobos, sitting by a post to one side and keeping very quiet. These I learned were Bilan slaves, recently captured. I learned later what became of slaves of this sort.

The next morning, we were again delayed by a lack of cargadores, as the natives of these slopes have a superstitious fear of the Apo spirit at the top and were loath to make the ascent. It was 10:30 before all of the party were under way. At 2:30, we paused in the river bottom for lunch. Here some samples were collected from the boulders in the agglomerate. These are largely angular and andesitic. The stream at this point is engorged in a steep-sided canyon, one thousand feet deep. These is no sign of volcanic ash or of lava anywhere in this canyon and a great section is exposed. Everything points to a great explosion, Krakatoan in magnitude, having taken place at some pre-historic date to the northeast of us. We pushed on to Tadaya and arrived there at 5:30 in a pouring rain only to find one small miserable hut, in which lived an old man, apparently alone, to mark the site. There were, as we afterwards found out, a few more houses almost overgrown by the rank vegetation giving evidence of former greater life to the barrio. It is a way these communities have of suddenly fading away and in this respect they are quite different from the Tagalogs and Visayans, who are not prone to wander far from their native hearth, often staying rooted for generations in one place.

The elevation of this place is 2,850 ft. and in the early morning the temperature was 69°F. During the night, over half of our cargadores ran away, and so we were left in a rather precarious condition. Had I heeded my own promptings, I would have locked these men up and placed a guard over them the night before, but misplaced sentiment on the part of one member of the party prevailed and with this result. December 31st. Goodman and Ickis again went ahead with part of the baggage, though I had wished to relieve them as far as possible of any burden in order that they might save all their energies for their map work. However they both cheerfully picked out the two heaviest loads and went on as if it was their everyday work. I cannot say the same of myself and McCall, who secretly wished ourselves back on the coast in one of Don Gregorio's comfortable chairs, though we would not admit it aloud. McCall and I remained behind to look for more cargadores and to examine the rocks more carefully. Later, we succeeded in rounding up the old man, who had disappeared with the others but who had now returned, a boy, and another man who was lame. There were five heavy packs, the lightest weighing 35 lbs. and there were just five of us all told, so we each had to pack. Directly, we struck the first rise, which shot up almost perpendicularly for six hundred feet. It was terrific for us white men, unused to this kind of labor. For the rest of the day we plodded along on a high ridge, a thousand feet, more or less, above water, and at night stumbled down on a flat place and prepared our bivouac for the night, not having caught up with the advance party. In the hurry and confusion of the morning, we had let practically all the provisions go ahead and so found ourselves with some bacon, a jug of Holland gin, some coffee, no rice and no fire. Besides it was raining steadily. Problem--how to get a meal. Gin on an empty stomach, even though it is Bols gin, is not good for one, and I am afraid we would have been found totally unprepared, had an enemy, either man, beast, or spirit, taken a notion to molest us that night. I heard deer barking several times very vociferously near the tent door, but I was not in the hunting mood.

********** (To be continued)

GEOLOGICAL NEWS LETTER

OFFICIAL PUBLICATION OF THE

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MEMBERSHIP APPLICATION
GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

Qualifications and Dues: Applicant must be sponsored by a member and recommended by the Membership Committee. A knowledge of geology is not a requisite. There is no initiation fee. A Member shall be over 21 years of age; or a husband and wife and all children under 18 years of age. The dues are $3.50 per year, payable in advance, which includes one subscription to the Geological News-Letter. A Junior is an individual between the ages of 18 and 21. Dues are $1.50 per year, payable in advance, and include one subscription to the Geological News-Letter.

Date . . . . . .

I, ... (please print full name) do hereby apply for membership (junior membership) in the Geological Society of the Oregon Country, subject to the provisions of the By-Laws.

Home address . . . . . Phone . . . . . .

Business Address . . . . . Phone . . . . . .

Occupation . . . . . .Hobbies. . . . . .

I am particularly interested in the following branches of geology: . . . . . .

. . . . . .

I enclose $. . . for the year's dues, March 1 to March 1. (Checks payable to the Society).

. . . . . Sponsored by . . . . . .
(signature) (member)

PORTLAND CHAPTER ANNOUNCEMENTS

LECTURES: On 2nd and 4th Fridays of each month at the Auditorium (3rd Floor) of the Public Service Building, 920 S.W. 6th Ave., at 8:00 p.m.

TRIPS: On Sundays following lecture meetings, or as otherwise arranged. Meeting place at Public Market, Front and Yamhill.

LUNCHEONS: Every Thursday noon. The group will meet at the Winter Garden, 425 S.W. Taylor Street (north side of Taylor Street between S.W. 4th and S.W. 5th Avenues). Price of luncheon 60¢.

FRIDAY EVENING MEETING

Friday Nov. 13 JOHN ELIOT ALLEN, Geologist, Oregon State Department of Geology and Mineral Industries, will speak on his experiences while prospecting for vanadium ore in Curry County, Oregon during the last two months. He will describe the geology of the Agness country and of the deposit sampled, and tell something of the human interest angle of this little-known part of the state. Mr. Allen lived at Agness for over a year, in 1935-6. This meeting should be very attractive to all who are interested in Oregon as a source of mineral wealth.
The time is 8:00 P.M. Friday, November 13, 1942.
The place is Public Service Auditorium, 920 S.W. 6th Street.
The girl------bring your own.

FIELD TRIP

Sunday Nov. 15 This is uncertain at the time of going to press. Watch the papers and listen to the announcements at the Thursday luncheon and the Friday evening meetings.

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Renewels for "Science News Letters" must be in by Nov. 15th. The subscription price is still $2.60 per year, delivered weekly to one address only. Past subscriptions have been taken for delivery at the Thursday luncheons only; but this time I will take subscriptions for delivery at the regular society meetings, provided the subscriber attends most of the meetings. H. B. Schminky

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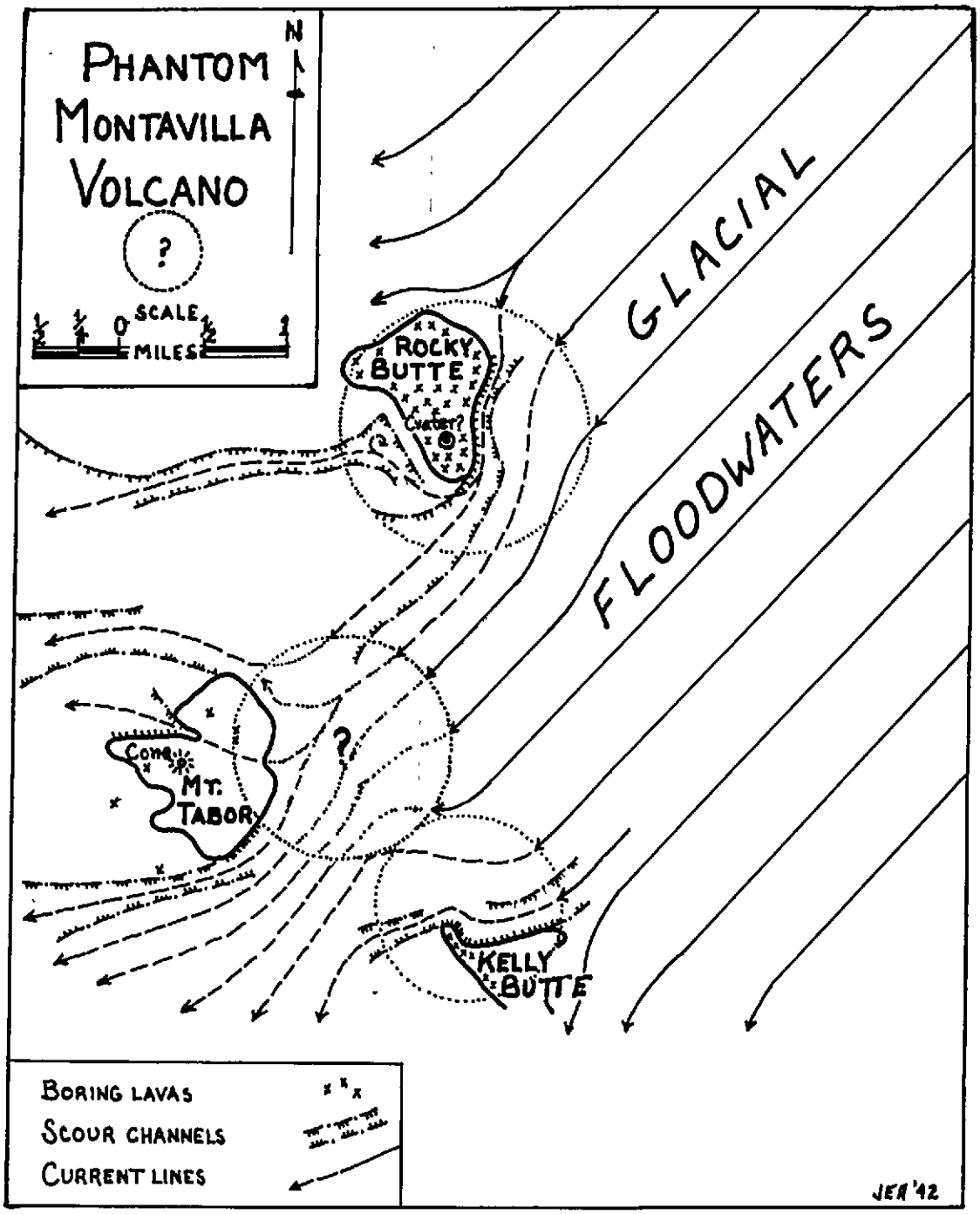
It was with regret that the Executive Committee received and accepted the resignation of our secretary, Mrs. Kathleen Mahony who is leaving us as soon as her husband is given a fixed assignment with Uncle Sam.
Miss Florence Iverson was appointed to fill the unexpired term.

THE OREGON NATURAL RESOURCES LEAGUE

Our society was invited to have a delegation present at a dinner meeting, sponsored by the Oregon Roadside Defense Council on the evening of October 15th at the University Club for the purpose of organizing an Oregon Natural Resources League. Dr. Warren D. Smith was given as the father of the idea for the need of such a league. Dr. John C. Merriam, geologist of world repute, was guest speaker.

(continued on page 174)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BORING LAVAS
SCOUR CHANNELS
CURRENT LINES
JEA '42

PHANTOM MONTAVILLA VOLCANO

by

John Eliot Allen

Twenty million years ago the east Portland region where Mt. Tabor now stands was submerged beneath the flowing waters of an ancestral Columbia, which, Dr. Hodge tells us, at that time crossed the Cascades where Mt. Hood now stands. Flood waters in this giant stream of the Troutdale epoch carried quartzite and other gravels for hundreds of miles from the northeast and deposited them in gravel bars and deltas in and around Portland. These gravels filled up the valley to an elevation higher than the present Mt. Tabor, well over 600 feet, and this flood plain probably covered many tens of square miles.

When volcanoes burst forth in the high Cascades and Mt. Hood began to spew forth ashes and lava, this river was dammed and deflected far to the north. Forces within the crust of the earth caused it to warp and fold. New river courses began to cut down through the now arched gravel deposits of the Portland area. These streams cut valleys in the gravel plains, dissecting them until the topography had much the appearance that it has today. Small new volcanoes and cinder cones broke through the gravels of the east Portland plains and poured out lava upon them.

Some of these volcanoes erupted along the east side of Portland. Rocky Butte, to the northeast of Mt. Tabor, was once a small andesitic volcano or a portion of a lava flow from a nearby crater. Kelly Butte to the southeast of Mt. Tabor is now flanked by lava. Remnants of lava flanking portions of Mt. Tabor itself suggest that a crater lay somewhere slightly east and perhaps north of the present Mt. Tabor. Lava flows from this volcano flanked Mt. Tabor, and a small, secondary cinder cone developed to the west of Mt. Tabor.

The tremendous flood waters of the Ice Age, which coursed down the Columbia and flowed over the east Portland area from the northeast to the southwest, may have been hundreds of feet in depth, and certainly undermined and cut away most of the east half of Rocky Butte and most of the north half of Kelly Butte. The currents striking Rocky Butte were deflected to the south towards Montavilla volcano. The currents striking Kelly Butte were deflected to the north and northwest towards Montavilla volcano. A flood over three miles in width was thus constrained by these obstacles into a channel less than two miles wide and the Montavilla volcano stood in the center of these rushing waters.

It is no wonder that nearly all of the lava of Montavilla volcano has been washed away, leaving only its western base of Troutdale gravel, and a few boulders of lava such as those found at the Division Street reservoir and further to the south and west. The wonder is that these waters, which at one time rose so high that they flowed through the Belmont Street windgap at an elevation of 400 feet, did not completely wash out and away the small, soft, unconsolidated cinder cone even though it was protected on the west flank. Although the floods of the ice age cut down and carried hypothetical Montavilla Volcano away, it served its purpose in protecting these gravels at its western base, so that in spite of its own destruction it preserved the Mt. Tabor and the Mt. Tabor cone of today. As the flood waters gradually grew less violent over a period of thousands of years, the glacial gravel deposits from the Sandy, Clackamas and Columbia, which had been built up during the major floods to an elevation of 300 feet, were scoured and eroded, first to a terrace with an elevation of 200 feet, then down to a

terrace with an elevation of 100 feet, the last to be formed before the present river terrace.

The great scour channels of the east and north sides of Rocky and Kelly Buttes remain as a mute reminder of the old course of the currents; old eddy channels also remain as closed depressions on the west of Rocky Butte and north and south of Mt. Tabor.

Now Montavilla volcano is gone. Only one other phase of erosion has acted upon Mt. Tabor in recent times; the W.P.A. cut away half of the cinder cone.

THE ASCENT OF MT. APO, (continued)

by Warren D. Smith

January 1st. We spent upwards of an hour trying to make a little coffee from some rain-water collected during the night, the Bagobos bringing all their savage art to bear to get a fire started in the wet wood. After a couple of hours, they succeeded and we had a cup of coffee and then moved on, just how and by what trail, I know not. We were very hungry and tired and McCall had a high fever due to malaria. About ten o'clock we met some Bagobos of the advance party who had come back on the trail to find us and they relieved us of our burdens. From here it was only a short distance into camp where we found the rest of the party. This camp is known as Mearn's Rest House after Major Mearns then Assistant Surgeon U.S.A., who has spent a month or more collecting botanical and zoological specimens, using this as his base.

The elevation of this place we determined by the boiling point method, using a hypsometer of the Royal Geographical Society pattern, and found it to be 6,081 feet. The barometer reading gave 5,450 ft. at the same point, but I never trust aneroid barometers above 5,000 ft. This camp is situated on a little shoulder, in a fair growth of timber. A small stream of cold water containing both iron and sulphur in solution, runs by it. From here the summit could be seen from an opening in the trees and the fumes issuing from the big crevasse on the eastern side were also plainly distinguishable. This camp we found in a pretty dilapidated condition but by piecing out with our tents we managed to keep the rain out that night. I went to bed early but was awakened soon after midnight by an attack of bronchitis, brought on by the exposure and sudden change from the warm lowlands to the chill of the temperate climate. Not being able to sleep, I got up and went out to the fire, where I found the old Bagobo and his dog, both shivering. And there we three, two men and a dog, all unable to converse save by signs and the expression of the face, sat and drew comfort from the embers, with perhaps many strange thoughts teeming in our brains, still with one central idea, namely to get as much heat out of those burning sticks as possible. And I thought more than once that night of the kinship of all life and of the interesting things that might be disclosed to us if we could bridge over the gulf imposed by differences in, or lack of, a common language.

The whole party left camp together next morning at 8 o'clock. We made our way up through the heavy timber, "the mossy forest" belt; then we dropped into a small creek bed and worked our way laboriously over pot-holes and slippery moss-covered slides, and at about 7,500 ft. passed beyond the timber line, though small blueberry bushes and stunted shrubs of one kind or another were found growing all the way to the top. Here we encountered a bitter disappointment. We had brought along up the mountain several extra cans of Bear Brand milk with which to eat the

blueberries which we expected to find at the top, and there were only green ones on the bushes. The fact that the small berries, familiar to the dwellers in temperate climates, are not found in the lowlands of the tropics only added to our appetites and disappointment.

From here on, the trail led over the roughest ground imaginable, huge boulders and knotty little shrubs helping to impede the climber. However, there were no ashes or lava to add their share of trouble. Our trail led along the south side of the huge crevasse which we had seen from far below and then, after about a quarter of a mile, it crossed over to the north side and continued along it and around its head onto a knife-like ridge to the summit. This crevasse must be seventy-five feet deep and one thousand feet wide in places and has eight or ten vents located in it from which sulphur vapor issues, the gas being sulphur-monoxide chiefly. About each vent is a little cone of pure sulphur. About some of these there must be tons of it. Though there may be five hundred tons or more all told, I doubt very seriously whether it would be worth any company's while to attempt to handle it on a commercial scale.

At about 8,500 feet we found a clay tablet lying on the ground on which was inscribed:

"La Unica Expedicion a Volcan Apo, 1880.
Montano y Rejal"

At 12:30 P.M., we reached the summit of the highest mountain in the Philippine Archipelago. We ascertained the height, by two trials of the hypsometer, to be respectively 9,698 and 9,720 ft. The barometer at the first trial gave 9,225 ft. which is of course considerably in error. The boiling point method is generally considered accurate within one hundred feet. The old Spanish Coast and Geodetic chart of this region gives 10,312 ft. for this mountain, but subsequent work of Captain Pratt of the U.S.S. Pathfinder showed conclusively that the Spanish work was grossly in error in these waters, so that any triangulation work in the interior based upon the Spanish measurements would be valueless. Captain Pratt's work gave an elevation of 9,610 ft.

When we reached the first high point which the few people who have ascended the mountain have concluded to be the summit, but which is not by several feet, we paused to get our breath which was coming with great difficulty. As the clouds were sweeping by so as almost completely to obscure the view, we sat down and began to dig for the little bottle usually to be found on the summits of high mountains and soon discovered it. It contained the record of several parties, the earliest of which was that of Schadenburg and Koch, 1882. It was surprising to find no record of the Montano expedition of 1880. Could it be possible that they never reached the summit? I am rather of the opinion that the tablet which we found at about 8,500 ft. had been carelessly or maliciously removed from the top where it was originally placed.

Crossing over the low sag to the next pinnacle, we came to a point, which by means of a hand level, we determined absolutely to be the highest point on the mountain. Here we found a cairn of stones and digging into it unearthed a brass tube with a screw top marked "S.C." Inside was a neatly gotten up scroll of the Sierra Club of California, duly stamped with its seal and signed by its then president, John Muir. It had been deposited there in the month of October 1904, by Dr. E.B. Copeland, then of the Government Laboratories (Manila) and as no one else had, up to this time reached this point so far as the record showed, we had the honor to be the first to sign up on the register.

Having pitched our camp, we set to work, sketching in the mountain, taking shots with the transit at all points of the topography, and making boiling point determinations. This work proceeded very slowly and in a very jerky manner, owing to the sheets of mist sweeping by. Toward the later afternoon, the fog banks cleared away and the panorama, now unfolded, was one to please the most epicurean of mountain climbers. The picture as I remember it was of the impressionistic order. In the east, a sea of white and gray mist hung like a blanket over the Agusan Valley. Far below, but in the foreground of the picture as presented on that side, lay the gulf of Davao, with its islands and coves and strange craft, blue as the Aegean, encircled by dark green wooded mountains and long volcanic slopes. The foreground showed fold on fold of green without a break, save for one silver streak, the Rio Grande, which cut across it, till far to the westward the colors of the sky began. But the most impressive thing was not the sea or the sky or even the great silent river. It was the billowy jungle, miles and miles of it, and the thought of the secrets it held and the strange savage people who roamed it. Sixty miles away could be seen Matutum, an isolated cone long since burnt out. By sighting on it with a level, it appeared to be little lower even at that distance than the point on which we stood, and taking into consideration the curvature of the earth, I thought it was not improbable that Matutum might be found to be even higher than Mt. Apo. There was at that time no record to my knowledge, of anyone having ascended it, but since then (1912) Major Heiburg U.S.A., who was at that time the Governor of the district of Cotabato in Mindanao, made the ascent and found the elevation to be 7,880 ft. I believe that his figures are too low for the reason, that as I recall, he did not make a correction for outside temperature in using his hypsometer. I may be partly to blame for this omission as I furnished him with the instrument he used and did not tell him of this important point. Major Heiburg has written an interesting and most instructive account of his expedition to the "Mountain of Mystery" which was published in Harper's Monthly, March 1914.

Returning to Apo, though there is a circular depression quite suggestive of a crater at the top and though the rock is igneous and there are gases coming out of a great fissure in the side of the mountain, I would still not consider this the volcano of Apo. All the surface indications point to the fact that the great eruptions in this region took place on the site of the "punch bowl", a few miles to the northeast and that there were two periods, one of an outwelling of lava as indicated by the flow lines of Apo and a second, evidenced by the great mass of explosive material, angular blocks of andesite, tuff, etc. In this second period, the old mountain blew its head off and so the present peak of Apo stands now, higher than the old mountain stub which was its parent. This old mountain must have had an elevation at one time of at least 12,000 ft. For this ancient mountain, I hereby suggest the name of Culelan, the native name for one of the peaks on its rim.

We found some rain water in a little hollow, and of firewood we had an abundance in the gnarled and stunted bushes growing everywhere. So here we camped for the night. In the morning the temperature was 47°F. which, it is needless to say, caused us lowland dwellers very great discomfort. To make the change from a mean temperature of nearly 85°F. to 47°F. in three or four days must be a severe tax on the system, especially of the man who has lived long in the tropics. Such a change is felt far more than a difference of the same number of degrees would be felt in the temperate zone, where the condition of the blood is quite different.

On the small shoulder of the mountain, apparently about two thousand feet below us and on the northwestern side, is a small lake. As our commissary was

running low, we could not take time to go down to make an examination of it, but remained on the top until two o'clock of this day and then descended to the rest house again. The next day we continued our descent and in two days, reached Davao. The trip back was something of a race and my muchacho, Julio, beat us all into camp. It is wonderful how much energy a Filipino can develop when he is on the back track.

The day after I reached Davao, I was walking down the main street, when I met Governor Walker, who showed me a souvenir which had just been sent to him from down the coast, namely a piece of human skin from a sacrifice recently offered by the Bagobos of the very region we had been through. Later, Gov. Walker and the Inspector of Constabulary made a personal investigation of the affair, the results of which were as follows:

This particular sacrifice had taken place at Taron, the forepart of December and was for the purpose of appeasing the spirits of the husbands of two widows who wished to remarry, and to right various other wrongs of the community at the same time. The victim was a small eight year old Bilan boy, held as a slave by the Bagobos. According to Gov. Walker:

"The boy, Sacum, was seated on the ground near the place of sacrifice. He was naked but no other preparation was made with regard to his person. Upon a bench of bamboo, was placed a receptacle made of the bark of the bunga tree, in which each person present and taking part in the sacrifice placed a piece of betel nut: over this the men placed their head handkerchiefs, and over the handkerchiefs the women laid strips of the bark of the palma tree. Upon this the men laid their bolos and spears were struck in the ground in a circle around the platform....After this, the boy was placed against a small tree, his hands tied above his head and his body tied to the tree with rattan strips at the waist and knees. A spear was then placed at his right side at a point below the right arm and above the margin of the ribs. This was grasped by the two widows who forced it through the child's body so that it came out at the other side. The spear was then immediately withdrawn and the body cut in two at the waist. After this the body was chopped into bits by the people present, each of whom was allowed to take a small portion as a memento of the occasion, the remainder of the body being buried in a hole prepared for it.

"It is said that the child was deaf and almost blind and that he did not realize what was to happen to him until the moment he was tied. Datu ----, a man about 60 years of age, says that in his life he had attended or officiated at fifty human sacrifices, more or less. The Bagobos do not sacrifice any but old and decripit or useless slaves captured from other tribes, but the Bilans sacrifice even their own people.....They appeared utterly unconscious of having committed any crime, told their story with frankness, said that it was a matter not talked about among their own people, but if we wanted to know the facts, they would give them to the authorities." (Governor Walker's manuscript report made to General Bliss. Extracts by permission. Philippine Journal of Science Vol. 3, No. 3, Sec. A.)

I know of no white man who has witnessed the event and the very fact that none of our party learned about the sacrifice until after we had passed through the place where it took place shows how secret the whole affair was kept. Governor Walker closed his report with the following recommendation to the Government:

"In view of the facts as brought out in the investigation, it is not thought that it is a case for prosecution before the courts, but rather one for religious instruction. When it is considered that only a year and a half ago, these people could not be approached by a white man without taking to the brush, and that now they will come down out of the mountains to meet the officials to discuss a question of this kind, it is evident that they have great confidence in our Government."

The Government authorities in this case showed their good sense and tact in dealing with our primitive friends and by their broad-minded policy, gained a hold over them which they might never have done had they started in by condemning the old datu for murder. I am more than ever convinced that there is a deep religious feeling in all primitive peoples and even though this feeling may sometimes be fearfully perverted, it is akin to the same emotions felt by the most exalted Christians. If we remember that Abraham was going to perform this same ceremony with his own son, Isaac, we can forgive these people. If we only knew more about the motives that actuate people in this world we would be less harsh in our judgments.

And so ended our trip to Apo and Davao. I have been in many parts of the Philippines since, but nowhere have I seen nature in such grandeur nor man in such primitiveness and picturesqueness as in this less well-known part of the great island of Mindanao.

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Note: There were very few Japanese in this region in 1907. Today (1942) there are thousands.

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LUNCHEON NOTES FOR OCTOBER 22, 1942

Only seventeen members found their way to the Winter Garden for the first meeting in the new location. They looked lonesome at a table set for fifty. Mrs. Schminky brought some photographs showing the growth of her family, which, by the way, is shared by our president, H. Bruce S. Mr. Robinson showed photographs of geological interest. The main attraction of the meeting seemed to be a collection of minerals which had been sent to Dr. Booth for sale. Many of the members added choice bits to their collections. Among the specimens shown were: pyrite clusters from the Thanes shaft, Park City, Utah; vanadinite from Arizona; pyrite, single crystals, (large) from the Silver King mine, Park City, Utah; psilomelane (manganese oxide) from Lake mountains, Utah; martite from Twin Peaks, Millard county, Utah; and fluorite, Wildcat Mts., Tooele county, Utah. Unfortunately for Dr. Adams, the above glittering minerals so far outshone the collection of gastropods which had been sent to him by Death Valley Scotty, that it did not receive the attention it deserved.

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THE OREGON NATURAL RESOURCES LEAGUE (continued)

The purpose of the league is to work for the conservation of all our natural resources. Mrs. Jessie M. Honeyman was appointed chairman of the organizing committee, with nine others, prepicked by the Oregon Roadside Council to assist. Although forty-five outdoor societies were supposed to represented at the dinner no other group was called on for assistance or suggestions.

Dr. Merriam's talk was mainly on conservation, although he did say that Oregon had one of the world's best fossil locations in the John Day Country.

Our society had fourteen members present at the meeting.

EXTRA

FIELD TRIP

Sunday Nov. 15
Leader Mrs. R. R. Poppelton: Assemble at S. W. Virginia Ave. and Taylor's Ferry Road near end of Fulton Bus line at 10:00 A.M. Group will proceed on foot to Willamette River to examine interesting shore lines of old river. Make stop at large whirlpool which marks site of original Willamette River Falls, since moved upstream to Oregon City. Walk through tunnel under Elk Rock and examine basalts where the river is now carving its new course. Bring extra slice of bread for ducks. (A pleasant surprise awaits you) Lunch stop will be made at Mrs. Poppleton's home where hot coffee will be served. Bring own lunch and cube of sugar. Afternoon will be spent on trails near the Poppleton home. Wear heavy shoes. Bring Treasher's "Geology of the Portland Area" or Portland and Oregon City quadrangles.

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New Addresses of Members:

Mr. and Mrs. J. Martin Weber, 2410 N.E. Multnomah St., Portland, Oregon.
Mr. and Mrs. John Eliot Allen, 4036 Munroe Street, Milwaukie, Oregon.
Mr. and Mrs. Francis T. Jones, 1765 Oxford Street, Berkeley, California.

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MAZAMA PHOTOGRAPHIC EXHIBIT

The Mazama Club annual photographic exhibition is open for your inspection in the club rooms on the top of the Pacific Building. The show will close on Nov. 9. You will be well repaid for the time (and effort) required to look at these pictures. Some of the best photographers in the state are among the exhibitors.

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SALEM GEOLOGICAL SOCIETY LECTURE

Eight P.M., Thursday, November 19, 1942; Collins Hall, Willamette University, Salem, Oregon.

Speaker: Professor Herman Clark, Willamette University, Salem, Oregon.
Subject: SCIENCE and RELIGION.

This is a most timely and appropriate subject for those who, in the course of their vocation, or simply in pursuit of a hobby, travel scientific trails, also for those who habitually dwell in a religious atmosphere. To be conducted under competent leadership through some practical thinking in the broader relationships between science and religion will give us all a better understanding and appreciation of each.

Both speaker and subject have a wide appeal, so tell others of this lecture and bring your friends in order that as many as possible may share this outstanding occasion with us and, at the same time, give Professor Clark a hearty and enthusiastic welcome.

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The society's library has been enriched by an autographed copy of "The Scenic Treasure House of Oregon", presented by the author, Dr. Warren D. Smith.

If there are any members who have not received their membership cards, please notify the secretary at once.

Florence Iverson, Secretary, 5125 N. E. Couch St., Portland, Oregon.

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LECTURE MEETINGS

Friday, Nov. 27th — Due to the fact that many members may wish to make other plans for the Thanksgiving holiday season, no lecture has been scheduled for this date.

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Several of our members are now in Uncle Sam's service. With the approaching holiday season, it is suggested that we remember these members with letters. The following addresses are available at this time:

Private K.P. Mahony, 39-318-032
Co. C, 83rd Infantry Training Bn.,
1st Platoon,
Camp Roberts.

Capt. Arthur C. Jones, M.C.
Letterman General Hospital,
San Francisco,
California.

Major David E. Weber
Medical Detachment, 18th Eng.,
A. P. O. 931, c/o Postmaster,
Seattle, Washington.

Harry Clark, S. K., 3C
(with U.S. Coast Guard)
Box 810,
Astoria, Oregon.

Will the members please furnish the addresses of anyone that should be added to this list.

When writing to servicemen, remember to write on one side of the paper only and not to include anything of a military nature. Write short letters, but send them oftener.

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Mrs. Arthur Jones is spending the first three weeks of November visiting with the doctor at San Francisco.

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LUNCHEON NOTES FOR OCTOBER 29, 1942

Our new meeting place for the Thursday noon luncheons has proved to be more popular with the ladies than the Millionaires' Club. This is plainly shown by the fact that five women were present on the 29th, and none met with the group at the last luncheon in the former place. The light is much better in the Winter Garden, and the place is some quieter. The mere fact that the cashier got a little bit mixed up on the price of the meal should not be held against the management, I suppose. However, it would seem that when roast beef is sliced thinner, Winter Garden will slice it.

Sixteen men kept the ladies company. Specimens were brought by Hy Wood, John Allen and Miss Henley, who also brought a guest, Maxine Wolff. Mr. Wood's zeolite crystals were for distribution and were gratefully received by the other members of the group.

GEOLOGICAL NEWS LETTER

OFFICIAL PUBLICATION OF THE

GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

VOL. 8 NO. 22 PORTLAND, OREGON November 25, 1942

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THE GEOLOGICAL NEWS-LETTER
Official publication of the
GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

The Geological News-Letter is issued semi-monthly on the 10th and 25th.
Yearly subscription: $2.00 Single copies: $0.15
Communications and material for publication should be sent to the Editor. Change of address and subscriptions are required 30 days in advance of date of change, and should be sent to Emily M. Moltzner, Morgan Building.

MEMBERSHIP APPLICATION
GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

Qualifications and Dues: Applicant must be sponsored by a member and recommended by the Membership Committee. A knowledge of geology is not a requisite. There is no initiation fee. A Member shall be over 21 years of age; or a husband and wife and all children under 18 years of age. The dues are $3.50 per year, payable in advance, which includes one subscription to the Geological News-Letter. A Junior is an individual between the ages of 18 and 21. Dues are $1.50 per year, payable in advance, and include one subscription to the Geological News-Letter.

Date . . . . . .

I, ... (please print full name) do hereby apply for membership (junior membership) in the Geological Society of the Oregon Country, subject to the provisions of the By-Laws.

Home address . . . . . Phone . . . . . .

Business Address . . . . . Phone . . . . . .

Occupation . . . . . .Hobbies. . . . . .

I am particularly interested in the following branches of geology: . . . . . .

. . . . . .

I enclose $. . . for the year's dues, March 1 to March 1. (Checks payable to the Society).

. . . . . Sponsored by . . . . . .
(signature) (member)

PORTLAND CHAPTER ANNOUNCEMENTS

LECTURES: On 2nd and 4th Fridays of each month at the Auditorium (3rd Floor) of the Public Service Building, 920 S.W. 6th Ave., at 8:00 p.m.

TRIPS: On Sundays following lecture meetings, or as otherwise arranged. Meeting place at Public Market, Front and Yamhill.

LUNCHEONS: Every Thursday noon. The group will meet at the Winter Garden, 425 S.W. Taylor Street (north side of Taylor Street between S.W. 4th and S.W. 5th Avenues). Price of luncheon 60¢.

FRIDAY EVENING MEETINGS

Friday Nov. 27 — NO MEETING. THANKSGIVING HOLIDAY SEASON.

Friday Dec. 11 — Speaker: Lloyd L. Ruff, Associate Geologist, U.S. Army Engineers.
Subject: Western Montana---The Land of Ripple Marks.

This will be a geological travelogue through northern Idaho and western Montana where the speaker spent two and one half months this past summer with a seismograph field party engaged in subsurface exploration work.

The lecture will be illustrated by Kodachrome slides.

Geological specimens will be on exhibit.

Friday Dec. 25 — NO MEETING. MERRY CHRISTMAS.

FIELD TRIP

Sunday Dec. 13 — Field trip. Details will be in the next issue of the News-Letter. This will be another hike in the Portland area. If you have not secured a copy of Ray Treasher's map and paper on the "Geologic History of the Portland Area", you should do so. They can be purchased in Room 702, Woodlark Building. This material will be useful on many of our future field trips.

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NOMINATING COMMITTEE

The following members have been appointed on the Nominating Committee; A. D. Vance, Chairman, A.W. Hancock, Earl Minar, Mildred James, and Johanna Simon.

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Several members of the Geological Society of the Oregon Country saw the colored pictures of the Wayne Wonderland of Utah at the meeting of the Agate and Mineral Society in the East Side Y.M.C.A. on October 19. The pictures included a most thrilling boat trip on the Green river and a trip to the Arches National Monument. They were shown by Dr. Courtland L. Booth.

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WILLAMETTE RIVER HIKE, NOV. 15, 1942

Mrs. R. R. Poppleton - leader

Now that at least two days have past and we have been officially told that there was a real rain storm the day before this trip took place, it is not so surprising that there was not a larger gathering at the end of the Fulton bus line at starting time. However, fifteen hardy souls put their faith on the patches of blue that had been showing in the heavens from early morning. Six of this group were recruited from the Mazamas. The light shower, which had been falling for about twenty minutes, ceased as the party set off on their hike up river at 10:15.

Our first stop was at the old Sellwood ferry landing, where we could get a view of both shores. On our side (the west) we stood on an outcrop of Columbia River lava. In the bluff across the river we could see the gravels which Treasher assigns to the Clackamas terrace deposits.

At this point the trip might have come to an end, with all members landing in the "brig". We had forgotten that this was still in the restricted area along the water front. The two coast guard boys on duty in that sector must have had grave misgivings about the safety of the Sellwood bridge, when they saw our crowd swoop down to the river bank. They sent a hurried S O S to headquarters by radio for instructions and were told to find out our business. So, up they climbed and, much out of breath, asked for our identification cards. But this being a hiking trip, none of the group carried even drivers licenses. By this time the boys gained their composure and began asking questions about the party. So we told them we were out on a hike to study the geology of the region and explained that we had not realized that we had entered forbidden territory. Our faces must have looked innocent, even if our dress was rather on the tough side, and our reason was accepted as sane (the boys must have met geologists before), for we were told that we could proceed on our way if we would sign our names. Then the boys discovered that they had brought neither pencil nor paper. One of the Mazama girls came to their rescue with both items, and the signatures were soon down. Un-needed reinforcements, in the shape of a police car, hove in sight as we were again on our way.

We followed as near the river's edge as possible as we moved southward. Basalt outcrops were noticed all along on our side, but we could tell little about the east bank.

For some distance along the railroad embankments, we found large pieces of zeolite filled "serpentinized" basalt. We could find no local cuts from which this material had been dug, so it was assumed that it had been hauled in by train as ballast and had been dumped here to add protection to the fills.

We left the river and followed the highway over the Palatine Hill summit. At a view point overlooking Elk Rock and Rock Island, we looked down on the whirlpool in the river far below us. Here we could pick out the general features of the country east of Milwaukie. By the use of Treasher's map it was easy to follow the various formations. From Milwaukie southward the river is intrenched in basalt. It is not hard to believe, as Dr. Hodge has often said, that the falls of the Willamette began at the whirlpool and have retreated to their present location at Oregon City. The so-called Rock Island is really a peninsula at low water.

But now we had arrived at our lunch stop, the Poppleton home. Not a drop of rain had fallen and much of the time the sun was shining. The walk had not seemed long or tiring, but everyone was ready to eat. Mrs. Poppleton and Grace soon had delicious, hot, spiced punch, coffee, donuts, and apples to augment the lunches carried by the members of the group. Imagine going for a hike and being able to eat your lunch in the luxury of home surroundings.

We were about to start out for the rest of our explorations, when it began to rain. It looked as if it were just a passing shower, so we remained in the house and sang songs. The geologists tried to teach their songs to the Mazamas and might have succeeded had they remembered the words themselves. In about ten minutes the sun was shining, and we were again on our way.

We entered Clackamas county when we left the Poppleton home, and also came into a different geological formation, for it is here that Treasher maps the Boring lavas that flowed from the region of Mt. Sylvania and covered the basalts. We could recognize several differences between these lavas and the earlier basalts. The Boring lavas did not make massive flows here. Many overlapping flows were visible. We recognized the ash and the agglomerate phases by the aid of Treasher's guide book.

We then descended to river level, and proceeded downstream to the foot of Elk Rock. Here we found that we were back to the basalts once more. The whirlpool was very impressive as we gazed at it from the old grade of the Southern Pacific electric line which formerly skirted Elk Rock on a high trestle. It is said that the river is two hundred feet deep at this point.

Because some boys were shooting along the river, we did not get to see the wild ducks perform The people who live along the shores above Elk Rock feed the ducks, so they are usually quite tame and come for their meals when called.

We followed the river's edge for about a half mile upstream and found the basalts outcropping all the way.

It was now after 3:30, so we returned to the highway and the Poppleton home once more, where another raid was made on the remains of the lunch supplies. Everyone voted it a most enjoyable day, with a delightful hostess. Just a few light showers had fallen during the afternoon.

If you would like to know all the things that were said about the stay-at-homes you will have to come out on the next hike. H.B.S.

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In the technical book catalog of the Chemical Publishing Co., Inc. we find listed four books by Jack DeMent and Dr. H. C. Dake, both well known to members of the Geological Society of the Oregon Country. The books are: Fluorescent Light and its Application, Fluorescent Chemicals and their Applications, Ultra-Violet light and its Applications, and Uranium and Atomic Power. The first of these books is said to be of unique nterest not only to professional scientists but also to those without any technical training whatsoever. The second and third are continuations of the series.

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LIBRARY NOTES

The following books have been cataloged and added to the library shelves:

The Scenic Treasure House of Oregon, by Warren D. Smith
-from Dr. Warren D. Smith.

Geology and Coal Resources of the Southeastern Kansas Coal Field. With report on Pennsylvanian Invertebrate Faunas of Southeastern Kansas. State Geological survey of Kansas, Bulletin 24.

Composition, Rating, and Conservation of Willamette Valley Soils. Oregon State College, Corvallis. -from Mrs. Ruth Campbell.

Trade catalogs. -from D. V. Hill, Salem, Oregon.
-from Ward's Natural Science Establishment, Inc. Rochester, N. Y.

Oregon Metal Mines Handbook, Bulletin 14-C, Vol. II, Section 1 - Josephine County. -from Oregon Department of Geology and Mineral Industries.

Decimal Classification and Relative Index, by Melvil Dewey, 1932 - Edition 13. -from Margaret Elizabeth Hughes.

This book is the standard used by libraries for the classification of books, and other publications and for their arrangement on the shelves. It furnishes a welcome addition to the equipment of the library.

The "Quiz" Question

So great has the popularity of the quiz become that its field has extended from the radio to the current magazines, in ever increasing number and variety, as special features. Answering quiz questions threatens to supplant the crossword puzzle and other devices of self-testing for acquired information and intelligence rating.

Should the News-Letter feature a quiz? It might prove an interesting venture. It would furnish diversion for those who prepared the questions and for those who worked on the answers. Imagine the zest added to this feature if it were developed in the form of a contest with specimens awarded for highest rating.

The "Library Quiz" herewith submitted will not hold the attraction of a geological quiz but it is hoped it will serve as a means of redefining the purpose for which the library was founded and the goal set as its destiny.

The answers following the questions express the uncensored opinions of the writer. Many in our membership may hold widely diverging opinions. Now is the time for all good G.S.O.C. members to exercise their rights for free speech and prove the freedom of the press by writing their answer to one or to all of the questions and submitting them to our official organ, The News-Letter. Such an open exchange of ideas will help to establish the status of the library and furnish data on which to determine: Is the library worth working for? Has the organization the will to build into it that which will meet future demands of a community such as Portland?

Library Quiz

1. Q- Why was the library established?
   A- Because of its specialized service a library is considered an integral part of societies organized for scientific study and advancement such as the Geological Society of the Oregon Country.

2. Q- What is the purpose of such a specialized library?
   A- The primary purpose of the library is to provide specialized library service to the society membership. The ultimate purpose should be to extend its service to supplement and augment the work of other educational and professional agencies.
3. Q- Give location of the library.
   A- Office of Arthur M. Piper, 307 (second floor) Old Postoffice Building, Sixth and Morrison.
4. Q- What are the present resources of the library?
   A- One large bookcase filled beyond capacity for an orderly arrangement of books; filing cases and cataloging equipment except typewriter. The library is cataloged.
5. Q- When this library reaches full development will it duplicate the services offered by the Library Association of Portland?
   A- No. A specialized library stimulates the use of but does not duplicate the service of a public library.
6. Q- Are there community developments, now established or proposed, to justify the founding of a well equipped and adequately staffed specialized library?
   A- Yes, there are such developments. They fall under the headings - civic, educational and professional.

   A. Civic.

   Founding of an Oregon Museum of Natural History in the City of Portland with the specialized library as an important adjunct. Plans for such museum are dormant for the duration.

   B. Educational.

   a- Introductory courses in geology - Portland Extension Center. Because of the deep interest of our society in the success of this branch of the extension work it may seem advisable that at least one text-book of each current course be added to the library and made available for reference reading by the students of the course (as a few students from economical necessity attempt to carry the course without purchasing the text and thus lose the full value of the lectures and in some instances their interest in future courses).

   b- Earth sciences course added to curriculum of Portland public schools. This progressive step on the part of the school system was commended by the Oregonian in an editorial (9/19/42) and in an open letter by Dr. Warren D. Smith of the University of Oregon. The editorial and Dr. Smith's letter were copied in the 10/10/42 News-Letter.

   Dr. Smith said, "it is gratifying to us students of the earth sciences to know that a subject in which we are all interested is going to be given greater recognition in our schools." The letter calls attention to the fact that geology and geography are basic subjects and anyone rightfully claiming a liberal education in these days must have some knowledge of the earth, what it is made of, and something of its geologic history. Such knowledge is of paramount importance in wartimes, when our very existence depends upon the terrain and how the various armies make use of it and the strategic minerals with which wars are fought.

   It is hoped that this open discussion of earth sciences has been widely read and thought given to how much more enlightened the general public of today would have been had emphasis been placed on earth sciences in the schools during the last two decades. The basic principles acquired would have given clearer conceptions of our war needs and how they are to be met.

   Now that the course is a part of our school curriculum every community resource should be made available to add to its success. It is

probable that the GSOC could make a valuable contribution to this cause by preparing collections of labeled, authentic specimens boxed and supplied with descriptive leaflets for loaning for class room use. Such service would serve as a temporary measure until such time as the museum is established with its wider and more scientific facilities.

C. Professional.

Recognition in the practice of occupational therapy, mental hygiene, preventive medicine, psychiatry and other branches of the healing arts of the value of nature study and collecting in the treatment of such cases as:-

a- Threatened nervous breakdown in persons with too much leisure time and insufficient interests. This group forms a large percentage in the general population and includes the incapacitated, the shut-ins, patients suffering the tedium of long convalescence, men and women retiring from years of active service to a quiet life, and returned fighting men who have endured danger, hardships and great emotional strain or who have suffered deprivations, or worse, in prison camps.

b- As a factor in occupational therapy in the treatment of psychiatric patients. Treatment of patients by this form of occupational therapy has been in use at Harvard Medical School, Boston, in the Department of Diseases of the Nervous System. For types of patients selected for treatment, method of application and results, see:-

Occupational Therapy and Rehabilitation, Vol. 20, No. 5, October, 1941 (the official organ of American Occupational Therapy Association).

A New Application of Conchology, by Drs. Merrill Moore and M. Geneva Graves.

The American Journal of Psychiatry, Vol. 98, No. 5, March, 1942 (the official organ of The American Psychiatric Association).

Shell Collecting as Occupational Therapy for Psychiatric Patients, by Dr. Merrill Moore.

Dr. Moore holds that in the past occupational therapy has been too mediocre and restricted, too arty and too crafty; that the loom and weaving, carpentry and metal work were depended upon too exclusively. With the addition of nature study and collecting the treatment can now be made educational and diversional as well as occupational. Any branch of nature study such as: minerals, fossils, crystals, birds, fishes, insects, trees, flowers, shells, etc. offers many advantages as a form of occupational therapy. In the two papers above referred to the physicians have based their conclusions on the study and collection of land and sea shells to provide a good example of how scientific material can be utilized especially in the treatment of certain types of neurotic individuals. They warn that this form of occupational therapy is not a cure-all, that it is a special hobby which lends itself well to certain forms of psychotherapy and serves as a diversional adjunct and can be used in connection with suggestion, persuasion, catharsis and the transference situation which it can sometimes improve. It is recommended that this treatment be not limited to the treatment of neurotic patients but extended to convalescent patients, to persons with chronic disability, to children confined to hospital bed or to bed at home, etc...

The boxes of specimens mentioned earlier in these notes would doubtless prove a welcome source of material to physicians of Portland who value nature study as a factor in the treatment of certain types of cases.

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MAZAMA ANNUAL BANQUET

For fun--friends--food, Mazama annual banquet, Neighbors of Woodcraft Hall, Saturday, December 5th, 6:30 p.m. No long speeches, price $1.25, plenty to eat. All G.S.O.C. members and friends invited.

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"Fluorescence May Help Testing of Gas Masks" is the title of an article on page 265 of the October 24th number of Science News Letter by Jack DeMent who has talked before the Geological Society of the Oregon Country and is a co-worker with Dr. Dake.

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C. P. Holdredge and L. L. Ruff entertained and instructed the Oregon section of the American Society of Civil Engineers on November 10th at the University Club with talks and pictures on the general subject: "Application of Geology and Geophysics to Engineering Problems." The first half of the subject was ably handled by Mr. Holdredge and Mr. Ruff showed by means of slides how the equipment used by the United States army engineers finds how far below the surface of the earth it is to hard rock, and also tells something of the hardness of the rock. Drillings at one location showed how very closely the geophysical soundings come to the actual depths.

Mr. Ruff's motion pictures of a boat trip down the Snake river followed the speaking part of the program and gave the engineers an idea of the grandeur of the scenery and the difficulties experienced by the geologists in gathering their information.

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LUNCHEON NOTES FOR NOVEMBER 12, 1942.

I had intended to write a story about the members of the Geological Society of the Oregon Country being "The Salt of the Earth", but subsequent circumstances have altered my opinion. Not, of course, that there are any better people to be found, but that the heavy intake of sodium chloride on the day after Armistice Day has lost its potency, and we are back to our normal salinity now. Twenty-one members and guests partook of the meal, the memory of which will remain with them; but one must remember, also, that even in the best of homes sometimes the food gets a double dose of salt, so they should not stay away on that account. Hy Wood had some pebbles from the Tenino mounds which he said had only recently been brought to the surface of the ground by some burrowing animals. There are still some of us who are unable to swallow the theory that the mounds are the work of gophers, unless they were of the Paul Bunyan type, and no one has yet produced the skeletons of such animals to our knowledge. Mr. Strong of Aberdeen, Washington, who was on the last lap of an enjoyable trip in a travelling house mounted on a Mack truck chassis, brought some interesting specimens which he told us came from the 2200 ft. level of the U. S. mine in Bingham, Utah. He also had an interesting gypsum crystal from the bottom of the Great Salt Lake. Mr. Minar showed a specimen of jasper from Vermont.

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"Chop your own wood and it warms you twice." Anon.

JOHN ELIOT ALLEN'S CURRY COUNTY EXPERIENCES

The only flaw in the evening's entertainment on Friday, November 13, was Mr. Allen's selection of an operator for the projector, who not only did the usual tricks of putting the slides on the screen upside down, but got some in the wrong places in the program and succeeded in absolutely ruining a few of them. And having been the operator, the editor hastens to assure all who have thought these tricks were caused by jealousy, or by pique on account of there being no speckled sheep among the pictures, that there is no truth in such ideas. The operator did his best at the time, and with this experience, believes that he can do better if given another chance.

Mr. Allen had a very interesting collection of pictures, many of which he had made into slides just for this meeting. They showed the river trip, the kind of country that has kept the vanadium ore from being discovered long ago, and some of the difficulties of travel on the highway in the Agness country. His manner of telling his experiences, describing the people he met and the tales they tell, was very entertaining, and his hearers believe that he has set a new goal for speakers before the Society to shoot at. He even left time for the president to have an executive committee meeting before the other officers had to leave the hall. He has also promised to write for the News-Letter some of the sayings of Hathaway Jones for the benefit of those members who were kept away from his lecture by their less interesting duties.

Lloyd Ruff distributed some specimens of stibnite (antimony ore) from Stibnite, Idaho, in the Yellow Pine District.

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It is with great regret that we record the death of Charles F. Wiegand, one of the most active members of the Geological Society of the Oregon Country, which occurred on November 8, 1942.

Mr. Wiegand was for a long time an employee of the city of Portland, and had been assistant superintendent of the city park bureau for many years. His home was at 1100 N.E. Imperial Avenue. He is survived by his widow, Mrs. Barbara Wiegand, a daughter, Mrs. Roger Jayne, Reedsport, and a son, Lt. Col. F. L. Wiegand, U. S. Army, in Australia.

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U. S. Geological Survey Water Supply Papers:

Water-Supply Paper 930. Surface water supply of the United States, 1941, part 10, The Great Basin; G.L. Parker, chief hydraulic engineer; G.H. Canfield, Robert Follansbee, H.D. McGlashan, T.R. Newell, and A.B. Purton, district engineers. 1942. iv, 123 pp. 1 pl. Price, 25 cents.

Water-Supply Paper 933. Surface water supply of the United States, 1941, part 13, Snake River Basin; G.L.Parker, chief hydraulic engineer; G.H. Canfield, Lynn Crandall, Robert Follansbee, T.R. Newell, A.B. Purton and F.M. Veatch, district engineers. 1942. vi. 246 pp., 1 pl. Price, 30 cents.

Water-Supply Paper 934. Surface water supply of the United States, 1941, part 14, Pacific slope basins in Oregon and lower Columbia River Basin; G.L. Parker, chief hydraulic engineer; G.H. Canfield and F.M. Veatch, district engineers. 1942. v, 229 pp., 1 pl. Price, 35 cents.

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GEOLOGICAL NEWS LETTER

OFFICIAL PUBLICATION OF THE

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MEMBERSHIP APPLICATION
GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

Qualifications and Dues: Applicant must be sponsored by a member and recommended by the Membership Committee. A knowledge of geology is not a requisite. There is no initiation fee. A Member shall be over 21 years of age; or a husband and wife and all children under 18 years of age. The dues are $3.50 per year, payable in advance, which includes one subscription to the Geological News-Letter. A Junior is an individual between the ages of 18 and 21. Dues are $1.50 per year, payable in advance, and include one subscription to the Geological News-Letter.

Date . . . . . .

I, ... (please print full name) do hereby apply for membership (junior membership) in the Geological Society of the Oregon Country, subject to the provisions of the By-Laws.

Home address . . . . . Phone . . . . . .

Business Address . . . . . Phone . . . . . .

Occupation . . . . . .Hobbies. . . . . .

I am particularly interested in the following branches of geology: . . . . . .

. . . . . .

I enclose $. . . for the year's dues, March 1 to March 1. (Checks payable to the Society).

. . . . . Sponsored by . . . . . .
(signature) (member)

PORTLAND CHAPTER ANNOUNCEMENTS

LECTURES: On 2nd and 4th Fridays of each month at the Auditorium (3rd Floor) of the Public Service Building, 920 S.W. 6th Ave., at 8:00 p.m.

TRIPS: On Sundays following lecture meetings, or as otherwise arranged. Meeting place at Public Market, Front and Yamhill.

LUNCHEONS: Every Thursday noon at the Winter Garden, 425 S. W. Taylor street (north side of Taylor street between S.W. 4th and S.W. 5th Avenues). Luncheon sixty cents.

FRIDAY EVENING MEETINGS

Friday Dec.11 — Speaker: Lloyd L. Ruff, Associate Geologist, U. S. Army Engineers.
Subject: Western Montana, the Land of Ripple Marks.

This will be a travelogue through northern Idaho and western Montana where the speaker spent two and a half months this past summer with a seismograph field party engaged in subsurface exploration work.

The lecture will be illustrated by Kodachrome slides. Geological specimens will be on exhibit.

Friday Dec.25 — NO MEETING. MERRY CHRISTMAS.

FIELD TRIP

Sunday Dec.13 — The details of the field trip for Sunday, Dec. 13, which were promised in the last issue of the News Letter have not yet been sent to the editor. The suggestion that members acquire copies of Ray Treasher's map and paper on the "Geologic History of the Portland Area" is still a good one. This material will come in handy frequently. The publications may be purchased in Room 702, Woodlark Building, Portland.

SALEM GEOLOGICAL SOCIETY

Lecture

The next lecture will be held at 8:00 p.m., the third Thursday of the month; DECEMBER 17, in Collins Hall, Willamette University, Salem, Oregon.

Speaker: Carl P. Richards, Civil Engineer, Salem.

Subject: CAN STARS BE SEEN IN DAYLIGHT? - AN EXPERIENCE WITH A 300 FOOT CHIMNEY.

The statement that stars can be seen in daylight, if the sky is viewed from a deep well or from inside a tall chimney, is widely accepted, but rarely checked. In this lecture the speaker will analyze the conditions and requirements involved in the statement, basing his remarks on his experience with a concrete chimney, 300 feet in height. When regarded in the light of the astronomical principles which govern the situation, the problem is not as simple as it appears at first sight. These principles will be discussed, showing how extensively they act as limiting conditions in this investigation. A number of drawings and photographs will be thrown on the screen to make clear the various parts of the subject.

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THE EDITOR CLEARS OFF HIS DESK

by O. E. S.

Not a bad looking desk, now that one can, after long eclipse, see the grain of the oak wood under the glass top. Looking at it, I am moved to wonder why I do not more frequently clear away the accumulation of books, magazines, letters, manuscripts, and the paraphernalia for mounting Kodachrome slides, not to mention the many odds and ends that have been used and pushed aside to await a more auspicious time for discarding or putting in their right places. Or why not strain a point and keep the place in an orderly condition all the time? The sight of the broad expanse of polished wood brings to mind the days when it was newer, and occupied a small office on the top floor of the Chamber of Commerce Building, long ago wrecked to make room for a parking lot; days full of promise and hope.

Under the front edge of the glass top are some photographs that have been placed there from time to time, and have remained undisturbed - some of them for years. Just why these are here and not in boxes in the cellar is not known, but here they are. At the left is an ornamental cross that stands on the top of a pyramid in Cholula, Mexico. The pyramid was old and covered with vegetation when the Cholulans built on it the large hemispherical temple to Quetzalcoatl which was destroyed by Cortez and his followers and replaced by a chapel dedicated to Nuestra Senora de los Remedios. The cross which stands in front of the chapel is fairly new, having been erected in 1666.

Next to the cross is a picture of Lake Louise; not by any means the prettiest body of water in my collection of photos, nor even the most attractive picture of this lake that I have, but here it is, and here it has been for a long while. Who knows why? I don't. The Skidmore fountain is the third "work of art". This is a flash-light shot, made in the hope that some of the unattractive background might be shrouded in merciful darkness. The background faded, but the general result shows pitiful lack of experience with use of the flash bulbs. Before I had gotten back into my car after making this shot two policemen in a prowl car appeared from nowhere in particular and stopped alongside to look me over and to see that the fountain was still functioning.

My granddaughter's yellow cat proudly stares at me from the next space. This happens to be the most successful of the "forty-'leven" cat pictures that I have attempted, and the only one of this particular animal that is worth printing. His mistress daily places flowers on the little mound that marks his resting place.

A group of Indian baskets is next. This is a copy of a most excellent photograph of some of the finest basket work of the Alaska Indians. The original is in the collection of the late C. F. Weigand, and was made by Curtis who was a member of the Harriman expedition to Alaska in 1899. I keep this print to remind me of the possibilities in photography, and to spur me on to better work.

An ocean scene, framed between two storm beaten trees at Ecola Park has an appeal because of the trees, the rugged, wave-lashed rocks, and the delicate foreground of slender grasses. And then, you understand, I made it myself (the photo, I mean). Perhaps you have something that you have made which has a similar appeal to you. If you haven't, please accept my sympathy. The last, and largest, is a picture of the John Day river, winding into the hazy distance between rocky bluffs spotted with dark junipers; the whole scene framed by the trunk and overhanging limb of a large juniper on the river's bank. Admittedly this is not a world beater

(continued on page 192)

A VISITOR FROM A DISTANT PLANET*

A glinting mass of cold gray steel is speeding in its course through empty space at a hundred times the velocity of a rifle bullet. Along this course it has darted unhindered for millions of years, but on this fateful day disaster hovers near.

Out in the distance ahead looms a giant sphere which seems to grow in size at an alarming rate. Were the mass of steel able to hold true to its course a collision might be averted; but as the two objects approach each other, the smaller mass comes under the gravitational influences of the larger and is compelled to move toward it and to move with increasing speed.

With lightning-like suddenness the flying mass of steel plunges into the blanketing atmosphere of the earth. Though frigid, it pierces the atmosphere with such violent speed that the resulting friction is devastating. Its surface instantly flashes out into a blazing rocket of dazzling splendor. Sparkling and sputtering in a racing fountain of flaming incandescence, it thunders downward through the resisting sea of air with the noise of a thousand dive bombers.

Amid a din of roaring, booming, screeching and whistling the space-traveler approaches the earth. As it does so the accumulated buffer of compressed atmosphere in front of it dissipates itself in a terrific blast which opens the way and the giant projectile plunges into the solid rock of the earth's crust.

Now nature has decreed that energy shall not be lost or destroyed. Consequently, when a moving mass in compelled to stop, its energy of motion must be absorbed by the molecules of whatever materials are at hand. As the bullet melts itself and heats up the steel plate against which it is fired, so the immense volume of energy in this great mass of steel is quickly absorbed by the molecules of which it is composed and by those of the stone into which it has plunged. These super-charged particles now leap with twenty times the violence of exploding T.N.T., shattering and lifting the surrounding rock strata, and hurling skyward millions of tons of fragments. These fall in a crushing shower, half filling the hole and forming a mountainous collar surrounding it. Fine dust and gases arise in a mighty cloud. Thousands of tons, caught in the swirling rush to fill the evacuated path of the meteorite, are borne away in the strathosphere.

Thus a giant bomb from space produced the greatest bomb crater on the Earth.

The World's Greatest Bomb Crater

Imagine the Rose Bowl or the Yale Bowl enlarged to seat 2,600,000 people and you can visualize the extent of the great Barringer meteorite crater in Arizona. The largest bomb craters produced by man have been less than 100 feet in diameter. There would be room in the great Arizona meteorite bowl for 10,000 such craters and plenty of space left between them. When the Universe besieges us man's puny efforts at destruction dwindle to insignificance.

Man has had very little experience with celestial bombs. But his history has covered an extremely brief span in the geological career of our planet. The

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siege from the skies goes on at a very leisurely tempo, but is no less real because it is slow. If the eight-month's siege of Britain had been spread over several geological ages, the Londoners would never have discovered that they were being bombed. Man only recently has begun to realize the extent of the heavenly siege to which the earth has been subjected since it was born to membership in the solar family.

The Moon Tells a Story

Glance at the face of the moon as seen through any good telescope with a 6-inch lens, or larger. There you may see the record. For the Moon has been subjected to the same hail storm of meteorites as has the Earth. And the moon cannot keep a secret as well as Mother Earth. Here the forces of wind, water and frost, rapidly wear down and finally erase any scars that are produced by bombings from space. They are swept full, scrubbed away, or conveniently covered with a luxuriant carpet of vegetation. But on the Moon, things are different. There is no air or wind; no water or frost; no waves or streams; no growth or decay.

Whatever craters have been produced on the Moon, are still visible, unless other celestial bombs have arrived later, to blast them out of existence. Only a little study of her surface reveals that this has happened again and again until her surface is more pitted than a bomb-scarred battle field.

Also, on the Moon other conditions are different. Gravitation is very weak - only one-sixth as great as on the Earth. Rock materials there are lighter than wood is here. Material is easily moved, and, because there is no air resistance, when an object is thrown it goes a long way. Hence when a meteorite strikes, it throws rock fragments many times as far as would the same blast here on the Earth. Meteorite craters on the Moon are in many cases 50 or 60 miles across and 3 to 5 miles deep. Without her protective atmosphere the Earth would have presented a similar appearance.

A New Idea

Completely new ideas are rare in geology, as they are in most other realms of thought. It was not until the 1880's that anyone thought of meteorite craters on the earth. Consequently, when Dr. D. M. Barringer, a mining engineer, set out at the turn of the century to prove that the great bowl-shaped hole near Winslow, Arizona, had been caused by the fall of a meteorite, his theory was regarded as a joke. The "big shots" in geology hastened to assure their listeners that this crater was the result of a steam explosion caused by underground sources of heat. They clung to this view in spite of the fact that the crater showed not the slightest evidence of volcanic action. Since they occupied responsible positions and spoke with authority they were believed and their believers in turn added weight to the opposition which Dr. Barringer had to face. Unfortunately, all of his early attempts to discover a meteorite in the crater failed. This gave more comfort to the enemy. But Dr. Barringer was not one to give up. He persisted, spent large sums of money, and for 20 years worked, surveyed and resurveyed; searched and searched again. Finally, after concluding that the meteorite had come in at an angle instead of vertically, his drill encountered meteoritic material at a depth of 1346 feet beneath the crest of the southern rim.

By this time (1923) opposition to Barringer's idea had developed into a sort of tradition. To oppose was orthodox; to endorse was unsound. Consequently, the opposition spoke fearlessly, and though Barringer continued to insist that his

case had been proved, even his colleagues said little in his defense. Belief in his idea gained slowly. Meanwhile, a second, smaller crater had been found near Odessa, Texas. But only one man, D. M. Barringer, Jr., was willing to put himself on record by pronouncing this a meteorite crater. It was not until a group of 13 craters were discovered in Australia in 1931 that opinion began to swing to Barringer's side of the controversy. He died before his theory met with general acceptance. But today, no one whose opinion deserves serious consideration doubts that the Barringer crater was caused by meteoric impact.

The exact time of this great fall cannot be known. The most careful estimates place it from 20,000 to 50,000 years ago. But whatever the date, we are sure the area that is now Arizona received a terrific jolt and the earthquake spread out hundreds of miles in all directions. More than 300 million tons of solid rock was shattered and heaved aloft by the blast. Thus was piled up a ridge of fragments encircling the crater pit, averaging about 150 feet high at its crest and extending outward to a width of more than a half mile. On a clear day this ridge can be seen from a distance of 20 miles or more. Many scattered mounds mark the landing of rock fragments out to a distance of more than a mile from the pit. Although the present floor of the pit is only 570 feet below the rim, Barringer's explorations proved that the real bottom of the crater reaches a depth of 800 feet below this level. In other words, the crater is now filled in more than half way to the top.

An area of about 100,000 acres surrounding the crater was found to be more or less sprinkled with lumps of meteoritic nickel-iron. Large chunks of 100 pounds or more were sparsely scattered over this entire area and smaller ones more abundantly near the crater. By the use of a magnetic rake, in 1939, we discovered that very small fragments the size of grains of corn and larger, were scattered out to a distance of about 2½ miles in all directions from the crest of the rim. Our survey indicated that from two to three millions of these fragments are embedded in a one-inch layer of soil over this area. No complete record has been kept, but probably 15 to 20 tons of the larger pieces from one to 1400 pounds have been gathered from an area of 160 square miles since the first pieces were picked up in the late 80's. In addition to these metallic specimens, there are millions of oxidized pieces. A survey indicates that the oxidized material is at least 100 times as abundant as the metallic particles. These oxide fragments were derived from the metallic masses which have been rusted through and broken down by weathering.

The fact that the crater lies in an area that is so richly sprinkled with meteorites would have been sufficient reason for geologists to at once conclude that it was of impact origin and not volcanic, had they believed in the existence of such craters. However, there were plenty of other reasons for not considering the crater volcanic.

Volcanic craters generally lie in the tops or on the sides of volcanic cones. Their floors are usually elevated above the surrounding plain. Meteorite craters, on the other hand, have floors well below the level of the terrain outside their rims. The walls of volcanic craters are composed of lava, but not so with meteorite craters unless the fall has occurred in a lava formation. Steam explosion craters may have their floors below the general level but these, like true volcanoes, always extrude more or less of lava after the explosion. Also, meteorites were found mixed in with the debris which forms the rim of Barringer's crater, proving that either the meteorites had fallen previously or else they fell at the same time the crater was formed.

Finally, in the pit and in the rim of the crater are deposited millions of tons of rock flour. This consists of the finely pulverized fragments of sand grains and has been produced by the shattering of the sandstone into which the missile penetrated. A considerable amount of this finely powdered silica has been re-fused into a very light porous substance resembling pumice. To fuse silica requires a temperature higher than is known to have been produced in any steam explosion crater. But this is not too high a temperature to be developed by the impact of a meteorite. Even the slower speeds of large meteorites are more than sufficient to produce such temperatures upon their impact with the solid earth. This brings us to the question of what became of this great meteorite.

Where Is the Meteorite?

During recent years the most controversial question concerning the Barringer crater has been "What became of the Meteorite?" Even Dr. Barringer himself admitted that with all of his drilling and digging he never encountered any large solid body. Meteoritic material was unquestionably encountered in the drill hole that was sunk from the southern rim. Also, later, in two holes which were put down in the southwestern part of the pit. But in all of these cases the drill passed intermittently through meteoritic material and rock fragments. So far as is known, no large solid body was ever encountered.

Lately, several small meteorite craters have been excavated. First, the Haviland crater in Kiowa county, Kansas. Afterwards one in Australia and some in Texas. In all of these, conditions were very much the same, namely, after the filled-in contents of the crater were removed, a group of meteorite fragments were found scattered over the bottom of the bowl-shaped pit. In the Haviland crater the fragments numbered thousands. In others hundreds, or only a few, were found. In all cases, the fragments appeared to be the result of a breaking up of one parent mass as it entered the soil.

Experiments with Bullets

Men interested in gunnery have learned through experiments that when a projectile is fired at great speed against a target it undergoes a more or less complete explosion, depending upon its velocity, its composition and the nature of the target. It may be simply flattened, burst into fragments, or be completely transformed into dust and gases. In other words, it may, depending upon its velocity, under go any degree of disintegration to the point of becoming a violent explosive.

The Barringer crater possesses all of the ear marks of an explosion crater. Its circular form, with steeply uplifted strata facing the pit; the profuse heap of ejected fragments immediately surrounding the crater, but reaching only about the distance that their size and irregular form would allow them to be thrown against resisting atmosphere. Larger specimens were scattered much farther. The large deposit of rock flour, the fused silica deposits and the admixture of minut oxidized fragments in the material which fills the lower part of the pit all are in harmony with the explosion theory, but not necessarily indicating a very complete explosion.

How much of the meteorite remains in the depths of the crater cannot at present be known. Magnetic surveys have indicated a considerable bulk of material in the southwestern sector of the pit and under the southern rim. Indications have also been found of magnetic material to the south of the pit. In my opinion ther

are thousands of tons of fragments in the bottom of the pit under its present floor. Some of these may be as large as an automobile or even larger. They should be more abundant in the southwestern part of the pit than elsewhere and great numbers are buried in and under the rim as well as out on the surrounding plains.

But this scattering of fragments represents only a minor part of the great mass which produced the crater. The colliding mass may have weighed a million tons. Certainly it was large, and the blast which it produced would have been a spectacle worth going far to behold providing one could have been stationed at a safe distance of perhaps a hundred miles.

Only one such event of comparable magnitude has been witnessed by man in historic times. That was the fall in Siberia, June 30, 1908, when a group of large meteorites plunged into the forested wastes of north-central Siberia. There, not one but many craters were formed; but all of relatively small size, the largest only a few hundred feet across. All together, the swarm was probably far less in weight than that which produced the Barringer crater. Yet it laid waste several hundred square miles of forest, flattening it to the ground. Those few inhabitants who were within 30 to 50 miles of the impact found it a trying ordeal. Some were thrown down and rendered unconscious for a time. Their dwellings were wrecked and a large herd of reindeer which had been feeding where the impact occurred was completely exterminated. Fortunately for man, such events have been very infrequent in the earth's history.

The Meteorites

Meteorites which arrive on the earth are in most cases composed of stony matter in which are embedded abundant small particles of nickel-steel. Some are composed of about equal parts of stone and metal, while others are entirely metallic, or nearly so. The Barringer crater was produced by one of the latter variety. The meteorites which have been picked up in the vicinity of the crater may be assumed to be the fragmentary remains of the great mass which collided with the earth at that point. They are composed mainly of nickel-steel with numerous inclusions of sulphide of iron, carbon and a phosphide of nickel iron known as Schreibersite. Platinum is present to the amount of about one-fifth ounce per ton. There are also traces of copper, chromium, cobalt, and several other common minerals. Nickel constitutes about 5 to 7 percent of the whole. Iron constitutes from 80 to 90 percent.

The meteorites are very difficult to cut, far more difficult than ordinary steel due to their content of schreibersite, silica, sulphide and carbon. The latter is sometimes in the form of a diamond.

When a polished section of the meteorite is properly treated with acid there develops a striking pattern of lines and areas known as Widmanstatten figures. This pattern is readily destroyed or greatly dimmed by heating to about the point of redness. Many of the specimens that have been cut show that they have been heated so that the Widmanstatten pattern is very weak or entirely destroyed. Others show a very beautiful pattern.

Diamonds

Many people, on hearing that diamonds have been found in meteorites, imagine that the meteorites are sought as a source of gems. However, no diamond of gem quality has ever been found in any meteorite. Though comparatively numerous in

the Barringer meteorite the diamonds so far discovered have all been of the carbonado variety which consist of microscopic crystals embedded in a matrix of graphitic carbon. They are very unattractive in appearance; but are so hard that they scratch carborundum and readily cut grooves in grinding stones made of that material. They have no value.

Meteorite Jewelry

When picked up the meteorites are always covered with a heavy layer of rust which has slowly accumulated through thousands of years. But when this layer is ground off and the bright metal exposed it may be polished into a very attractive piece. While being worn they seldom tarnish or rust, and many people find it quite thrilling to wear a bit of "other world jewelry." Charms, pins, ring sets and even necklaces have been made from meteorites. Book-ends, paper weights and pen-stands are also favorite articles among those who appreciate rare and significant articles.

A Message from Space

A hieroglyphic message is written on my face
Recording ancient happenings far in the depths of space
It tells of my beginnings where fiercest fires held sway,
My leap into ethereal space and how I sped away.

A diary of my wanderings, lonely 'mongst the stars,
A thousand of such incidents as Jupiter and Mars.
I've watched a host of planets grow from out the spacial voids;
Witnessed lunar peltings and played tag with asteroids.

I held my course through solar heat, likewise through frigid space.
I wooed the lovely Pleiades and gave Orion chase.
I know severest loneliness from all celestial forms;
Likewise the social gaiety of cometary swarms.

Freely through ethereal space I loved my course to steer,
But trapped at last, fell victim to earth's dread atmosphere.
In arid wastes I landed, then, smote by desert sand
My skin deep brown was varnished by oxygenic hand.

-H. H. Niniger

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THE EDITOR CLEARS OFF HIS DESK (continued)

in the photographic field, but aside from being interesting (to me) as a picture, it brings back the memory of a delightful trip through a setting as colorful as the Grand Canyon of the Colorado, and nearly as interesting geologically, while at the same time it is much more accessible to us in Portland. And how does it happen that I am so pleased to see these old friends that I break into print about them? Well, it's this way. I am allowed to keep this desk in the dining room on the condition that when people are invited to the house the desk shall be made as presentable as possible. And tomorrow a group of very cultured and dignified ladies are to spend an intellectual afternoon in our too-small quarters, so I have no alternative but to carry away the usual overload of miscellany that accumulates between "visitations" of people who are not supposed to know that the desk is used by an editor and at times looks like an editor's desk. Even the old letter basket that was originally a "knife and fork box" eighty years ago, when black walnut was cheaper than pine in Iowa, has been carried to the basement, there to remain for "the duration", which in this case will terminate tomorrow at sundown. After that I shall gradually get a few of my things back where I can find them.

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GEOLOGICAL NEWS LETTER

OFFICIAL PUBLICATION OF THE

'OL. 8 NO. 24 PORTLAND, OREGON December 25, 1942

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THE GEOLOGICAL NEWS-LETTER
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MEMBERSHIP APPLICATION
GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

Qualifications and Dues: Applicant must be sponsored by a member and recommended by the Membership Committee. A knowledge of geology is not a requisite. There is no initiation fee. A Member shall be over 21 years of age; or a husband and wife and all children under 18 years of age. The dues are $3.50 per year, payable in advance, which includes one subscription to the Geological News-Letter. A Junior is an individual between the ages of 18 and 21. Dues are $1.50 per year, payable in advance, and include one subscription to the Geological News-Letter.

Date . . . . . .

I, ... (please print full name) do hereby apply for membership (junior membership) in the Geological Society of the Oregon Country, subject to the provisions of the By-Laws.

Home address . . . . . Phone . . . . . .

Business Address . . . . . Phone . . . . . .

Occupation . . . . . .Hobbies. . . . . .

I am particularly interested in the following branches of geology: . . . . . .

. . . . . .

I enclose $. . . for the year's dues, March 1 to March 1. (Checks payable to the Society).

. . . . . Sponsored by . . . . . .
(signature) (member)

PORTLAND CHAPTER ANNOUNCEMENTS

LECTURES: On 2nd and 4th Fridays of each month at the Auditorium (3rd Floor) of the Public Service Building, 920 S.W. 6th Ave., at 8:00 p.m.

TRIPS: On Sundays following lecture meetings, or as otherwise arranged. Meeting place at Public Market, Front and Yamhill.

LUNCHEONS: Every Thursday noon at the Winter Garden, 425 S.W. Taylor Street (north side of Taylor Street between S. W. 4th and S. W. 5th Avenues). Luncheon sixty cents.

FRIDAY EVENING MEETINGS

Friday Dec.25 NO MEETING. MERRY CHRISTMAS.

OUR PRESIDENT'S CHRISTMAS GREETING

Peace on earth, good will toward men! What a long way we seem to have come from the spirit of the season! We are entering our second year of participation in global warfare, yet to most of us the war has brought but little real suffering. Only one family of our group, to my knowledge, has felt its greatest tragedy. To the others, its only pain has been that of separation from loved ones. We can only hope that this will remain their greatest sorrow. However, the grim reaper has not been completely idle in our ranks. To the families of those who have been taken we can wish that the true spirit of the season will prevail to ease their sorrow. To those who are ill we wish the early return of good health. And to the rest of our members, who have been faced only with readjustments in their way of living, we can do no better than quote the old song: "Count your many blessings."

May each and everyone find in the fullest measure the real joy and comfort of the Christmas season. May the coming year hold no fears and bring only the joy of being alive. May we, in the fellowship of our Society, continue to find the truth of living, in the pages of history written by Mother Nature.

H.B.S.

THE AMERICAN METEORITE LABORATORY

Owing to the recent upheaval which resulted in disturbing things on the editor's desk to a degree quite comparable with the fall of the great Barringer meteorite in Arizona, an important announcement was omitted from the last issue of The News-Letter.

Dr. Nininger kindly granted permission to reprint a part of his booklet: "A Comet Strikes the Earth", and sent the editor a copy of the book. And then how did the editor react to this generosity? He reprinted the article and allowed an important account of a very local disturbance to crowd out the acknowledgement of his obligation to the good doctor, to whom he now publicly apologizes.

The book, "A Comet Strikes the Earth" is a very unique volume. The front cover bears the title and a picture of a comet heading for the lower left-hand corner where it imbeds itself in a hole that goes clear through the book and is found glued to the inside of the back cover. The author, a noted expert in the field of meteorite study and literature certifies that this bit of material is "a small genuine meteorite".

There is a chapter on "How to Recognize Meteorites" and another on "Visitors From Space" which tells what a scientist should do when he sees a meteorite.

Whether these chapters are later printed in The News-Letter or not, the editor believes that every member of the Society should provide himself with one of these compact little volumes containing much information about meteorites in a small space.

Dr. Nininger is also prepared to furnish museum specimens of various types of meteorites, polished or rough, at small cost. Or if you have specimens to sell, he will take them off your hands.

The office of the American Meteorite Laboratory is at 635 Fillmore Street, Denver, Colorado. The price of the booklet is only thirty-five cents.

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DISCOVERER OF THE WILLAMETTE METEORITE DIES

Funeral services for Ellis Hughes, 83, who won fame back in 1902 as the discoverer of the sixteen ton Willamette meteorite on a wooded hillside near Willamette were held in Oregon City Saturday, December 12, 1942.

The Oregonian says that although he was the undisputed discoverer of the meteor, Mr. Hughes lost title to his find when the circuit court of appeals ruled that meteorites belonged to the owner of the property on which they fall.

After discovering the meteorite, which now is exhibited at the American Museum of Natural History, New York, Mr. Hughes rigged up a wooden-wheeled truck and moved the huge slab to his own land where he built a house around it and charged 25 cents admission to visitors.

It is hoped that we may later have an account of a field trip made to the location of the Willamette meteorite find by the Geological Society of the Oregon Country.

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FRIDAY EVENING MEETING, DECEMBER 11, 1942

Lloyd L. Ruff, member of the Geological Society of the Oregon Country, who has recently spent some time on a flood control survey of the Clark's Fork river in western Montana and northern Idaho, and collected some interesting specimens and Kodachrome pictures of that part of the country, gave a very interesting description of his work and of what geologists have decided the country looked like ages ago, when the glacial ice had dammed the river, holding back 500 cubic miles of water (50 times as much as the volume of Lake Mead). Several specimens of rock showing ripple marks were shown, and we have Mr. Ruff's word for it that there were some ripple marks which he did not bring home with him, that were fifteen feet high and were from 250 to 500 feet from crest to crest. It has been estimated that the outflow from this huge reservoir was at one time about nine and a half cubic miles per hour, which Mr. Ruff says, was about a hundred times the flow in the Columbia River flood of 1894. Mr. Ruff referred to the G.S.A. Bulletin for November, 1942, for further data about this interesting territory. This would be a nice place for a field trip if time, gasoline and rubber were not as they are.

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UNUSUAL CURRENTS IN GLACIAL LAKE MISSOULA, MONTANA

By J. T. Pardee

Bulletin of the Geological Society of America, Vol. 53, No. 11, November 1, 1942.

Review and discussion by C. P. Holdredge.

The abstract and introduction of this paper form, together, an excellent summary of it and are quoted herewith:

Introduction

In the Pleistocene much of the Clark Fork drainage basin in northwestern Montana was briefly submerged by "Glacial Lake Missoula" (Pardee, 1910). A lobe of the Cordilleran glacier advanced southward along the Purcell Trench into northern Idaho where it occupied the basin of Pend Orielle Lake and crowded up the valley of the Clark Fork River to a position near the Montana State line. The water thus impounded in the Clark Fork Valley rose to a maximum altitude of 4150 feet or about 2000 feet higher than the floor of the valley just above the dam. On the east, south, and west it was held in by mountains, and on the north possible outflow channels were blocked by other lobes of Cordilleran ice.

The ice dam is thought to have failed, permitting a sudden large outflow. The consequent depression of the water surface in the arm of the lake above the dam caused huge and rapid currents in the narrow valleys and passes connecting this arm with the wider depressions in the lake basin farther east. The record of these currents are described. The interpretation of certain gravel deposits and denuded surfaces in the Perma and Paradise narrows as the effects of such currents differs from that of Davis (1921) who regarded them, respectively, as "moraines" and "ice scoured slopes." Field work by W. C. Alden and the writer has failed to uncover any evidence of glacial origin.

Not long after the rapid outflowing ceased the basin again held a lake. So far it is not clear whether this body was part of the original ponded water whose escape had been halted or a new filling. In contrast to the earlier outrush, final draining seems to have been very slow.

Abstract

The area submerged by Glacial Lake Missoula includes several intermontane basins and constricted interconnecting valleys or "narrows" that drain to a single outlet, the Clark Fork River. A sudden failure of the ice dam that blocked this valley, near the Idaho-Montana State line, caused unusually large and rapid currents through the narrows and wind gaps in the partly submerged rim of Camas Prairie basin. Evidences of such currents include commensurate, but otherwise ordinary, effects of streams confined to rocky channels and the unique giant ripple marks. At its high stage the lake is roughly estimated to have held more than 500 cubic miles of water of which nearly three-fourths was stored above a constricted part of the Clark Fork Valley called the Eddy Narrows. Calculations based on available incomplete data indicate a flow through the Eddy Narrows that reached a maximum of 9.46 cubic miles per hour. Whether the lake was completely drained at that time has not been determined, but a later set of beaches testifies that the basin held a lake soon after the rapid outflow. Apparently the final draining was gradual.

. . . . . .

This paper is exceedingly well written and represents a vast amount of careful work by Pardee and his associates. In presenting evidence for his conclusions he describes in detail the deposits formed in "Glacial Lake Missoula", which include: Moraines and erratics, silt, deltaic deposits, beaches. He also describes all the land forms represented by these deposits. In addition he describes the work done by the lake waters as they escaped rapidly from the basin following the failure of the ice dam. The paper is especially well illustrated with photographs, maps and sketches.

Some of the most striking features are the "giant ripple marks", the stream-denuded surfaces in the narrows which are in a way comparable to the scablands described by Bretz and others lower down in the Columbia Valley, and the high eddy deposits.

While no reference is made by Pardee to Bretz's papers dealing with the Spokane Flood and its deposits and erosional work, it is not difficult to see a striking similarity. In fact the similarity is so striking that it is self evident that the sudden failure of Pardee's Glacial Lake Missoula ice dam was the source of Bretz's Spokane Flood. Thus Pardee's work becomes an excellent argument for Bretz's conclusions. There seems little doubt but that the work of these two men has now so well established the Spokane Flood theory that it will become universally accepted.

While Pardee's paper seems beyond criticism - and criticism is not within the scope of this review - it should be mentioned that it does not include a discussion of the manner in which the lake was dammed and the mechanics of the ice dam failure. This problem is one which holds many interesting possibilities. One important question occurring to this writer at the moment is the dimensions of the ice dam. How long was it and how deep was the ice? If the glacial lobe damming the Clark Fork Valley pushed up as far as the Idaho-Montana State line it must also have extended down the Clark Fork Valley perhaps beyond the Idaho-Washington State line thus making the ice dam fifty or more miles long. Since the water against the ice dam was 2000 feet deep, the ice in the vicinity of Pend Orielle Lake, and at the point where the lobe entered the Clark Fork Valley, may have been considerably thicker. Thus when the ice dam failed there may have been a high wall of ice bordering this part of the Clark Fork Valley on the north. The second damming of the valley about which Pardee speaks may well have been accomplished by encroachment

of this wall of ice after the first lake had completely drained away. If the encroachment of the ice was sufficiently rapid, and the accumulation of the water in the lake sufficiently slow, the formation of the second lake may have been thus formed. In this case it is not difficult to imagine a second ice dam failure, and even a series of subsequent failures. If the original ice dam failure is to be correlated with the Spokane Flood, subsequent failures would have resulted in subsequent floods. The deposits of the Spokane Floods, especially in the Walla Walla and Yakima Valleys, indicate that such a series of Spokane Floods did occur. It would seem that the series of beaches figured by Pardee in Figure 1, Plate 5, and Figure 2, Plate 8, could represent a series of lakes each rising to a slightly lower elevation because the Cordilleran ice sheet was gradually melting and the ice sheet which was encroaching upon the Clark Fork Valley from the north was each time thinner. Thus with a thinner ice sheet forming the dam it was not necessary for the water in the lake to rise so high in order to float out the dam.

C.P.H.

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NEWS FROM THE "NEAR EAST" (KANSAS)

Grace Poppleton sends to the News-Letter the following news from Ava Bickner who is now an army nurse, stationed at Ft. Riley as a member of Base Hospital Unit No. 36, from Portland. She is quartered in a new barrack built for the W.A.A.C.s and occupies the sixth bed of a row of sixteen. (Isn't it lucky she learned to count?) She says:

"We had driving lessons the other day. All those who had civilian driver's licenses had lessons in driving ambulances. They are Dodge trucks and have five gears and you have to double clutch them, but boy! there isn't anything you can't do with them. They have four wheel drive and it is almost impossible to get them stuck. They have a compound low which you use when you go almost straight down and almost straight up, over rock walls, logs and everything. (Here follows a sketch showing two ambulances going almost straight down and straight up). It was harder to hang on in the back than it was to do the driving.

"Sunday a bunch of us went for a ride in the tanks. There were twelve of us in four tanks. They gave us coveralls to put on and helmets that look like football helmets, and goggles. Gee, it sure was a lot of fun! Went over logs and ditches almost straight down and straight up. (No sketch here. Ed.) They can make a right angle turn, too. Went about fifty miles and home over the highway--siren blowing--Gee, it was fun!"

Miss Bickner reports cold weather and turkey dinners with a prospect of venison--compliments of a doctor who can shoot as well as repair the damages from shooting.

The best wishes of the Geological Society of the Oregon Country go with Miss Bickner wherever she may go.

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THE ORE.-BIN

With the starting of the New Year just around the corner, it may be well to call attention again to the "Ore.-Bin" published by the State Department of Geology and Mineral Industries, 702 Woodlark Building. This little publication contains many articles of interest to our members. Subscription price is 25 cents a year.

H.B.S.

REPORT OF THE NOMINATING COMMITTEE

The following report of the nominating committee was sent to Miss Florence Iverson, Secretary.

"The Nominating Committee of the Geological Society of the Oregon Country submits herein its recommendations for officers for the Society for the ensuing year.

President . . . . . Lloyd Ruff
Vice President. . . . . Mrs. Amza Barr
Secretary . . . . . Florence Iverson
Treasurer . . . . . Leo Simon

Director--Long term . . . Ray Baldwin
Director--Short term. . . Dr. Courtland Booth

Respectfully submitted,
Mrs. Mildred James
Mrs. Leo Simon
E. W. Minar
A. W. Hancock
A. D. Vance, Chairman"

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LUNCHEON NOTES FOR DECEMBER 3, 1942

Attendance at the Thursday luncheons is picking up, following the pre-Thanksgiving slump. Seventeen were present on December 3rd. Mr. Nixon brought his wife, and told a little about a trip to Washington on Government business - probably as much as can be told in war time. Major Motz a former member of the staff of the State Department of Geology and Mineral Industries was a guest.

Mr. Minar had a specimen of lime rock which came from the vicinity of Arlington and is said to be the same kind of rock that is used in smelting iron ore.... Miss Henley distributed specimens of Kermite from the Pacific Coast Borax Company's property in Death Valley.....John Allen brought a quartz crystal and a piece of Rhyolite breccia re-cemented with Chalcedony. Mr. Libbey spoke about the bulletin on Tin in Oregon, recently issued by the Department of Geology and Mineral Industries. It was understood that this bulletin settles for all time the question of tin in Oregon....Mr. Nixon took a day off from his government mission and went to Fredericksburg, Va., where he looked over the battlefield and graveyards. He also said that the Government is looking for quartz crystals weighing more than half a pound each. They need not be absolutely colorless, he said, but should contain no foreign matter....Lloyd Ruff said that Kermite readily absorbs water, but is found in a dry state in the desert. One company, he said, shipped it to the coast where it took up about thirty percent of water upon which the company did not have to pay freight, giving this company that much advantage over those mining borax and shipping it as such....Leo Simon, whose photograph had recently appeared in the Oregon Journal, told of a hobby meeting of the Men's Garden Club where he put on a geological exhibit that attracted considerable attention.

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First doctor: "I had an unusual case today."
Second doctor: "What was it?"
First doctor: "I attended a grass widow with hay fever."

LUNCHEON NOTES FOR DECEMBER 10, 1942

The Thursday Luncheon Group was given a smaller room at the Winter Garden restaurant for its December 10th meeting, and nearly had to put up a "standing room only" sign, but the late-comer, Business Manager Raymond L. Baldwin managed to find a seat. We are at loss to find a reason for his late appearance, as he has for years been one of the first to be seated at the table.

Hy Wood brought a specimen of polished hematite from southern Utah which he thought might have been wind polished, but others were inclined to think the polish was the result of desert varnish.....Mr. Deardorf and Mr. Koehler of the Soil Conservation Service were visitors as was Mr. Orr, who had been recently working in Washington, Montana and British Columbia.....Mrs. Jones brought word from Dr. Arthur C. Jones that he is working in the Letterman General Hospital in San Francisco, with hours from eight in the morning to eight in the evening, and all night every other night, and a half day all to himself once a week. Sounds like a full time job which might well be split with another doctor of whom we heard who is driving vegetable wagon in a Texas camp. It appears that this hospital is the only one equipped for fever therapy, and for doing rehabilitation work in nerve testing. So maybe the Texas doctor mightn't be of much assistance there.....President H. Bruce Schminky called attention to the new "nickelless nickels", one of which he had received in change. The large "S" over the dome of Monticello, he said, indicates that the coin was made in San Francisco. Dr. Booth suggested that it might also be used as the doctors use an "S" in their prescriptions, indicating "sin" meaning "without", so that we would know that this nickel was without nickel.....At this point it was thought best to adjourn.

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LUNCHEON NOTES FOR DECEMBER 17, 1942

Nineteen geologists, including Dr. Booth, who had been busy in Vancouver until after twelve o'clock, met at the Winter Garden restaurant for a very good luncheon on the 17th of December. Dr. Hodge and Dr. Nichols, who had not been able to meet with the group for several months were present. Mr. Nixon had as his guest Mr. Dixon who is with the Mining Division of the W.P.B. and is now working in this vicinity.

Dr. Nichols has been prospecting a high alumina clay deposit in the vicinity of Molalla where they have drilled a total of more than three thousand feet..... Tom Carney, who has recently been too busy in the Vancouver area "trouble shooting" on the electric wiring jobs of the new housing developments, took time off to bring a fine specimen of a crystal, originally from Brazil. He told about the construction work on the McLoughlin Heights project.....Mr. Vance had a clipping telling about a strange skeleton found on the beach near Waldport. Dr. Hodge read a part of the story and made comments.....Lloyd Ruff exhibited some selenite crystals he had secured in north-central Kansas. He did not know the exact location where they had been found.....President Schminky had a letter from Mrs.Arthur C. Jones telling of Doctor Jones' appreciation of the signatures of members of the luncheon group which had been sent to him.....John Eliot Allen thought the group should inform the restaurant management that we appreciate the excellent food we have been getting there recently.

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"An exaggeration is the truth that has lost its temper." Gibran

STEVENS AND STANLEY TO BE HONORED

Two members of the Geological Society of the Oregon Country are scheduled to receive life membership certificates in the American Society of Civil Engineers at the annual meeting of the Oregon Section of that society on January 8, 1943. They are Past President John C. Stevens and Editor of the Geological News-Letter, Orrin E. Stanley.

These certificates are given to men who have paid dues in the society for thirty-five years as corporate members. Four other Oregon men will be similarly honored at the same meeting.

The American Society of Civil Engineers was founded in 1852 and is the oldest national technical society in the United States.

Mr. Stevens has frequently contributed to the proceedings of the society, he was a Director in 1932-34, and in 1937 was awarded the Norman Medal for "the paper judged to be worthy of special commendation for its merit as a contribution to engineering science." which means for the best paper submitted in the year. This paper, "The Silt Problem" has a direct connection with geological studies, concerning as it does, the deposition of silt in the slack waters above dams.

He has also, as many of our readers know, invented and manufactured scientific instruments having to do with water measurement, and rainfall and snowfall gauging.

Mr. Stevens spent about a year in Spain on the construction of a hydro-electric project. While there he became convinced that the metric system of measurement should be more generally used and he and Editor Stanley organized a society for the promotion of the metric system in this country. That was twenty or more years ago, and we are still muddling along with feet and odd fractions of inches, with pounds and ounces, and with quarts, pints and gills. But this is not entirely the fault of these two enthusiastic reformers.

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GEOLOGICAL SURVEY BULLETINS

Bulletin 931-R. Manganese resources of the Olympic Peninsula, Washington, a preliminary report, by C. F. Park, Jr. 1942. pp. i-iv, 435-457, pls. 68-74, figs. 50-58. Price 35 cents.

The northern, eastern and southern parts of the Olympic Peninsula, Washington, contain many small deposits of manganese. Most of the deposits consist of complex manganese silicates with some carbonates, although 16,275 tons of hausmannite ore was mined at the Crescent mine during 1924-26. About a hundred tons of silicates have been mined from various properties, mainly for experimental purposes. Future production probably will not be large, because the silicate ores are of lov grade and are difficult and expensive to treat. Moreover, most of the deposits are difficult of access, and most of the ore bodies are small isolated lenses and thin tabular bodies. The greater part of the deposits are in red limestone or red argillite near contacts with basalt, but a few of them are in basalt. The report contains geologic maps of two areas and detailed maps of four manganese properties. It is one of the chapters of "Strategic minerals investigations, 1941."

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