GEOLOGICAL SOCIETY NEWS LETTER

Volume 13, 1947

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to
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Volume 13
Compiled by Miriam Shepard

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GEOLOGICAL SOCIETY NEWS LETTER

Volume 13, No. 1 January 1947

SOCIETY ACTIVITIES

LECTURES: On the second and fourth Fridays of each month at the auditorium (third floor) of the Public Service Building, 920 S.W.6th Ave.,at 8:00 p.m. If the Announcements do not appear in NEWS-LETTER, see Oregonian or Oregon Journal previous to regular meeting date.

TRIPS: Watch for announcements of at least one trip each month. If you know of or can lead a trip yourself, call A. W. Hancock, SU 5285.

LUNCHEONS: Every Thursday noon at the House of Hicks restaurant, 425 S. W. Taylor St., between S. W. 4th and S. W. 5th Aves. Luncheon 85¢.

MEETING ANNOUNCEMENTS

Friday Jan.10 — Arthur M. Piper will show colored kodachromes illustrating a talk on "Some general and geologic features of the ex-Japanese mandated islands of the western Pacific." Mr. Piper has recently returned from a tour of duty in these mysterious islands which have been behind the Japanese "iron curtain" for a generation, where he has been investigating the water resources and geology for the government. (Note change in program for this date.)

Fri.-Sat. Jan.17-18 — The Oregon Academy of Science meetings will be held at Reed College. Visitors will be welcome to attend the meetings. As usual, sectional luncheons are being arranged.

Friday Jan.24 — Paul A. Schafer will show 15 minutes of movies illustrating a talk on "Broader aspects of the geology of Luzon, Phillipine Islands". Mr.Schafer was geologist for the great Benguette Mine before the war, and was interned in San Tomas in Manila with his wife and boys for three years of the war. A native Oregonian, he graduated in geology at the University of Wisconsin, and was a member of the Montana Geological survey before spending many years abroad.

Friday Feb.28 — Annual Business Meeting. We are trying to obtain a 30-minute motion picture on "The story of America's Oil", which will be shown prior to the reports of the officers and committees for the past year. See February News-Letter for final notice.

Friday Feb.14 — Randall Brown will show colored kodachromes on "Terlingua-a fabulous and fantastic quicksilver district." As geologist for the U.S. Geological Survey, Mr.Brown has examined most of the western quicksilver deposits during the war, and he says that this is the weirdest mineralized area he has seen.

Friday March 14 — Tentative date for the ANNUAL BANQUET, installation of officers, stunts, and fun for all.

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NOMINATIONS

The nominating committee of the G.S.O.C. submits the following slate:

President..... Dr. Arthur C. Jones
Vice-president..... Mr. Orrin E. Stanley
Secretary..... Mrs. May R. Dale
Treasurer..... Miss Grace Poppleton
Director..... Mrs. Mildred P. James

Other nominations must be in the hands of the secretary with ten signatures, before January 15th, in order to be included in this ballot. The ballot will be mailed shortly after January 15th.

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THE EXTENT OF THE OLIGOCENE SEA IN NORTHWESTERN OREGON

by

W. D. Lowry*

The extent of the Oligocene sea in northwestern Oregon is shown on the accompanying map. Where the shoreline is indicated by a solid line, its location is known from the presence and character of Oligocene sediments; where indicated by a dashed line, its exact position is uncertain, either because younger formations cover Oligocene sediments or because of insufficient information. Although erosion may have removed Oligocene marine beds which may once have been present farther east, the presence of fossil floras in beds just east of the proposed shoreline suggests that the sea never extended much farther east. The presence of coal in Oligocene sediments ranging in age from middle Oligocene in the St. Helens quadrangle to upper Oligocene and possibly lower Miocene in the Molalla quadrangle indicates that the shoreline was fairly stable.

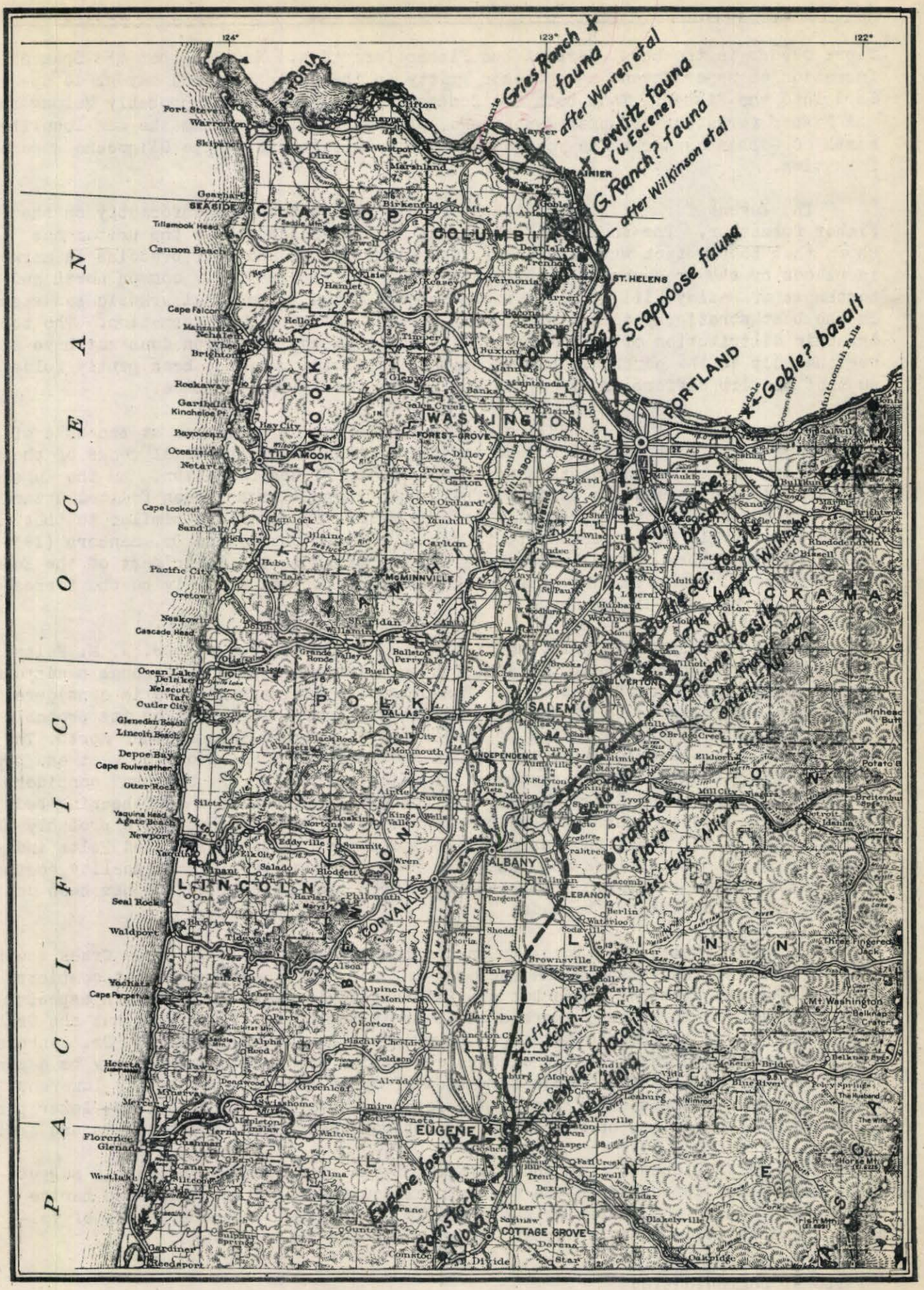
The Eugene formation lies the farthest south and east of any marine Oligocene in northwestern Oregon. It is largely sandstone with some shale. The basal sandstone is arkosic and lack of bedding and a relatively uniform grain size suggest its dune origin. The greater part of the Eugene sandstone is tuffaceous and it is gritty, even conglomeratic in places. Highly tuffaceous layers suggest contemporaneous volcanism, although much of the volcanic material was probably derived from the erosion of the Fisher formation of upper Eocene and possibly in part of lower Oligocene age.

Some of the Eugene sandstones contain fossil leaves in addition to marine fossils which are mostly of the near-shore type. Fossil leaves from a locality 1½ miles northwest of Goshen are believed by Dr. Chaney and Dr. Sanborn (1933, pp. 3 and 4) to belong to the basal portion of the Eugene formation. Lloyd Ruff** states that a slab of sandstone containing both fossil leaves and marine fossils was found about 1 mile southwest of Springfield in the NW¼ sec. 3, T. 18 S.,R.3 W.W.M. He also states that coarse grits bearing fossil leaves lie not more than 100 feet above fossiliferous marine beds on the west side of the hill south of Springfield, with apparently conformable relationship. According to Ruff, a fossil leaf locality about half a mile to the east in the saddle in the NE¼ sec. 2, T. 18 S., R.3 W.W.M. may be of similar age. He notes that both fossil leaves and marine fossils of the Eugene formation occur in Kelly Butte west of Springfield.

The most recently discovered fossil leaf locality, about half a mile north of Goshen, in the hill east of U.S. Highway 99 in the SW¼ sec. 14, T. 18 S., R.3 W.W.M., (see map) is probably in beds which are the terrestrial equivalent of the Eugene formation. Associated with the leaf-bearing siltstones are massive beds of tuffaceous grits with some partially rounded pebbles. Dr. Ethel I. Sanborn** thinks that the flora is quite unlike the Goshen flora studied by her and Dr. Chaney which occurs in the Fisher formation farther north as well as at the best known locality south of Goshen (Chaney and Sanborn, 1933.) Dr. Sanborn has not had the opportunity to study the leaves from the new locality but she believes that they are younger than those of the Goshen flora. This new flora may be similar to the one from the locality 1½ miles northwest of Goshen which Dr. Chaney and Dr. Sanborn did not consider to be closely related in age to the Goshen flora but to be probably Oligocene.

The Goshen flora is somewhat younger than the Comstock flora (Sanborn, 1937) which occurs to the southwest (see map). According to Grivetti,** the Comstock

*Geologist, State Department of Geology and Mineral Industries
**Personal communication



SHORELINE of OLIGOCENE SEA in NORTHWESTERN OREGON

flora occurs in the basal part of the Fisher formation. He says that the Spencer formation of upper Eocene age becomes gritty in the upper part and may grade upward into the Fisher. Thus both the Comstock and Goshen floras probably belong to the Fisher formation of upper Eocene age, whereas the leaves from the new locality north of Goshen appear to be younger and equivalent in age to the Oligocene Eugene formation.

The Eugene formation lies disconformably and possibly unconformably on the Fisher formation. The tracing of the basal arkosic sandstone by the writer has shown that the contact with the underlying Fisher tuffs and tuff breccias is marked in places by the presence of much fossil wood. It is especially common north and northwest of Bailey Hill, 3 miles southwest of Eugene. The basal arkosic sandstone is the best stratigraphic and structural horizon in the Eugene formation. The topographic distribution of this member indicates that the formation does not have a regional dip to the northeast but as Grivetti* pointed out, has been gently folded so that the dip differs in direction and amount from place to place.

As Washburne (1914, p. 99) pointed out, the Eugene sandstone at the base of the Coburg Hills northeast of Eugene is younger than the terrestrial rocks of the hills which may be a continuation northward of the Fisher formation. As the Eugene sandstone dips eastward, he believed that the Coburg Hills had been faulted upward. Washburne noted that the terrestrial beds contain a fossil flora similar to that at the locality 1½ miles northwest of Goshen. As Dr. Chaney and Dr. Sanborn (1933) considered the flora at the latter locality to belong to the lower part of the Eugene formation, the nonmarine beds in the Coburg Hills may possibly be the terrestrial equivalent of the Eugene.

In the Lebanon quadrangle, studied by Dr. I. S. Allison and Dr. W. M. Felts (see references) there occurs, in addition to Oligocene marine tuffaceous sandstone, fossil floras of two different ages. The Oligocene marine sandstone is considered by Allison and Felts to be of the same age as the Eugene formation or its probable correlative, the Illahe formation of Thayer (1939) which occurs farther north. The best known fossil-leaf locality is that in the Mehama volcanics on the west and southwest slopes of Franklin Butte southwest of Scio (see map). Dr. Sanborn* considers the Scio flora to be an Oligocene-Miocene transition flora. The leaf-bearing beds of tuffaceous siltstone or fine-grained sandstone at Franklin Butte are probably the terrestrial equivalent of the marine Oligocene sandstone as Allison and Felts indicate. If so, the Scio flora and the flora from the new fossil-leaf locality north of Goshen might be similar. Until the flora from the latter locality has been described, no comparison can be made.

The other fossil-leaf locality in the Lebanon area is on Crabtree Creek southeast of Scio, as indicated on the accompanying map. Dr. Sanborn has not completed her study of the Crabtree flora but states* that it is quite different in aspect from the Scio, being subtropical, whereas the Scio is temperate. She says that the Crabtree flora may well prove to be of the same age as the Comstock flora. Dr. Sanborn s preliminary work suggests that the rocks containing the Crabtree flora may be a continuation northward of the Fisher formation of upper Eocene and possibly lowermost Oligocene age. Allison and Felts (see reference) have suggested that the lower part of the Mehama volcanics, as mapped in the Lebanon quadrangle, may be of Eocene age.

Thus in the Lebanon area the position of the shoreline of the sea is suggested by beds which appear to be the terrestrial equivalent of the Oligocene marine sandstone. Again, the shoreline was probably determined by the presence of volcanic rocks believed to be of upper Eocene or lower Oligocene age.

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* Personal communication

The location of the Oligocene shoreline in the Stayton area is less well known than in the Eugene and Lebanon area. Thayer (1939) considered the Mehama volcanics, which he described as terrestrial tuffs, lavas, and breccias for the most part water-laid, to be the terrestrial equivalent of the Illahe. The ancient shoreline, according to Thayer, must have crossed the western edge of the Stayton basin and swung northeastward near Turner. Thayer stated that the Mehama volcanics are evidently comparable in age to the Eagle Creek formation in the Columbia River Gorge which underlies the Columbia River basalt of Miocene age. The Mehama volcanics may prove to be older than Illahe formation and may actually interfinger with the Sardine series which abuts against them sharply on the west. Thayer stated that the entire Sardine series may be Miocene or the lower part may be Oligocene, but that he did not intend to include any Eocene rocks. However, the occurrence of what appears to be columnar Stayton basalts on House Mountain, just north of Thayer's mapped area, suggests that most of the Sardine series is pre-middle Miocene. The pre-middle Miocene age of the Sardine is also suggested by the general lack of mineralization in the basaltic lavas of middle Miocene age throughout Oregon. This argument may not apply to the North Santiam River area, for the intrusives which are believed responsible for the mineralization there are not shown to occur near the Stayton lavas. No fossil leaves have been found in either the Sardine series or Mehama volcanics in the North Santiam River area so their correlation with other terrestrial formations of the same general character is uncertain.

The occurrence of coal a little farther north in the Waldo Hills and near Scotts Mills and Wilhoit, as shown on the map, indicates the approximate position of the shoreline of the Oligocene sea. These coals are thought to occur in Oligocene sediments, although the coal near Wilhoit, according to Harper (1946) may possibly be older and associated with Eocene marine sandstone and basalt which occur along Butte Creek about 3 miles east of Scotts Mills. The Wilhoit coal, as mapped, occurs in the Butte Creek beds (Harper, 1946) of upper Oligocene or lower Miocene age. Additional evidence of the position of the Oligocene shoreline in the Molalla quadrangle is offered by the occurrence of impure fragmental shell limestone as at Marquam and along Butte Creek, disconformably above the older lavas.

Little evidence is available concerning the location of the old shoreline between Marquam and Scappoose. The basalt near New Era, which is believed to be of upper Eocene age, suggests that the Oligocene l i e s to the west or has been eroded from this area. Basalts which are believed to belong to the Goble volcanic series (Wilkinson, Lowry, Baldwin, 1946) of upper Eocene age occur along the lower course of the Washougal River, where in one place they dip about 15° to the southeast. This suggests that the Oligocene sea lay to the west. The basic lavas and breccia in the roadcuts at Camas, Washington, may also belong to the Goble series. Holdredge (1937) in his geological report on the Bonneville project, suggested the presence of lavas older in age than the bulk of Eagle Creek formation, which he generally considered to be Oligocene or younger. He pointed out that there are noticeable lithologic and structural differences between the beds of the Eagle Creek formation which crop out in the walls of the gorge and those encountered in excavating for various structures in the river channel. The beds in the canyon walls are said to contain a high percentage of boulders of porphyritic andesite and much fossil wood, whereas those in the channel are predominantly basaltic with no wood. He states that the beds in the canyon walls dip less than 5° to the south or southwest everywhere west of Eagle Creek, whereas those in the channel dip about 15° to the southeast as do the zeolitized basalts along the Washougal River. Further field work may prove that upper Eocene basalts of the Goble volcanic series are present in the gorge, in addition to the apparently younger basic lavas, breccias and sediments which contain the Eagle Creek flora and form the bulk of the formation. Even Bonney Rock, which forms the foundation for most of the power house and lock structures, may belong to the Goble volcanic series. The rock is considered to be a diabasic intrusive, but the presence of secondary zeolites suggests that it might possibly be a flow.

The Eagle Creek flora was for a long time thought to be of Oligocene age but Chaney (1944) now considers it to be of lower Miocene age. As the Oligocene sea may have persisted into lower Miocene time, as suggested by the late Oligocene or lower Miocene age of the Scappoose formation (Warren, Norbisrath, and Grivetti) and possibly the Butte Creek beds, the westernmost occurrence of the Eagle Creek formation may be a clue as to the location of the Oligocene shoreline.

Coal occurs in Oligocene sediments (mainly Pittsburg Bluff formation of middle Oligocene age) $2\frac{1}{2}$ miles west of Scappoose and 1 mile south of Deer Island, which indicates that the shoreline of the Oligocene sea lay nearby. Fossil leaves were found along Tide Creek 5 miles northwest of Deer Island in sandstone and grits containing marine fossils assigned tentatively to the Gries Ranch formation of lower Oligocene age. These sediments lie disconformably on the Coble volcanic series whose lower part is interbedded with marine sandstones of Cowlitz (upper Eocene) age.

The position of the shoreline as shown near Rainier may be too far west, as lower Oligocene fossils occur at Gries Ranch, Washington, about 25 miles to the north and east. The placing of the shoreline west of Rainier was based on the presence of a thick section of Coble basalt to north and east. The occurrence at the surface of a thick section of upper Eocene volcanic rocks is believed to indicate that the Oligocene sea did not extend much farther east, but this assumption may prove to be wrong if the thick section of Tillamook volcanics farther west should prove to be in large part the equivalent of the Coble volcanic series.

The eastern extent of the upper Eocene sea in northwestern Oregon prior to its retreat is believed to have been controlled by the eruption of a thick series of lavas and associated pyroclastics. The shore of the upper Eocene sea was built up by widespread contemporaneous volcanic activity which may even have caused the sea to retreat slightly westward. The sea may have been deep enough or the floor sinking enough in the area of the present Coast Range to have permitted the accumulation there of a thick section of lavas. If so, the occurrence there of a thick section of Eocene lavas need not prevent using the presence of upper Eocene lavas along the present position of the western foothills of the Cascades to fix the approximate location of the shoreline of the Oligocene sea. In the Eugene, Molalla and St. Helens quadrangles, at any rate, the character of the Oligocene sediments does show that adjacent older lavas indicate that the shoreline of the Oligocene sea lay nearby.

The eastern extent of the Oligocene sea in northwestern Oregon is believed to have been similar to that of the upper Eocene sea prior to its retreat westward. This appears to be true south of Eugene. The Goshen flora occurs in the Fisher formation, which may be the terrestrial equivalent of the Spencer formation of upper Eocene age not far to the west, and the most recently discovered flora north of Goshen occurs in beds believed to be the terrestrial equivalent of the nearby Eugene formation of Oligocene age. Eocene marine fossils have not been found as far east as those of the Oligocene, except northeast of Rainier, because the Eocene sediments are covered by Oligocene sediments and younger rocks. As previously noted, Eocene marine fossils have recently been found in sandstone associated with basalt along Butte Creek east of Scotts Mills. They indicate that the Eocene (probably the upper Eocene) sea may possibly have extended farther east than the Oligocene sea. The basic lavas, pyroclastic rocks, and associated sediments (some contain a few fossil leaves) along the upper part of the Molalla River may be the terrestrial equivalent of the Eocene basalt and marine sandstone to the west along Butte Creek. If so, they show that the Eocene fossils along Butte Creek occur in beds laid down in an Eocene sea which did not extend much farther east.

With the return of the sea to northwestern Oregon in Oligocene time, it is thought that the built-up former shore of the upper Eocene sea, despite an intervening erosional interval, determined the eastern extent of the Oligocene sea. Whether or not the Oligocene sea extended farther south of Eugene than indicated is problematic.

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NEW MEMBER

Mr. and Mrs. A.L. McCauley, Rt. 1, Box 266A, Hood River, Oregon. Phone Odell 16X.

CHANGE OF ADDRESS

Helen C. Brady, formerly in the armed services, has returned home - 2003 N.E. 19th Avenue, Zone 12, Portland, Oregon. Phone GA 4155.

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LUNCHEON MEETING - THURSDAY, NOVEMBER 7, 1946

Not rightly a guest but a former member of several years' standing was Stuart N. Twiss, geologist for the Soil Conservation Corps, who was one of the 23 persons present. Associated with him in the Soil Conservation service is Thomas H. Hite, who recently spent three years in the Army, where he held the rank of Major. Both were introduced by Pres. Allen. ... A box of polished agates was displayed by R. Erick son, who had been in the John Day country the preceding week where a friend, T. Gail Dewitt of Bates, Oregon, had become interested in the work, and had loaned him the samples. Mr. Erickson proposed him for membership. ... A chunk of the stump of a fossil Cretaceous fern which had been given to him by Mr. Erickson was shown by Dr. Allen, who reminisced that it was in 1938 that he had visited the placer grounds at the mining town of Greenhorn where the fern had been found. ... A copy of the "Coming of the Pond Fishes" by Ben Hur Lampman was passed around by Mr. Leslie W. Bartow, to the interest of the fisherman present. ... One of Dr. Courtland L. Booth's earliest geological experiences was visiting the Put-in-Bay cave in the limestone belt in Ohio. He described the cave as lined with strontia crystals, and displayed a copy of the Ohio Development News which contained photographs of numerous caves of the district.

Miriam Shepard

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LUNCHEON MEETING - THURSDAY, NOVEMBER 14, 1946

Well-traveled were the specimens which Thomas H. Hite displayed to the other 25 persons present at the November 14 luncheon meeting. One was a granite-like rock of the type used on the edges of roads in Germany, and came from a displaced-persons camp in Austria. A Jurassic bone bed in the cliffs on the Severn river near Bristol in southwestern England provided a chunk which caused much speculation as to its contents. Specimens of ore obtained last May from an old tin mine in Cornwall, where only two of the old mines were operating, were also shown by Mr.Hite, who stated that the upper workings were started originally as a copper mine. He displayed ore samples from the 260 and the 335 fathom levels, and remarked that a good arsenic recovery was made from the mines during the war. He also noted that they have the same trouble with the miners there that we have in this country, and that only a few of the old-timers remain. ... Dr. Ralph Chaney, head of the department of paleontology at Berkeley, was introduced by Pres. Allen, who spent three years as Dr. Chaney's assistant in classes. (A.D.Vance interpolated at this point that he and A.W.Hancock probably put in as much time with Dr. Chaney in Eastern Oregon in a short time as Dr. Allen did in three years.) ... Pres. Allen reported on a letter from Jim Weber, who is now located at Parker Dam in the southeastern corner of California ... The Eocene Clarno provided a small brown fossil with which Dr. Arthur Jones started a lively discussion. Its origin was described as "about the same region where we find the nuts." Dr. Chaney offered the three possibilities, e.g., the bulb of a horsetail (Equisetum), a clamshell, or a fig. Mr. Vance offered a fourth theory by recalling that he raised some potatoes this summer that looked like that. ... George V. Elder brought silver ore from Montana that was striking in its coloration. ... What A.W.Hancock characterized as one of the finest pieces of wood structure he ever saw was a piece of well-agatized sycamore from Post, Oregon.

Miriam Shepard

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NEWS NOTE

Dr. John Eliot Allen was guest speaker at a meeting of the Salem Geological Society December 19th. He discussed the geology of the Wallowa Mountains, a region that he has studied in some detail. Colored slides taken by members of the Chemeketans were also shown.

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GEOLOGICAL SOCIETY NEWS LETTER

Volume 13, No. 2 February 1947

SOCIETY ACTIVITIES

LECTURES: On the second and fourth Fridays of each month at the auditorium (third floor) of the Public Service Building, 920 S.W.6th Ave., at 8:00 p.m.. If the announcements do not appear in NEWS-LETTER see Oregonian or Oregon Journal previous to regular meeting date.

TRIPS: Watch for announcements of at least one trip each month. If you know of or can lead a trip yourself, call A.W.Hancock, SU 5285.

LUNCHEONS: Every Thursday noon at the House of Kilroy restaurant, 425 S.W. Taylor St., between S.W. 4th and S.W. 5th Aves. Luncheon 85¢.

MEETING ANNOUNCEMENTS

Friday Feb. 14 — Randall Brown will show kodachrome slides on "Terlingua- a fabulous and fantastic quicksilver district." As geologist for the U.S. Geological Survey, Mr. Brown has examined most of the western quicksilver deposits during the war, and he says that this is the weirdest mineralized area he has seen.

Friday Feb.24 — ANNUAL BUSINESS MEETING and MOVIE OF "OIL IN AMERICA". Members of the various committees please hand in at this meeting written reports for inclusion in the NEWS-LETTER. Announcement of the election of officers for 1947 will be made. Vote will be taken on several items of interest to the Society.

The colored sound-motion picture (30 minutes) is of interest in view of recent drilling in Oregon. The entire industry is reviewed and explained.

Friday Mar.14 — ANNUAL BANQUET, Swan Island Cafeteria. "Africa and Oregon's Tropic Past", by Dr. T.P. Thayer of the U.S. Geological Survey. A physiographic comparison, illustrated with kodachrome, of the Pacific Northwest's late Miocene landscape with the present tropical rainforests of western Africa - both of them regions of low relief subjected to tropical weathering. Dr. Thayer, a long-time member of the Geological Society, is an authority on Oregon geology. He is now engaged in the mapping of the John Day-Dayville area of central Oregon for the Geological Survey. Those who have heard him speak before to the Society know that this will be an outstanding address.

The program will be toastmastered by Dr. Courtland L. Booth, and will include short talks by retiring and new presidents, stunts, and fun for all. Seating capacity for this banquet is unlimited for the first time - bring your friends. Tickets are now available from Leo Simon (Phone BE 0300). Make your reservations early and get a good seat. See page 10 for seating chart and additional details.

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OREGON ACADEMY OF SCIENCE

The following officers were elected for the coming year at the recent meeting of the Oregon Academy of Science at Reed College.

Chairman - A. D. Vance
Membership chairman - Dr. Lloyd W. Staples
Secretary - Mrs. Ted Gordon

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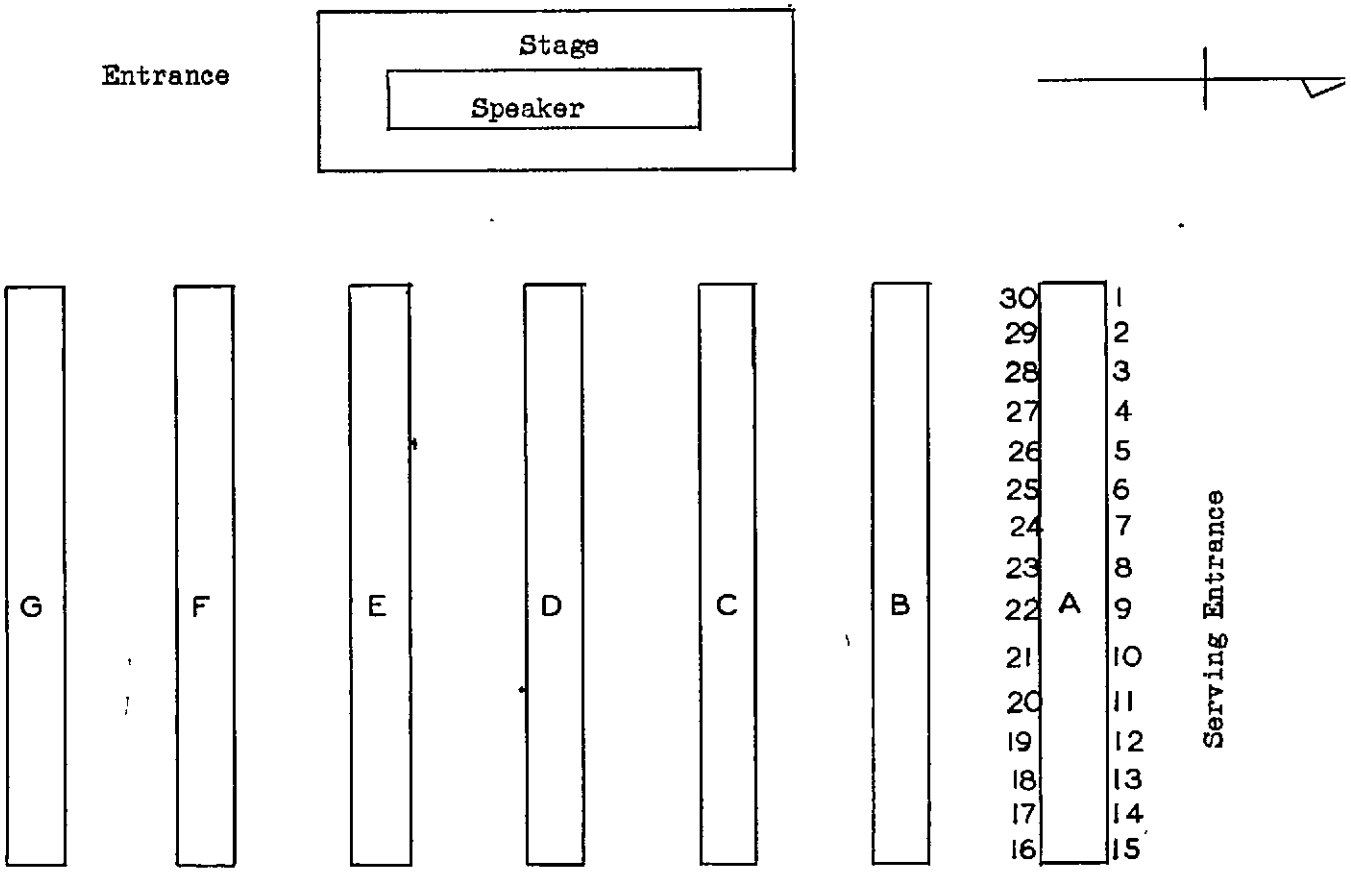
ANNUAL BANQUET

The 12th Annual Banquet will be held Friday, March 14, at 6:30 p.m., in the Swan Island Cafeteria.

The price will be $1.75 per plate, with a special rate of $1.50 per plate for children 15 years or under.

Tickets will go on sale after the meeting February 14. See Leo Simon. (Phone BE 0300)

SEATING CHART



Tables A to G will each seat 30, with places numbered clockwise as shown.

Extra tables can be set if needed to seat up to 500.

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PHYSIOGRAPHIC DIVISIONS OF OREGON

Proposed physiographic divisions of Oregon were discussed in the Geology-Geography section meeting of the Oregon Academy of Science at Reed College, January 18th. The discussion was led by Dr. John Eliot Allen and Dr. Warren D. Smith. Dr. Allen outlined tentative divisions for Oregon, the Eastern half being based largely upon divisions already published by Dr. O.W. Freeman, Dr. J.D. Forrester, and Dr. R.L. Lupher.

Dr. Freeman, of the Eastern Washington College of Education, Cheney, Washington, was present and outlined the steps in reasoning that resulted in the boundaries and titles that he and his collaborators chose. He stressed the fact that many boundaries were the result of compromise. The selection of names was likewise the result of compromise in certain instances and was influenced by such factors as repetition, names too long, etc.

One of the biggest problems confronting any individual or group interested in the physiographic divisions of Oregon lies in the selection of proper rank for the division. Although we think of the Willamette Valley as a geographic province, it may not be of sufficient importance, physiographically speaking, to enjoy that rank. The problem of separation of the Coast Range from the Klamath Mountains was discussed and it was readily admitted that when compared on the basis of "structure, process, and stage" there was little basis for dividing them. Yet the geological formations are quite distinct and for convenience the provinces will probably continue to be treated individually. Whether they are separate provinces or sub-provinces of a larger division was not settled.

The location of the boundaries of the physiographic divisions is often difficult to determine because there is no sharp break. This was pointed out in the case of the boundary between the southern side of the Central Mountains and the Malheur part of the High Lava Plains and also between the Cascade Mountains and the Basin and Range Province near Klamath Falls. The problem is sometimes analogous to the difficulty one has of determining whether he is on the limb of an anticline or syncline where they have certain areas in common.

The group seemed to agree that the Cascade Mountains could be divided into the Western Cascades and the High Cascades. The High Cascades include not only the prominent peaks but also the region covered by Pliocene shield cones. Nearly all agreed that the coastal "plains" were insignificant.

Although the proper rank of the physiographic subdivisions may be in doubt for some time, for convenience of discussing regions that have much geologically in common, we will continue to speak of the Coast Range, Willamette Valley, Klamath Mountains, Cascade Range etc. even though the words "province" or "sub-province" may be somewhat loosely used in their application to these regions.

Resulting tentative divisions, which represent a modification of those discussed in the meeting, are given as follows:

I Coast Range Province

II Klamath Province

III Willamette Valley Province

IV Cascade Range Province

IV (Cont.)
A. Western Cascades sub-province
B. High Cascades " "

V Columbia Intermontane Province
A. Columbia Basin sub-province
1. North Central Oregon Plateau
B. Central Mountains
1. Blue Mountains sub-province
2. Wallowa-Seven Devils Mountains
3. Tri-State Uplands
C. High Lava Plains sub-province
1. Harney High Desert
2. Malheur-Boise Basins
3. Owyhee Upland

VI Basin Range Province

J.E.A. & E.M.B.

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OREGON SODIUM DEPOSITS DESCRIBED

Sodium salts of Lake County, Oregon, is the title of a report just issued by the State Department of Geology and Mineral Industries. Summer, Abert, and Alkali lake brines and playa deposits are described and analyses of samples are tabulated. Authors of the report are Dr. I. S. Allison, professor of geology at Oregon State College, and Mr. R. S. Mason, mining engineer with the State Department.

Sodium salts are primary raw materials in many industries, and the stepped-up industrial activity all over the country has increased the demand for these salts. Supplies are short at the present time.

The 12-page report, G.M.I. Short Paper No. 17, includes an index map, several tables, and two illustrated plates. It may be obtained at the Portland office of the Department at 702 Woodlark Building, and at the Department field offices at Baker and Grants Pass. Price is 15 cents postpaid.

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NEWS NOTES

Mr. Earl K. Nixon, former Director of the State Department of Geology and Mineral Industries and Member of the Geological Society has accepted a job in charge of the oil and gas program of the Kansas State Geological Survey. His office will be in Lawrence, Kansas, the seat of the State University.

* * * * *

Members of the Geological Society are cordially invited to attend the Second Annual exhibit of the Imperial Valley Gem and Mineral Society and Imperial Valley Lapidary Guild to be held March 29-30 in the Junior College auditorium, 900 Brighton Avenue, El Centro, California.

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SUMMER SCHOOL AT CRATER LAKE

Plans have been under way for some time to develop a school of appreciation of nature using the appreciation of beauty as the theme for interpreting nature. The National Park Service, the Advisory Board of Educational Problems of Parks, and the University of Oregon have reached a joint agreement to initiate and operate such a school.

The school will be jointly controlled and operated by the National Park Service and the University of Oregon. The University of Oregon has provided a budget for initiating the school next summer. R. W. Leighton, Dean of the School of Physical Education at the University of Oregon, has been designated by the University to act as director of the school the first year.

The first session will be five or five and a half weeks in length and will begin about July 15th. For the present that is all the information available.

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LUNCHEON MEETING - THURSDAY, NOVEMBER 21, 1946

The top of the Rockies, west of Yellowstone Park, was the source of rock specimens which Mr. George V. Elder showed to the rather small luncheon group. The rocks were adjudged to be from the Paleozoic age, and Dr. John E. Allen suggested the Permian period for one piece dotted with fossil shells. Another specimen was composed of single corals.....The Neanderthal Java bones illustrated in Life magazine were called to the attention of the group by Dr. Booth.....The group was enlivened by anecdotes told by Miss Ada Henley and Dr. Allen.....In reminiscent mood, Mr. A. D. Vance told of his first field trip with the group. In preparation he had read up on geology, then Mr. Leo Simon and the rest of the party discussed botany all the way to The Dalles.....Announcement was made that there would be no November 28 meeting, since the members would be laying aside miner's picks in favor of carving knives.

Miriam Shepard.

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LUNCHEON MEETING - THURSDAY, DECEMBER 5, 1946

The tables were well filled on December 5, when 30 were present at the luncheon which was presided over by Vice-President Raymond L. Baldwin. A rich haul of specimens was made. Mr. Minar passed around a piece of jasper which had been put under a polishing wheel. It came from Lebanon.....A piece of petrified wood from Washington (A.W.Hancock refused to say if it was from Klickitat!) came from a large stump which is situated between two flows of lava and is standing in what might be called a twig-filled peat. Since the "peat" is agatized, Mr. Hancock reported that it would not solve the coal shortage.....Mr. Stone brought in his initial fossil finds, which he dug from near the Wolf Creek Highway. One bivalve shell is being utilized as a paper weight on his desk.....He also called the group's attention to an article about mastodons found in the Arctic regions which appeared in the Saturday Evening Post.....Dr. Arthur Jones displayed a faceted pebble from a mass of conglomerate in northeastern Utah. From his pocket also appeared a nautiloid from Seal Rocks below Newport, which prompted a discussion as to whether this locality is of the Astoria or the Yaquina formation.....Guest of F. W. Libbey was Fred Gustafson of the Dant & Russell, Inc., perlite division.

Miriam Shepard

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REVIEWS

How Old are the Moraines on Mt. Hood*
by
Francois E. Matthes

A review of historic glacial advances in Europe and other parts of the world indicates that the prominent glacial moraines upon the side of Mt. Hood may not be as old as the "ice age", and perhaps not as old as the "little ice age" that occurred five or six thousand years ago. Several notable ice advances in Europe during the last three of four centuries may have their correlative moraines on the slopes of Mt. Hood.

* * * * *

Steens and Pueblo Mountains*
by
Warren D. Smith

Steens and Pueblo mountains are situated in a little known part of Oregon, particularly from the standpoint of the layman. They have been studied by geologists because of their scientific interest and because of some indications of mineralization. There are two schools of thought regarding the deformational history of this region. One, proposed by the author, indicated that the uplift of the two ranges was caused by upthrust during compression. The other is supported by Dr. Richard Fuller who believes that the existing evidence points to normal faulting accompanying tension. The numerous fault block mountains of the Basin and Range Province are generally believed to have been formed in this manner.

There seems to be no conclusive evidence in the Steens and Pueblo mountain area to support either theory. To a certain extent this problem is involved in a world wide reexamination of the problem. Dr. Smith cites recent authorities who favor the compressional theory for the formation of such mountains. In doing this, these scientists take into account the gravity anomalies. As yet the structural history of the Steens mountain area is unsettled Dr. Smith feels that a study of gravity anomalies of this area might throw new light on the subject.

* * * * *

The Technique of Dating Recent Prehistoric Glacial Fluctuations from Tree Data*
by
Donald B. Lawrence

A study of the tree rings obtained from forests near the glacial path has been made by several workers in an attempt to date glacial fluctuations. Estimates of the time interval that should be added or subtracted from the number of years indicated by the annual rings depend on a number of factors yet to be more closely determined. There may be an interval of a few years time when because of climatic severity, rodents, or other factors the trees may not have been able to germinate and grow. On the other hand, trees may germinate and grow while the glacier is gradually receding and thus the annual tree rings would indicate a longer time than the desired figure. If these factors are better understood a more reasonable date could be obtained.

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*From an article appearing in Mazama vol. 28, no. 13, December 1946.

Methods of sampling the woods and their study are described. As the retreat and advance of the glaciers probably depend somewhat on the presence and amount of volcanic ash, a study of the stages of volcanism may help date glacial fluctuations.

E.M.B.

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LUNCHEON MEETING - THURSDAY, DECEMBER 12, 1946

The Mazama Annual, which this year contains several articles by members of the Society, was displayed to those present at the luncheon by Raymond L. Baldwin. .....A brochure advertising the "Romance of Mining" by T. A. Rickard was passed around the table by President Allen....."Fossil Hunting in Wyoming" was the illustrated article in the Cosmopolitan magazine for 1900 discovered and brought to the meeting by Mr. Minar, who also brought along a "thunder egg" from Nevada for expert advice on the cutting thereof.....Practicing what he preached some weeks ago when he complained that the Society was deteriorating for lack of specimens, Dr. Arthur Jones brought from his pocket a nautiloid which he stated was quite primitive. He obtained it several years ago from Sucia Island, one of the smallest of the San Juan group, and stated that the island is known for its limestone deposits, generally dated as Devonian, although he did not know whether the nautiloid belongs to the Devonian or the Mesozoic. The specimen still has the patina of the original mother-of-pearl. Another specimen shown by Dr. Jones had been given to him without data. He described it as a typically sea biscuit type of urchin..... A specimen which Dr. Jones had brought to a meeting a few weeks before and which had aroused much discussion was the subject of a letter from Dr. E.L.Packard which was reported on by Dr. Ewart M. Baldwin. Dr. Packard identified the fossil as a cephalopod which fitted well with the description of Aturia angustata (Conrad)..... Mrs. Barney Macnab, who was a former member of the Geological Society, was introduced to the group by Mrs. John E. Allen.

Miriam Shepherd

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NEWS OF MEMBERS

Dr. Donald B. Lawrence has recently been appointed Botany editor of the professional magazine, Ecology.

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Members of the Geological Society were saddened to hear of the death of two members of long standing, Mr. Clarence Ogren who passed away Tuesday, January 28th, and Dr. Dora Underwood who passed away at an earlier date.

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MEMBERS NOTICE

Please return your ballots in time to be counted before the annual meeting. Dues are also acceptable.

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DR. NICHOLS ON EXPEDITION

Dr. Robert Nichols, a nationally known volcanologist and professor of geology at Tufts College, Medford, Massachusetts, sailed recently from Beaumont, Texas, as a geologist with the Finn-Ronne Antarctic expedition. The expedition will be based on Marguerite Bay, Palmer Land peninsula. The expedition expects to return to the United States in about 18 months. Dr. Nichols is well known to members of the Geological Society before whom he has spoken several times. He was employed by the U.S. Geological Survey during the war and devoted most of his time to the investigation of Northwest clay deposits. Previous to this he spent some time investigating the volcanic features around Bend, Oregon.

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LUNCHEON MEETING - THURSDAY, DECEMBER 19, 1946

A sample of white rock which underlays and is mixed in with the gravel pits at the 800 to 1000-foot elevation on the south side of Saddle Mountain (Washington) was displayed by Dr. J.C.Stevens, who reported on a trip to the Hanford area..... . A negative economic value was attributed to the rock by Dr. Courtland L. Booth, who described experiences with it while wheat ranching back of Arlington. Where the white rock is exposed, the whole area can be discounted, he explained.....A fine-grained diorite from the Coast Range was exhibited by Dr. Ewart M. Baldwin, the notable feature in the diorite being its long acicular crystals of hornblende. It is an intrusive on upper Smith Creek in the Euchre Mountain area. Two agates from Sunflower Flat were shown by Miss Ada Henley. Miss Henley also introduced as her guest George Wann, local news editor of KOIN. The other guest of the day was the daughter of Mrs. May R. Dale.

Miriam Shepard

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LUNCHEON MEETING - THURSDAY, DECEMBER 26, 1946

Calcite crystals from his mine in Montana were displayed to the luncheon group by George V. Elder, and Miss Ada Henley passed around an agate, quartz-crystal filled, which came from Sunflower Flat.....Dr. Ewart M. Baldwin's contribution was a fossil gastropod, a species of Pleurotomaria, from the Ellendale mine near Dallas. The shell supposedly lived during the Middle Eocene age.....The only guest this Post-Christmas Day was Marilyn Stevens of Franklin High, who was a guest of Miss Eliza Stevens of Bonneville.

Miriam Shepard

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LUNCHEON MEETING - THURSDAY, JANUARY 23, 1947

Lively badinage and numerous specimens marked the January 23 meeting. A type of rock from Buffalo, New York, used there to build fences, was shown by Leo Simon. .....A superficial resemblance to a geode appeared in a specimen shown by Dr. Arthur C. Jones, which he remarked his mother had owned for years and which came from the coquina country of Florida. Another specimen he showed was from the rhyolite deposits on the edge of Imperial Valley, California.....Colorful were the specimens shown by Dr. Courtland L. Booth, including pink botryoidal chalcedony from the San Rafael beds and trachyte from the Henry Mountains (Utah).....A member from Tillamook, Miss Ruth E. Coats, attended her first luncheon meeting, and with her was Miss Lucia Wiley, mural painter whose home is also in Tillamook.

Miriam Shepard

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GEOLOGICAL SOCIETY NEWS LETTER

Volume 13, No. 3 March 1947

SOCIETY ACTIVITIES

LECTURES: On the second and fourth Fridays of each month at the auditorium (third floor) of the Public Service Building, 920 S.W.6th Ave., at 8:00 p.m. If the announcements do not appear in NEWS LETTER see Oregonian or Oregon Journal previous to regular meeting date.

TRIPS: Watch for announcements of at least one trip each month. If you know of or can lead a trip yourself, call A.W.Hancock, SU 5285.

LUNCHEONS: Every Thursday noon at the House of Kilroy restaurant, 425 S.W. Taylor St., between S.W. 4th and S.W. 5th Aves. Luncheon 85¢.

MEETING ANNOUNCEMENTS

Friday Mar.14 — The annual banquet will be held in the Swan Island Cafeteria at 6:30 p.m. Dr. Thomas Thayer of the U.S. Geological Survey will speak on the subject "The West African rain forest and Oregon's tropical past." Dr. Courtland L. Booth will act as toastmaster. See page 18 for further details.

Friday Mar.28 — Meeting to be announced.

FIELD TRIP ANNOUNCEMENT

Sunday Mar.23 — A trip to Oswego, Oregon, and vicinity will be lead by Mr. Norris B. Stone. This region has much of geologic interest.

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THE WEST AFRICAN RAIN FOREST AND OREGON'S TROPICAL PAST

By T. P. Thayer

Abstract

Discovery of ferruginous bauxite deposits in western Oregon and work on the clay deposits of the Pacific Northwest in recent years have confirmed paleobotanical evidence that the region had a moist tropical or subtropical climate during later Tertiary time. Geologic evidence indicates wide variations in local physiographic conditions during the Miocene, and it is therefore of interest to study the physiography of the modern tropical rain forest.

The west African preCambrian shield, occupied in part by Liberia, is a region of moderate to low relief, in which weathering and erosion by chemical processes are dominant. Chemical weathering of various rocks, including massive iron ore, is described briefly, and the behavior of streams with a very light load of fine-grained material only is discussed in some detail. General parallels between these features and the probable Miocene landscape of the Pacific Northwest are pointed out.

The paper is designed for interested laymen who have a limited basic knowledge of general geology and physiography.

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NEW MEMBERS

Mr. A. L. Seamster, 1520 S.W. Market St., Portland 1, AT 3686.
Mr. and Mrs. Thomas E. Palmer, 1640 S.W. Sunset Blvd., Portland 1.

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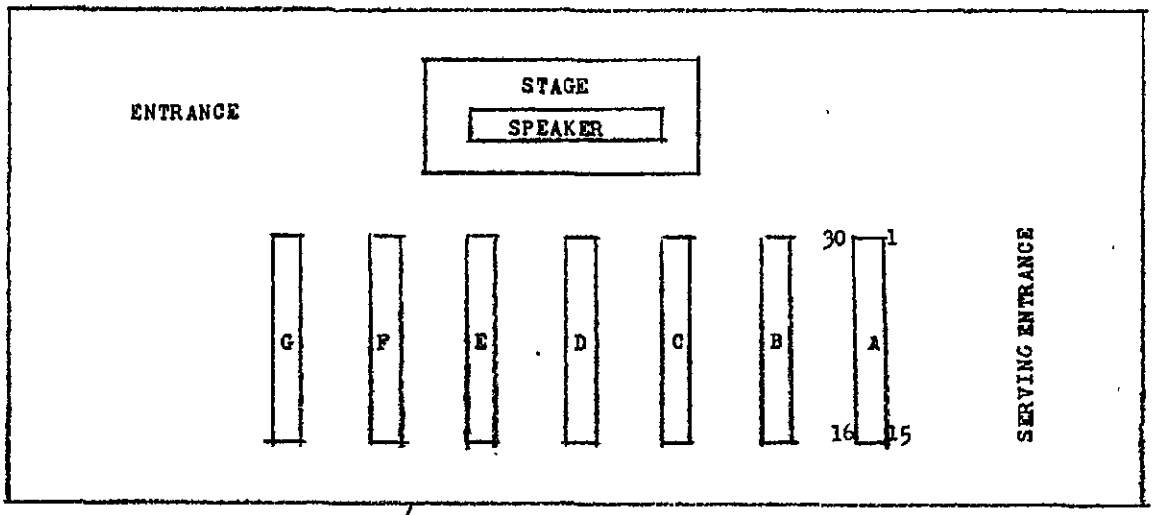
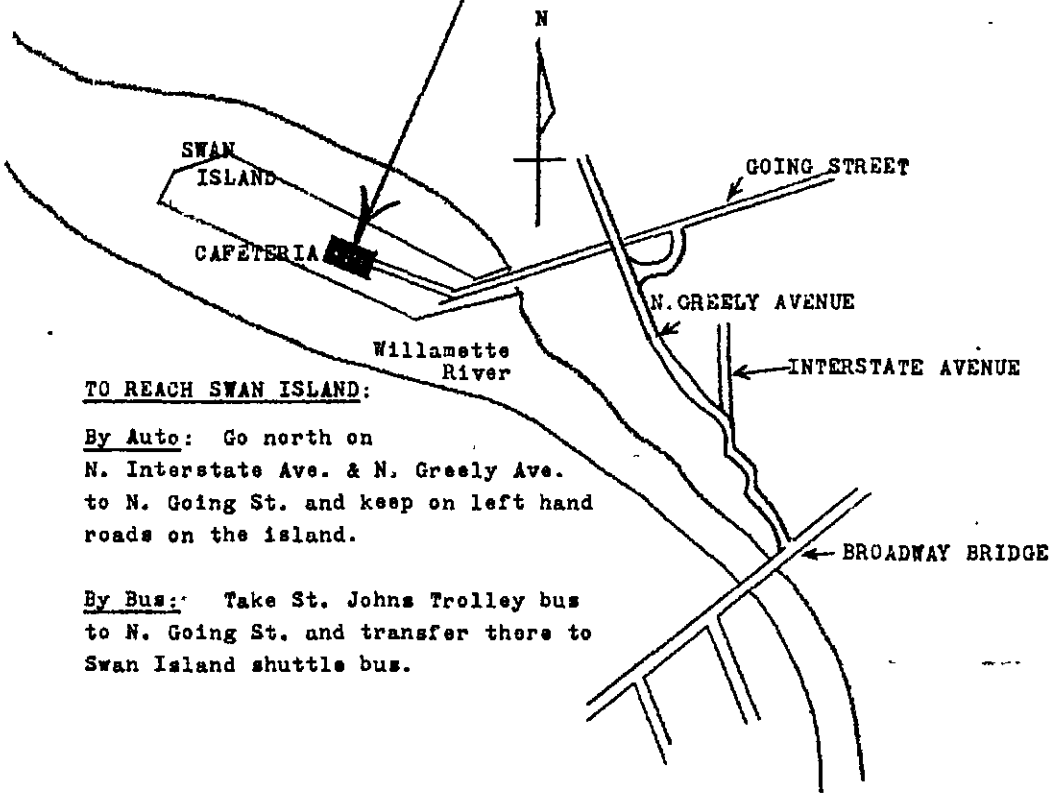
ANNUAL BANQUET

IMPORTANT: Reservations must be in by March 10th!

The 12th Annual Banquet will be held Friday, March 14, at 6:30 p.m., in the Swan Island Cafeteria. The price will be $1.75 per plate, with a special rate of $1.50 per plate for children 15 years or under. Tickets now on sale. See Leo Simon, or phone BE 0300, or write - 711 SW Ankeny St., Portland. Tables A to G will each seat 30, with places numbered clockwise as shown. Extra tables can be set if needed to seat up to 500.

SEATING CHART





TO REACH SWAN ISLAND:

By Auto: Go north on N. Interstate Ave. & N. Greely Ave. to N. Going St. and keep on left hand roads on the island.

By Bus: Take St. Johns Trolley bus to N. Going St. and transfer there to Swan Island shuttle bus.

CORRECTION

On the map on page 18, which indicates the best route to take to Swan Island, wartime developments were not taken into consideration by the editor. Because of intricate traffic installation it is necessary to cross Going Street before turning to the right in order to make a circle and fit into the proper lane of traffic.

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REPORT OF THE MUSEUM COMMITTEE

During the past year considerable progress has been made in establishing a museum but the results are not spectacular. We find that there is a great deal of work to be done and a vigorous campaign of education needs to be carried on before we can realize the objective.

The Oregon Museum Foundation has been carrying on this educational campaign through lectures, through talks to civic bodies, through newspaper articles, by radio broadcasts, by letter campaign of solicitation, by personal interviews, and by other effective means. We are beginning to "rate" in affairs of the city.

Perhaps the most outstanding lecture was the one by Jack DeMent on OPERATION CROSSROADS describing the atomic bomb tests at Bikini. This was held in the auditorium of the Benson school on November 8. There were nearly 900 present. During the preceding week we had exhibits in 11 windows in the Meier & Frank store which attracted a great deal of attention. The detail work of securing, assembling, and returning the exhibits was very ably handled by your president, Dr. Allen as chairman of our collection committee.

Subscription blanks for The Foundation have been placed with all bills being sent out by Meier & Frank Co. store during the present month. For this purpose we furnished about 60,000 printed blanks. The returns from this are coming in slowly.

Up to the present time The Museum Foundation has collected a total of $27,010, of which $9,900 has been expended on the educational and publicity campaign. There is $17,660 in the Building Fund which is on deposit with the U.S. National Bank, not available for current expenses.

I want to take this opportunity to express the appreciation of The Oregon Museum Foundation staff members for the splendid work of cooperation and assistance that has been rendered by the members of the Geological Society of the Oregon Country. Whenever we got in a jam and wanted some real work done, we knew where to turn, and they have never failed us yet.

Headquarters of the Foundation is in the Portland Hotel. Visitors are always welcome.

Respectfully submitted,

/s/ J.C.Stevens, Chairman

February 27, 1947.

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ANNUAL REPORT OF THE TREASURER YEAR 1946-1947

March 1, 1946 Balance on hand			$ 673.70
INCOME Mar. 1, 1946 to Feb. 28, 1947			
Memberships 1946-1947		$ 449.00	
" 1947-1948 Prepaid		166.00	
		615.00	
Less refunds on 1946-47 overpayments		9.50	605.50
Detail as follows:			
99 Renewals @ 3.50	$ 346.50		
17 New @ 2.50	53.50		
8 Renewals @ 2.50	20.00		
9 New @ 2.00	18.00		
1 Junior Renewal	1.50		
	439.50		
1947-48 Prepaid			
39 Renewals @ 3.50	$ 136.50		
8 Renewals @ 2.50	20.00		
2 New @ 3.50	7.00		
1 New @ 2.50	2.50	166.00	
	$ 605.50		
News Letter Subscriptions		15.00	
1946 Banquet Receipts		109.50	
1947 " "		119.00	243.50
			$1522.70

EXPENSES

News Letter	$ 200.45	
Stat'y. Prtg. & Postage	60.33	
1946 Banquet Expense	297.85	
1947 " "	35.00	
Lecture Expense	15.00	
Miscellaneous Expense	32.64	
New Multigraph	479.08	1120.35
Balance on hand February 28, 1947		$ 402.35

RECONCILIATION

Mar. 1, 1946 Check book balance	$ 673.70
Deposits Mar. 1946-Feb. 28, 1947	858.50
	$1532.20
Less checks Mar. 1946-Feb.28, 1947	1129.85
Check book balance Feb. 28, 1947	$ 402.35

Pre-Closing Trial Balance

	DEBIT	CREDIT		DEBIT	CREDIT
U.S.Nat'l.Bank	$1532.20	$1129.85	Misc. Expense	$ 32.64	$-------
Memberships	9.50	615.00	Multigraph	479.08	-------
News Letter	200.45	15.00	Furniture &		
Lecture Expense	15.00	-------	Fixtures	35.05	-------
Banquet Expense	332.85	228.50	Surplus	------	708.75
Postage,Stat'y.& Prtg.	60.33	-------		$2697.10	$2697.10

TREASURER'S REPORT (con't.)

Post Closing

ASSETS		LIABILITIES	
United States Nat'l. Bank	$ 402.35		
Furniture & Fixtures	35.05	None	
Multigraph	359.31	Surplus	796.71
	$ 796.71		$796.71

Respectfully submitted,

/s/ H. Mildred Stockwell,
Treasurer

February 28, 1947.

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LIBRARIAN'S ANNUAL REPORT

This report consists of the books, bulletins, reports, and other such material received by the library during the period from March 16, 1946, to March 14, 1947.

From

Dr. John Eliot Allen:
Geology of the San Juan Bautista quadrangle, California: California Dept. Mines, Div. of Mines Bull. 133, 1946. (By Dr. John Eliot Allen)
Ancient man in North America, by H.M.Wormington: Colorado Mus. Nat. History Popular Series No. 4, 1944.

Washington State Geological Survey:
The mineral resources of Stevens County, by Charles E. Weaver: Bull. 20, 1920.

Mary Ada Henley:
Alluring Arizona - Arizona today, by William Hamilton Nelson, 1938.

Metropolitan water district of Southern California; Julian Hinds: Report for the fiscal year July 1, 1943, to June 30, 1944. 1944.

_____:
Collection of papers descriptive of Oregon's scenery, recreational, sports, etc., by eight different authors.

State Department of Geology and Mineral Industries:
Bull. 30: Mineralogical and physical composition of the sands of the Oregon Coast from Coos Bay to the mouth of the Columbia River, by W.H.Twenhofel, 1946.
Bull. 31: Geology of the St. Helens quadrangle, Oregon, by W.D.Wilkinson, W.D.Lowry, and E.M.Baldwin, 1946.
Bull. 32: Fifth Biennial Report of the Department, July 1, 1944-July 1, 1946.
G.M.I. Short Papers:
No. 15. Reconnaissance geology of limestone deposits in the Willamette Valley, Oregon, by John Eliot Allen, 1946.

LIBRARIAN'S REPORT (con't.)

From

No. 16. Perlite deposits near the Deschutes River, Southern Wasco County, Oregon, by John Eliot Allen, 1946.

No. 17. Sodium salts of Lake County, Oregon, by Ira S. Allison and Ralph S. Mason, 1947.

Ore.-Bin:

Vol. 8, nos. 4 to 12, 1946
Vol. 9, " 1 and 2, 1947

The Mazamas:

Vol. XXVIII - No. 13, 1946.

Geological Society of the Oregon Country:

News Letter, vol. 11, 1945, nos. 1 to 18. Two copies, one for circulation and one for reference in library.

Salem Geological Society:

Vol. 1, nos. 1 to 9, 1945
Vol. 1, nos. 10 and 11, 1946
Vol. 2, nos. 1, 2, and 5, 1946

Academy of Natural Sciences of Philadelphia:

Proceddings, vol. XCVII, 1945

American Museum of Natural History, New York: (Bulletins)

Vol. 85. The principles of classification and the classification of mammals, by George Gaylord Simpson, 1945.

Vol. 86. Article 1. Supraspecific groups of the Pelecypod family Corbulidae, by Harold E. Vokes, 1945.

Article 2. Notes on Pleistocene and Recent tapirs, by George Gaylord Simpson, 1945.

Article 4. Intraspecific variation in, and Ontogeny of, Prionotropsis Woollgari and Prionocyclus Wyomingensis, by Otto Hass, 1946.

Article 5. Hypsognathus, a Triassic reptile from New Jersey, by Edwin Harris Colbert.

Article 6. Pareiasaurs versus Placodonts as near ancestors of the turtles, by William King Gregory, 1946.

Article 7. Temperature tolerance in the American alligator and their bearing on the habits, evolution, and extinction of Dinosaurs, by Edwin H. Colbert, Raymond B. Cowles, and Charles M. Bogert, 1946.

Vol. 87. Article 1. Fossil penguins, by George Gaylord Simpson, 1947.

Novitiates: 1945 - Nos. 1286, 1289, 1299, 1301, 1302.
1946 - Nos. 1307, 1309, 1311, 1320, 1324, 1325.

Territory of Hawaii, Division of Hydrography:

Bull. 9: Geology and ground-water resources of the Island of Hawaii, by H. T. Stearns and G. A. MacDonald, 1946.

Bull. 8: Geology of the Hawaiian Islands, by H.T.Stearns, 1946.

California Federation of Mineralogical Societies, Bakersfield, California:

Mineral Notes and News:

No. 102, March 1946 to No. 113, February 1947.

U.S. Department of the Interior:

U.S.G.S. Bull. 949: Bibliography of North American Geology, by Emma Martins Thom, 1942-1943 and 1945.

LIBRARIAN'S REPORT (con't.)

From

Ward's Natural Science Establishment, Rochester, N.Y.:
Ward's Natural Science Bulletins:
Vol. XIX, No. 3, 1946, to Vol. XX, No. 3, 1947.

V. D. Hill Gem and Mineral Establishment:
Trade catalogs, nos. 19 & 20.

Mrs. Eliza Stevens:
National Geographic Magazines, 1925 to 1930. Later request will be made to complete numbers missing from a few yearly files.

To be continued in another issue.

The Society extends its thanks to the donors.

Respectfully submitted

February 28, 1947.

/s/ Margaret Hughes, Librarian

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1946 SERVICE COMMITTEE REPORT

During the past year 53 members of our Society took advantage of the book rates provided through the service committee by purchasing the following 11 books:

Number of copies	Book Titles
6	THE ROMANCE OF MINING by Richard
13	MINING TEXTBOOKS - Canada Dept. of Mines & Resources
1	ROCKS AND ROCK MINERALS by Pierson & Knopf
1	HANDBOOK OF ROCKS by Kemp
1	DICTIONARY OF GEOLOGICAL TERMS by Rice
13	SO LONG AGO by Smith.
8	WILD FLOWERS OF THE PACIFIC COAST by Haskin
1	INDIAN RELICS OF THE PACIFIC NORTHWEST by Seaman
6	SCENIC TREASURE HOUSE OF OREGON by Smith
1	COMING OF THE POND FISHES by Lapman
2	BIRD WATCHING IN THE WEST by Twining

Respectfully submitted

February 28, 1947

/s/ Leslie W. Bartow, Chairman

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TRIP COMMITTEE

The trip committee submits the list of trips sponsored by the Society during the past year.

1946 - 1947 trips

April 28th - Bauxite trip: Leader, Ralph S. Mason.
June 16th - Lewis River trip: Leader, Earl Minar.
July 14th - Roads End trip: Leader, A. D. Vance.

TRIP COMMITTEE (con't.)

August 10th & 11th - Paulina Butte trip: Led by The Deschutes Geological Society.

Sept. 28th & 29th - Deschutes Perlite Mine trip: Led by Dr. John Eliot Allen.

This made six trips for the year; two trips cancelled.

Respectfully submitted

February 28, 1947

/s/ A.W.Hancock, Chairman

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REPORT OF THE SECRETARY ON
LETTER BALLOT FOR OFFICES OF THE SOCIETY
For the Year beginning March 1, 1947

As provided in Article VIII, Section 1, of the Constitution of the Society, there was sent to each member in good standing a letter ballot containing the names of the regular nominees for offices in the Society for the year beginning March 1, 1947.

Prior to this annual meeting 88 marked ballots were returned to the Secretary. As no other names were submitted, according to our by-laws the vote was unanimous in favor of the regular ticket of nominees as follows:

President	Dr. Arthur C. Jones
Vice-President . . .	Mr. Orrin E. Stanley
Secretary	Mrs. May Dale
Treasurer	Miss Grace Poppleton
Director	Mrs. Mildred P. James

Respectfully submitted

February, 28, 1947

/s/ Ada Henley, Secretary

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LANTERN AND SCREEN GIVEN SOCIETY

A gift from the Rodney Glisan estate, by Mr. J. A. Minot, of a standard size slide projector and beaded screen to the Geological Society was announced at the last meeting. Two weeks previously, the board of directors had authorized purchase of a projector for the Society, as it was felt that the continued use of members' own machines was unfair to them. Purchase had been postponed due to the excessive cost of such equipment at the present time. The story on the Museum Foundation in the Oregonian had suggested to Mr. Minot the disposal of the extensive Glisan collection of natural history articles, and John Allen had been asked to inspect the collection for possible museum use. Mr. Minot announced that the projector should go to some organization that would find constant use for it, and the Society was suggested with the above result.

The appreciation of the group was expressed in a resolution passed unanimously at the meeting and forwarded to Mr. Minot.

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REPORT OF PROGRAM COMMITTEE

Programs presented during 1946:

March 8 - Oregon's high Cascades in color, by Rev. Bernard N. Montgomery.
March 16 - Annual banquet.
April 12 - Geological studies in England, by Ira S. Allison.
April 26 - Condon lecture series.
May 10 - Collecting around the world, by Ormond R. Bean.
May 24 - A bird's eye view of Mexico, by Roy Clark.
June 14 - Antarctica, by Carl Ecklund.
June 28 - Oregon's newest building material, by John Eliot Allen.
July 27 - Quiz program - stump the experts.
August 9 - No meeting due to field trip.
August 23 - Annual picnic.
Sept. 13 - Quartz and mica mining in Brazil, by James F. Bell.
Sept. 27 - Wild life in the National forests, by F. E. Williamson.
October 11 - Quiz program - stump the experts.
October 25 - Bugs in the rocks, by R. E. Stewart.
Nov. 8 - Atomic bomb tests at Bikini, by Jack DeMent.
Nov. 22 - Geologic travelogue in Europe, by Paul Howell.
Dec. 13 - Seismic prospecting, by Clifford Read.
Dec. 27 - Christmas vacation.
Jan. 10 - Some general and geologic features of the ex-mandated Japanese islands of the western Pacific, by Arthur M. Piper.
Jan. 24 - Broader aspects of the geology of Luzon, by Paul Schafer.
Feb. 14 - Terlingua, a fabulous and fantastic quicksilver district, by Randall Brown.
Feb. 24 - Oil in America, colored sound picture, and annual business meeting.
Mar. 14 - Annual banquet.

Respectfully submitted

March 1, 1947

/s/ John Eliot Allen,
Chairman ex-officio

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LUNCHEON MEETING - JANUARY 30, 1947

A piece of drill core from a fault zone on the Middle Snake was shown to the group by Lloyd Ruff, who stated it was apparently basalt breccia cemented with calcite.....Dr. W.C.Adams had three specimens for identification, and Dr. Arthur Jones brought an old favorite of his from the Ribbon Mts. of Australia, which he took to be rhyolite of typical flow structure. Petrographic examination by Dr. W.D.Lowry showed that it was chert.....Dr. Jones introduced as his guest Kurt Siecke, until recently of the U.S. Army Engineers and now in private practice. He was one of the early members of the Mazamas, and Dr. Courtland L. Booth recalled that in 1927 they were both on the Skyline trail when the party went into a crevasse..... Charles Monahan was a guest of Mr. Ruff, who introduced him as an addition to his staff recently come from the Seattle district.

Miriam Shepard

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NEWS NOTE

Announcement of the engagement of Miss Ellen James to Mr. Rodney Houghton was made to Geological Society members at the February 13 luncheon. Mr. Houghton is an upper division student in Economics at Reed College, but we are sure that his hobbies henceforth will include geology! No date for the ceremony has yet been set.

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LUNCHEON MEETING - FEBRUARY 6, 1947

From California came the specimens that Dr. W.C.Adams showed to the group. One was labeled spodumene from a pegmatite dike in Tulare County, and the other soapstone (impure serpentine and talc) from Fresno County.....Dr. Arthur Jones had for display some specimens sent from Hi Wood at Sacramento, now connected with the U.S. Army Engineers in the same office as Ray Treasher and Claire Holdredge. The specimens were mostly metamorphics.....The Clarno fossil bed had provided two rocks displayed by A.W.Hancock. According to his introduction of the former trees, one was persimmon, and the other was walnut with a coating of clear white agate.....Opportunity for missionary work among the Portland children in the field of natural history was described by Dr. J.C.Stevens, who told of the exhibits at the junior museum at the Kamm House. Cabinets of wild life specimens and of artifacts have been put on display and it is planned to have talks given on Saturday afternoons to the children.

Miriam Shepard

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LUNCHEON MEETING - FEBRUARY 27, 1947

Two interesting specimens from the Buxton-Vernonia highway fossil locality were displayed by A.D.Vance, one of which was a large bivalve of the genus Lima. The other was an opaline silicate which when cut betrayed fine hairs, showed as hollow tubes, a cluster of some unknown fossil form.....Dr. Arthur Jones displayed a streaked brown rock, probably from Harney County, which had been given to him as a piece of petrified wood.....An agate containing a water bubble was shown by A.W.Hancock.....The acquisition of a large lantern and folding screen from the Rodney Glisan estate was announced by President Allen and was met with enthusiasm. .....Miss Mary Alice Reed, director of the children's museum at the Kamm House, was introduced by Mrs. Viola Oberson and stated that there are no children's museums in the northwest, that the aim of this new venture is instruction in sciences, nature, crafts, and the arts, and that Saturday afternoon lectures will be a start in that line. Dr. J.C.Stevens explained that the museum is to be under the wing of the Museum Foundation.....Dr. Ewart M. Baldwin introduced his neighbor, Melvin Moore, and Dr. John E. Allen introduced Hollis Dole, field geologist of the State Department of Geology and Mineral Industries at Grants Pass.

Miriam Shepard

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BUILDING STONE FIELD TRIP

The announcement of a field trip seemed sufficient to terminate a couple of weeks of beautiful weather. Seven hardy souls besides Mr. Earl Minar, the leader, showed up at the new Journal Building Sunday, March the second. About 9:30 a.m. the group left for the Skidmore fountain on First Avenue. The weather, which up to the time of leaving, had been a good Oregon mist turned into a California downpour which forced most of the group into the doorways of the buildings. After surveying the stone in some of the older buildings near the fountain, a region that was once Portland's leading business district, the group left for the Union Station. Three types of marble were encountered in this building. Many brachiopods, horn corals, and crinoid stems were noted in a styolitic limestone that came from Missouri. Other stops were made at the Oregonian, Selling, Chandler's shoe store, Morgan, and American Bank buildings.

The group adjourned about 1:00 p.m.. Many other excellent displays of building stone remain to be seen and it is hoped that conditions favor a bigger turnout on our next tour.

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GEOLOGICAL SOCIETY NEWS LETTER

Volume 13, No. 4 April 1947

SOCIETY ACTIVITIES

LECTURES: On the second and fourth Fridays of each month at the auditorium (third floor) of the Public Service Building, 920 S.W.6th Ave., at 8:00 p.m. If the announcements do not appear in NEWS LETTER see Oregonian or Oregon Journal previous to regular meeting date.

TRIPS: Watch for announcements of at least one trip each month. If you know of or can lead a trip yourself, call Norris B. Stone, Br.2683 or Os.6531.

LUNCHEONS: Every Thursday noon at the House of Kilroy restaurant, 425 S.W. Taylor St., between S.W. 4th and S.W. 5th Aves. Luncheon 85¢.

MEETING ANNOUNCEMENTS

Meetings for April 11 and 25 to be announced later.

FIELD TRIP ANNOUNCEMENTS

Sunday April 27 — A trip to Scappoose, Pittsburg Bluff, Vernonia, and nearby localities is being planned by Mr. Earl Minar. This will take members to many of the favorite collecting grounds. Assemble at the New Journal Bldg. at 9:00 a.m.

July 4,5 — A field trip to the John Day region will be led by Dr. Thomas Thayer. It is not too early to begin thinking of accomodations. Further details will appear in coming issues of the News Letter.

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PRESIDENTIAL APPOINTMENTS

Dr. A. C. Jones announces the following committee selections. A few selections will be announced later.

Editor	Miriam Shepard
Business Manager	Raymond L. Baldwin
Trip Chairman	Norris B. Stone
Research "	Dr. John Eliot Allen
Service "	Leslie Bartow
Publicity "	Miss Grace Poppleton
Historian	O. E. Stanley
Librarian	Miss Margaret Hughes
Museum	Dr. J. C. Stevens
Public Relations	Clarence Phillips
Exhibits	Leo Simon

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MEMBERSHIP RENEWED

Mr. and Mrs. Ray. C. Treasher, 3932 12th Ave., Sacramento, Calif. Most of the members of long standing will remember Ray as one of the live wires in the society, and as a past president. He is now one of the Fellows of the society.

CHANGE OF ADDRESS

Miss Myrtice E. Fowler, 6116 N. E. Cleveland, Portland 2.

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THE TERTIARY FORMATIONS OF VANCOUVER ISLAND, B.C.

by
Archdeacon Robert Connell, Victoria, B.C.

Preamble to the Article by Archdeacon Robert Connell

by
Ewart M. Baldwin

Archdeacon Connell has been an active student of the Sooke region of Vancouver Island for many years and is an authority on the subject. A few months ago, he sent an excellent collection of Sooke fossils to Miss Margaret Hughes who deposited them at the office of the State Department of Geology and Mineral Industries where they may be seen. The editor had the opportunity to visit the type locality from which Mr. Connell obtained his collection. Although fossils are abundant, they are generally fragmentary, and good specimens are difficult to get. With this in mind, the relative excellence of Mr. Connell's collection denotes long and careful search. The Sooke and Metchosin formations are of general interest to those interested in the West Coast Tertiary geology. Mr. Connell has kindly consented to write this summary of the Tertiary formations of the southern coast of Vancouver Island, a favorite vacationing spot of some of our members.

On Vancouver Island rocks of Tertiary age are known only in the extreme southwest corner. A wedge-shaped block of basaltic lavas and basic intrusives together with agglomerates, tuffs, and derived sediments extends along the coast to the northwest with a maximum width of 10½ and a length of about 36 miles. These rocks were visited and described by Dr. G.M. Dawson of the Geological Survey of Canada in the late 1870's and the formation was named by him the Sooke. Since then this name has been transferred to the sedimentary formation characteristically displayed in and about Sooke Bay. To the igneous formation the name Metchosin was given after the district in which they are prominently displayed in the peninsulas of East Sooke and Rocky Point.

Dr. Charles E. Clapp in his Memoir 13 on Southern Vancouver Island published by the Canadian Geological Survey in 1912 attributed the volcanic series to the upper or lower Triassic and included them in the Vancouver group of that age, at the same time noting that they were less metamorphosed than the rest of that group. However the discovery and identification of a group of fossil shells in the basaltic rocks of Albert Head a few miles from Victoria conclusively proved them to be of Eocene age contemporary with the rocks of that age at Port Crescent, Washington. The identification was made by Dr. Charles E. Weaver of the University of Washington and Dr. W.H. Dall of the United States Geological Survey.

The occurrence of these fossils is sufficiently interesting to warrant a further note. In a small Cove in Parry Bay on the south side of Albert Head the basalt exhibits on the shore between tidemarks a well-defined fossiliferous band about three feet thick and with a southerly dip. Cross-sections of the shells stand out white against the black matrix. The fossils are predominantly those of spiral gastropods, closer examination shows the presence of pelecypods also.

partment of Geology and Mineral Industries where they may be seen. The editor had the opportunity to visit the type locality from which Mr. Connell obtained his collection. Although fossils are abundant, they are generally fragmentary, and good specimens are difficult to get. With this in mind, the relative excellence of Mr. Connell's collection denotes long and careful search. The Sooke and Metchosin formations are of general interest to those interested in the West Coast Tertiary geology. Mr. Connell has

The basaltic sandstone in which the fossils are imbedded is practically indistinguishable from the parent basalt; its fragmental character appears clearly under the microscope. It shows how easily such a sedimentary rock may be mistaken in the field for the parent rock.

S.A. Berthiaume (1938) correlated the volcanic series and associated sediments with the Capay stage of California, lower middle Eocene, on the basis of foraminifera.

In addition to the Albert Head basaltic sandstone and its fossils certain tuff beds have also been found to be fossiliferous though as yet the fossils have not been identified specifically. These beds are described by Dr. Clapp as "laminated tuffs" and their very distinctly banded character easily identifies them anywhere in the field. They are distinctly cherty in texture and minutely fragmentary in character. On a broken surface they are light greenish gray. Mr. I.E. Cornwall of Victoria spent some years ago much time in a painstaking search of these sedimentaries for fossils. He was rewarded with a remarkably clear-cut impression of an echinoid, every detail of the test clearly defined and a single spine similarly preserved. This and one or two other finds were the result of very intensive working of the faces of small crevices in the face of the rock.

The Sooke Formation

Extending narrowly along the same southwest coastline for about 70 miles from Victoria or about 40 beyond the last outcrop of the Metchosin volcanics are the sedimentary rocks of the Sooke formation, predominantly sandstones and conglomerates, though with occasional shaly layers. Their predominant dip is gently toward the southwest, and there are evidences of folding and faulting on a small scale. Wherever the base is visible they rest on the older rocks, and in places the basal conglomerate can be seen, usually in hollows and crevices of the older formations. The Sooke sediments form cliffs of varying height at the seaward edge of embayments that occasionally extend four miles or so inland along the valleys of the larger streams, and are of about the same width as a maximum. These embayments are usually enclosed by basaltic headlands and it is in the hollows of these that the basal conglomerates are usually found. Some of the boulders in these are of great size and of such angularity as to show that they were never subjected to any serious amount of marine erosion. They appear to have fallen from the Tertiary cliffs during the period of Sooke deposition; all of them are of basaltic character. One of the largest of these boulders lies at Sandstone Creek, between Point No Point and Jordan River village. It is 20 feet high, 28 feet long, and 20 feet in average width. It is firmly cemented at its base in a layer of conglomerate containing pieces of fossil wood. East of this are many other boulders that appear to have a similar history though now detached from their original base, so far as can be seen, by the powerful wave-action to which they are exposed.

One of the most accessible and at the same time most prolific of the fossil beds of the Sooke occurs just west of Muir Creek. Here the cliffs in their lower part are singularly rich in both gastropods and pelecypods, though not so much so as twenty years ago owing to the erosion and rock falls. Some of the layers are so crowded with fossil shells that little room exists for sandy filling. Conspicuous are the large Agasomas and Polynices amid a wealth of smaller species, some of which are even more numerous. The beds that extend out on the shore to low water mark and are tabled by the combined erosion of sea animals and waves contain layers of sandy shale rich in Mytilus and in fossil leaves. At the mouth of Kirby Creek a mile or so to the west the fauna of the sandstone cliff changes, and this is more or less true of each successive station.

In 1916 one of the most interesting finds was made accidentally by Miss M. Egerton of Victoria who during a walk along the beach picked up what was identified by the late Dr. W.A. Newcombe, a well-known Island naturalist, as a Sirenian tooth. A couple of years later I found another tooth in the same locality. Previously a smaller tooth had been found by Dr. B.L. Clark at the same locality also. Originally ascribed to Desmostylus, a genus found in the Temblor beds of California, it was on closer examination and particularly with regard to the smaller size, the smaller number of pillars, and the presence of a well-developed cingulum or neck, described as Cornwallius sookensis Cornwall. Sirenian remains have been found all round the North Pacific Basin from California and Oregon to Japan. The comparatively recently extinct Steller's sea-cow of the Aleutians, last seen in 1768, was from 25 to 35 feet in length and at its greatest circumference 20 feet. No fossil remains older than the Eocene are known; in the Miocene and Pliocene they became relatively abundant.

On my first visit to Muir Creek I found in the shore sandstone the scapula of a cetacean, and in later years Mr. Cornwall collected a number of other bones of which the most important were some vertebrae and a jawbone. These were sent to Dr. Othenia Abel of Vienna who said that they "had every appearance of being the remains of a Toothwhale." He based his judgment largely on the form of the vertebrae. Fossil wood, often full of teredo borings and not infrequently with barnacles still attached, is often met with and is one of the evidences of the resemblance of the Tertiary shoreline to the present-day one with its driftwood. Fossil leaves occur quite commonly in association with a small species of Mytilus. At Whiffen Spit at the entrance to Sooke Harbor on the west side I found in the sandstone of the beach a number of fossil spruce cones. Dr. Chaney of the University of California visited the place with me in 1929, and shortly after his return south a monograph on this new species, Picea sookensis was prepared by Mr. R.S. LaMotte and published by the University. In this monograph information about other Sooke fossil plant remains is given and so far as I know is not published elsewhere. These remains have been collected by several persons over a number of years, but apparently were either not described or were unpublished. Mr. La Motte mentions as at least some of the genera hornbeam, beech, oak, willow, magnolia, cinnamon, laurophyllum, hicoria, and trochodendroides. He points out that it is not an uncommon plant association, with the spruce, in freshwater deposits of the Cretaceous and early Tertiary, and that such an association is found today "in the highlands of Guatemala at a height of approximately 7000 feet."

The age of the Sooke beds is still an open question apparently. Dr. Weaver considered them "from such evidence as is available" as probably the equivalent of "the upper portion of the lower Miocene of Washington." But Clark and Arnold with fuller evidence conclude that "the Sooke formation is either upper Oligocene or lower Miocene, probably the former." It is to be remembered however that there are still other horizons of the Sooke formation that have scarcely been touched. They lie apparently higher that the others and may yet throw more light on the question of age. A young generation of amateur geologists may render valuable assistance by their exploration.

About 40 miles west of the Sandstone Creek area are the fossiliferous rocks of the Carmanah formation near Carmanah Point and Clo-oose village. I have only once visited the district and then I walked over the sandstone platform exposed at low tide and saw only a great many dentaliums scattered over it. Dr. Clapp includes the formation in the same upper Oligocene or lower Miocene age group as the Sooke. Dr. Merriam on the basis of their fauna placed the beds in the Miocene,

correlating them with the Astoria, Oregon, sedimentary rocks, and the Sooke beds in the upper Miocene or lower Pliocene. It is thus possible that the time sequence may never be very accurately settled. I may add that Messrs. Arnold and Hannibal were of the opinion that the Carmanah beds are younger than those of Sooke.

Authorities

1876 James Richardson: "Coalfields of Sooke." Geological Survey of Canada Rept. of Progress Rept.

1876-7 G. M. Dawson: "Reconnaisance of Leech River and Vicinity:" G.S.C.R. of P.

1912 C. H. Clapp: "Southern Vancouver Island" Memoir 13, Canada Dept. of Mines

1917 C. H. Clapp: "Sooke and Duncan Map-areas, V.I." Memoir 96, Canada Dept. of Mines

1923 B. Clark and R. Arnold: "Fauna of the Sooke Formation, V.I." Univ. of California Dept. of Geol. Sci. Bull.

1938 S. A. Berthiaume: "Orbitoids from the Crescent Formation (Eocene) of Washington" Jour. Paleontology. In addition to those mentioned with text fossils have been collected over many years by representatives of Leland Stanford Junior University, California Academy of Sciences, University of California, as well as by the late Dr. W.A.Newcombe and others.

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LUNCHEON MEETING - February 13, 1947

A striking exhibit of dreikanter, three-edged sand-blasted pebbles from the Casper, Wyoming district were displayed to the group by Mr. Donald Burch of the General Petroleum Co., who was introduced by Dr. Ewart M. Baldwin. Twelve different trays, displaying various aspects of the pebbles, were exhibited. White quartzite is one of the commonest rocks which appear among them, according to Mr. Burch, who stated that in the locality where they were found the sand dunes stretch for 15 miles back of the place where they are formed.....Opalite from 40 miles south of Winnemucca and lead ore, also from Nevada, were put on display by Mr. Hunt, who was introduced by Mr. Bates.....A. D. Vance showed some zeolites which came from near Woodland.....A form of zeolite from Lane county was brought to the meeting by Mrs. Eleanor Gordon of the Salem Geological Society. Another member from Salem, Mrs. Carl Richards, was also present.....Dr. Courtland L. Booth introduced his daughter, Mrs. Wharton, who is about to leave for a year in Afghanistan..... Mr. Bates also introduced one of his boyhood friends, Mr. Bird.....The guest whose introduction brought the most applause, however, was Rod Houghton, who is now a student at Reed College and to whom Miss Ellen James announced her engagement.

Miriam Shepard

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Members Attention!

The membership list is to be published in the next issue of the News Letter. Be sure that your dues are paid and your latest address is in the hands of the secretary so that you will be included. Send your dues to Miss Ada Henley who is acting secretary while May Dale is unable to serve.

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G.S.O.C. FIELD TRIP TO OSWEGO
March 23rd, 1947
by Norris B. Stone

Weather wasn't too good at the moment and prospects for balance of the day were worse but at 9:00 A.M. Sunday eight cars containing 27 of the more daring souls started for Oswego. The Oregon Museum Foundation was ably represented by their President, Dr. J. C. Stevens, who is also, of course, one of our own charter members.

FIRST STOP was just north of Oswego in a recent excavation uncovering past workings of water and exposed for some 20 feet vertically. Dr. Ewart M. Baldwin joined the party there and gave us some ideas as to what geologists think of the work that has been done in ages past by the Willamette & Tualatin Rivers and the Gargantuan Pleistocene floods of the glacial outpour from up Spokane way which it is theorized were of such enormous volume as to override lava barriers by the process known as plucking, evidenced farther on in the Oswego Lake Valley and the scab lands in the Tonquin-Sherwood district. Rudolph Erickson, who was born and raised in the Oswego district, had previously called attention to some gravels in the south side of the Lake that seemed to be in a ridge and/or terrace starting just off the Wilsonville road and running around the hill southeasterly and then south to the Marylhurst College property. Dr. Baldwin, in the meantime, had done some private field work on these gravels and told us he placed them, tentatively, as Troutdale Formation. We also picked up another car and passenger here, Dean Butler of Oregon City.

SECOND STOP was at Mt. Sylvania, a long extinct shield volcano of Boring lava from whose side near the top is a grand view of the Tualatin Valley with the Chehalem Mountains beyond. This served an excellent front row seat or prospective of the "lay of the land" in helping us to understand the theories later presented on just what Mother Nature did, geologically, to this most interesting section so close to our doors. Just 4 miles from Oswego or 1/2 mile from West Portland, everyone should see this wonderful panorama.

THIRD STOP was at the new water tank near the top of Iron Mountain just off the Oswego golf course where excavation for the tank foundation has revealed very clearly the vein of bog iron ore (limonite) which was the source of the iron production turned out at the Oswego smelter starting back in 1867. The vein is some 6 to 8 feet thick lying between Coriba lava underneath and mooted Coriba or Boring flows atop. The vein, parallel to the lavas, dips NNW at a 30° angle. This iron ore belt, according to Samuel Powell, extends from Scappoose through Oswego or Milwaukie to the foothills of the Cascades. An interesting mimeographed sheet showing the history of the Oswego iron workings had been compiled and any who were not present may get a copy on request as long as the extra copies last. From where we do not know, but after geological conversation began to lag and we had just gotten to the point where we might have started some real confidential backfence talking about the most recent ex-officers, there right behind us, tin hat, pipe and all, was Doc Allen in pusson. Supposition is that he had been up on the mountain all night practicing his speech which he very forthrightly began to give and he did a real fine job of it. Various theories of the Oswego Lake and Tualatin channels were expounded and further corroborated at the Tonquin scab lands. Granite erratics both at Oswego and Tonquin areas were pointed out as bearing on the theory of the glacial waters flowing backward into the Willamette Valley through the Oswego Lake channel

flowing westward and then to the south through the scab lands above mentioned. All who wished carried away with them specimens of the limonite ore, which ranges in structure from dark brown rock to loose red "shovelable" soil. By this time our caravan numbered 10 cars carrying 32 humans.

FOURTH STOP was back at Oswego and down to the Willamette River along side of Sucker Creek where the remains of the old iron smelter looms up very strikingly. From an architectural standpoint it is pleasing to look on. Well built of large lava blocks and originally lined with firebrick; with rather a Gothic gracefulness; beautiful arches; and as suggested by an onlooker, really something for the Oswego community to consider preserving as a local historical monument, well worthy of the expense entailed. Smelting started in August 1867 with 6 tons of pig iron resulting. First shipment to San Francisco was 50 tons that same year. Alternate layers of limonite ore from Iron Mountain and limestone from Tacoma,Wash., quarries, fired by charcoal from Oregon forests did the trick.

FIFTH STOP was gneiss - lunch. The caravam repaired to Glenmorrie to the home of Mr. and Mrs. Norris Stone where hot coffee was waiting.* And did they eat!!! Honors for top gourmand went to our new President Dr. Arthur Jones out presidenting on his first field tour in office, followed closely by Dr. Stevens and the rest of the herd. We were joined here by the Leo Simons party of four and Mrs. H. Mildred Stockwell our most recent ex-treasurer. Leo Simons had promised to bring fried chicken for the crowd but arrived on the scene with cold sausage meat sandwiches and an alibi that he hadn't been able to get out nights to round up the fryers. Like the ancient gravels, the Stones live and have their being on top of a Columbia River lava flow facing the Willamette River and an old quarry on the river bank of the place was visited by some. A good deal of this hard dark basalt was barged from this quarry to the Astoria jetty before the Fishers' quarry was opened. By this time the caravan had grown to 12 cars carrying 37 skulls.

SIXTH STOP was at the Oregon City Falls just south of West Linn. An old quarry is just above the road, presumable in Boring lavas. The lava formations were explained and the Falls were as beautiful as ever. An amusing thing happened here. Some native, thinking the crowd meant an accident or other, wandered over to the point where we were viewing the scene. Docs Allen and Baldwin were discussing whether what they were looking at was Boring or Columbia. With a disgusted look the native chimed in with "H--l,you fellows are all wet. Any kid around here knows that's the Willamette. The Columbia's 20 miles away!"

SEVENTH STOP was the property of T. F. Gable, R.4, Box 82S, Oregon City, on which the now famous Willamette meteorite was discovered in 1902 by Ellis Hughes. The exact location of the pit is about 150 yards north of the Gable house in the center of the N½ of the NW¼ SE¼ Sec.27, T.2 S.,R.1 E.; el. about 350'. It is about 2 miles on an airline WSW from Oregon City on the Grape Vine Road which is a part and/or extension of the Rosemount Road out of West Linn. The meteorite was on display at the 1905 Exposition in Portland and thereafter was donated to the American Museum of Natural History and now rests in the entrance to the Hayden Planetarium, New York City. Indications are that it had lain undiscovered for ages because it was rusted to a depth of 1/32 of an inch. Under it was discovered a layer of iron shale or scale 3 inches deep resting on solid rock. Presumably this shale peeled off the meteorite during its long stay there. It had been there long enough that according to information advanced by Dean Butler of Oregon City, the Indians had built up a sort of religious respect for it. They called it

* Editor's note: Plus a rare assortment of side dishes. Really our lunches that we brought were superfluous.

"Tamanowas" meaning "Heap big good medicine." They dipped their arrow points in the weathered pot holes filled with water and even washed their babies in it for medicinal and strengthening tonic effect. Weight of the meteorite is 15.6 tons being the largest known in the United States and Canada and the fourth largest in the world. Specific gravity is 7.7 and it analyzes 91.65 percent iron, 7.88 percent nickel. A few specimens of the iron shale were found in the pit, but since collecting has been going on so long, they are becoming pretty well exhausted.

EIGHTH STOP was at the scab lands between Tonquin and Sherwood where granite erratics were pointed out and the general topography of the country suggested augmentation of the theory that the glacial floods had flown through here and by plucking had produced formations that Dr. Allen said were not normal erosion in the broader sense.

During the day it rained, hailed, and in general acted as if it didn't care. But the remarkable thing was that due to the fact Doc Allen has an inside into the doings of E. Jupe Pluvius, just as we would come to all of our previous stops, whatever was spoiling our prospects would stop and we got by lovely until this last stop. When we left the cars, Doc inadvertently started bragging how things had been arranged etc. etc. so we could see everything without being drenched. Words were no more out of his mouth than all something or other broke loose and we received everything Old Jupe could throw at us. About 4:00 P.M. the party broke up with the concensus of opinion that the Oswego Lake territory geologically is a very fertile field for much more intensive study by professional geologists to help solve its odd formations and the part they play in decoding what we see unsolved before us.

As usual, Leo Simons didn't know when to go home so we wended our way back to the Stone's. Leo had smelled the fried chicken the Ericksons brought for lunch and he (as well as the writer) thought there was a chance they had left the remains, which they should have, but didn't. So we ate leftovers from luncheon, rehashed the day's trip and the only reason they finally left was because the Simon's granddaughter, Linda, remembered some fruit cocktail with cherries on it at her grandma's house-and she just couldn't be euchred out of it.

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LUNCHEON MEETING - MARCH 13, 1947

A series of fossils from the Buxton area were brought to the luncheon meeting by Mrs. Amza Barr for display. One of them has been sent to the Carnegie Insitute for identification. Mrs. Barr stated that at a guess she would term one a large Dentalium.....An iris agate was shown by F. M. Libbey, and Dr. Ewart M. Baldwin passed around a piece of ore from Salmon, Idaho, composed of malachite with specks of gold.....A specimen of fossilized wood which came from just above Bonneville Dam was an offering of Mrs. Viola Oberson.....Introduced to the group were Miss Clare Combs from the Oregon Museum Foundation office and Mrs. Thomas Matthews, who is not a guest but a member making her first appearance at a luncheon meeting.

Miriam Shepard

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NEW MEMBERS

Dr. and Mrs. Thomas P. Thayer, Box 116, Canyon City, Oregon. Dr. Thayer is a former member of the G.S.O.C.

Mr. and Mrs. Claire A. Kennedy, 2938 S.E. Boyd St., Portland 2, Phone SU 8867. Mr. Kennedy is a former president of the Agate and Mineral Society of Portland.

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THE AMATEUR GEOLOGIST - AN OPPORTUNITY

Twelfth Annual Banquet Address
By John Eliot Allen

Geology owes more, perhaps, to the efforts of amateurs than does any other major science. Among the first of recorded geological observations were those made by a man principally famous as an artist - Leonardo da Vinci. The "Father of Stratigraphy" was a canal digger - William "Strata" Smith. The patron saint of Oregon geologists, Thomas Condon, came west as a missionary in 1852, and becoming interested in the fossils picked up in the hills back of The Dalles, followed his hobby and became the first science and geology professor at the University of Oregon.

In our own generation and among our own associates we find many gifted amateurs who have made substantial contributions to geology. The recognized authority on identification of petrified wood, Prof. George Beck, started in geology as an amateur. The man to whom professionals go when they want to get details on Central Oregon geology is a newspaper man, Phil Brogan. One of the finest private collections of fossils on the Pacific Coast is owned by a retired postman, Lon Hancock. One of the best collections of zeolites, a mineral group in which Oregon excels, is that of our neighboring Salemite, Mrs. Eleanor Gordon. One of the finest collections of fluorescent minerals in the northwest is that of Dr. Courtland Booth. A civil engineer, A. D. Vance, after years of collecting and study of one particular fossil, recently presented a paper at the Oregon Academy of Science setting up a new species "Anadera anadera packardi".

Your association with this society is an opportunity whereby through application you can become a recognized part of the geological world. It is not easy; it will probably take years; and you must have certain qualifications. First, you must have the curiosity that will enable you to choose a field of endeavor and the enthusiasm that will enable you to keep working at it. Secondly you must have an imagination - you must be able to set up and analyze problems which will be of value, and you must be able to conceive of the multiple hypotheses which can explain these problems. Thirdly, you must have the persistence in collecting data so that you can eliminate all but a favored few of these hypotheses; and to write out and present in readable form the results of your work.

I have mentioned only a few of the accomplishments of amateurs in geology; there are many more. Oregon has an unlimited number of problems which you can attack and solve; if you don't believe that, talk with any professional! As long as the Geological Society has the leaven of a few persistent and serious workers, it will be, as it has been in the past, recognized and respected by the profession.

March 14, 1947.

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LUNCHEON MEETING - MARCH 20, 1947

A notable display of early American glass, including about 90 goblets of which none of the designs are duplicated, has been presented to the Museum Foundation by Miss Margaret Hughes, announced Mrs. Viola Oberson. Miss Hughes hopes that this will be the nucleus of an American collection...Dr. Arthur Jones, who presided, displayed a banded rock identified as an agate by Dr. W.D. Lowry...A Brazilian agate (iris), an agate from Sweetwater, Wyo., and a rhyolite from Nevada were passed around by Miss Ada Henley...A chunk of tufa from Flagstaff, was brought to the meeting by Virlis Fischer, who received it from friends who visited Arizona. From the same locality came other specimens that were identified by Dr. Booth as wolframite from the Mammoth mine; also azurite and malachite...Dr. Baldwin had a specimen of labradorite.

Miriam Shepard

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OSWEGO FAULT QUAKE?

When the Society was at the site of the Oswego iron mine on its recent field trip, mention was made of a possible fault existing along the east-west line of Oswego Lake.

The mention of this set up a recollection in my mind of an experience that I had many years ago. I intended to mention it during the trip and on occasions thereafter but the subject kept slipping away. Apparently the old saw is correct: "It takes old men a long time to think."

At daybreak of the morning of the famous San Francisco earthquake ("fire," if you are a San Franciscan) I, along with several members of my family and a number of others, was on the Willamette River just south of Oswego. We had been salmon fishing during the night and were putting our nets away preparatory to going home. Suddenly a surge of water came rolling up-river, dashing several feet upon the shore as it sped along. It passed our location and continued up-river. I recall that I later read in the Oregonian an article stating that it continued up to the Oregon City falls. How far down-river it began, I do not know. Likewise I have no knowledge of whether similar disturbances occurred on other rivers along the coast.

The upheaval of water, as I recall it, was more pronounced than the disturbance made by the passing of the large river steamboats operated on the Willamette during that period. The wave did not come from them, however, since it was a number of hours later in the day before any of them made an appearance.

Norris Stone, of the Society, informs me that he had been told of the occurance several times by his neighbor, Criss Kelly (now deceased) who was also fishing on the river that morning. Kelly's observation was undoubtedly made at or near Oregon City, since he lived there and fished at that point. Mr. Stone says that Mr. Kelly's statement was to the effect that the surge was extremely large where he was, so much so that it left his boats stranded on the beach after passing.

The disturbance where we were was not confined to the river water. It greatly excited all of us and many speculations were advanced as to its cause. One party suggested that a whale was in the river.

My recollection is that I was on land when the upheaval occurred. If there was any movement of the earth I did not notice it and I do not recall that anyone else ever mentioned noticing any earth movement at the time.

Would this water disturbance, occurring at the time that it did, have any significance as indicating a possible earth-fault, deep-seated or otherwise, that may have been affected by the larger earth movement at San Francisco?

I have thought of this matter many times and shall be greatly interested in hearing your opinion on the subject.

R. Erickson

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NEWS NOTE: Mr. John Robinson has resigned his position with the U.S.Geological Survey, Ground Water-Division and is moving to the Puget Sound area to set up an office as consultant on geological problems pertaining to water supply. John has offered to lead a field trip to points in the Sound area and western Olympic Mts.

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GEOLOGICAL SOCIETY NEWS LETTER

Volume 13, No. 5 May 1947

SOCIETY ACTIVITIES

LECTURES: On the second and fourth Fridays of each month at the auditorium (third floor) of the Public Service Building, 920 S.W.6th Ave., at 8:00 p.m. If the announcements do not appear in NEWS - LETTER see Oregonian or Oregon Journal previous to regular meeting date.

TRIPS: Watch for announcements of at least one trip each month. If you know of or can lead a trip yourself, call Norris B. Stone, BR 2683 or OS 6531.

LUNCHEONS: Every Thursday noon at the House of Kilroy restaurant, 425 S.W. Taylor St., between S.W.4th and S.W.5th Avenues. Luncheon 85¢.

MEETING ANNOUNCEMENTS

Friday May 9 — Late Cenozoic history of the lower Columbia River basin, by Dr. W. D. Lowry. New concepts of post-Oligocene history of the area will be discussed in first of two lectures.

Friday May 23 — Late Cenozoic history of the lower Columbia River basin, by Dr. E. M. Baldwin. Subject is continued from preceding lecture.

FIELD TRIP ANNOUNCEMENTS

July 4, 5 — A field trip to the John Day region will be led by Dr. Thomas Thayer. It is not too early to begin thinking of accomodations. Further details will appear in coming issue of the NEWS - LETTER.(See p.45)

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NEW MEMBERS

	Phone
Mr. and Mrs. Robert R. Minton, 6405 N. Portsmouth Avenue, Zone 3, (Occupation gem cutting)	UN 2841
Dr. and Mrs. Francis G. Gilchrist, 304 S.W. Hamilton St., " 1, (Teacher at Lewis & Clark College)	BR 4227
Mr. Fred B. Laird, (Junior Member), 6124 N.E. Cleveland Ave." 11, (College student)	GA 8395

CHANGE OF ADDRESS

Mr. Alva Oakes, 218 N.W. Flanders, Zone 9.
Mr. Richard J. Anderson, 331 Dennis Ave., South, Hillsboro, Oregon.

NEWS NOTE

Mr. and Mrs. Robert Priestaf and son, Richard, are living in Arlington, Virginia, where he is working for the U.S. Geological Survey, topographic branch. He was formerly with the 29th Engineers, and Mrs. Priestaf was an assistant geologist with the Oregon Department of Geology and Mineral Industries.

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DARK DAYS IN NORTH AMERICA

By
J. Hugh Pruett
Oregon General Extension Division

We see occasional references to the dark day of May 19, 1780. It seems well established that during a part of this day a great deal of New England was in gloom about as deep as that of night. The statement is sometimes made that on this occasion "the sun had turned to darkness." There is, however, not the least evidence that anything had gone wrong with old Sol. Had this been the case, the entire world would have been engulfed in night. Outside the region of the localized "blackout," normal conditions of cloudiness or brilliant sunshine prevailed on the daytime side of the earth. There is no authenticated account of world-wide darkness ever occurring. The cause of the phenomenon of 1780 must be sought in some intervening terrestrial substance which temporarily blocked off the sunlight from this large area.

Again, we sometimes read that May 19, 1780, was the dark day, inferring that it is the only one in which such a condition has ever existed. I have recently gone through various kinds of readers' guides to periodical literature and have found numerous references on this subject. From the University of Oregon library and a few other libraries which the Oregon institution contacted for me, I have been able to obtain all the periodicals I found listed. Many of these are very old, and some have extensive quotations from still older publications.

A careful study of these references shows conclusively that during the past 250 years there have been many dark days in America. The descriptions of eye-witnesses indicate that other days have been just as dark as the noted Black Friday of May 19, 1780, and that a few were more widespread. In many cases, it seems that curious combinations of smoke (usually from forest fires) between layers of cloud at different levels have produced such thick horizontal aerial curtains over wide areas that sunlight could not possibly penetrate them. C. F. Talman, writing in Scientific American of March 6, 1915, listed the following historical dark days:

May 12, 1706	New England
Oct. 21, 1716	New England
Aug. 9, 1732	New England
Oct. 19, 1762	Detroit
May 19, 1780	New England
Oct. 16, 1785	Canada
July 3, 1814	New England to Newfoundland
Nov. 6-10, 1819	New England to Canada
July 8, 1836	New England
Oct. 16, 1863	Canada
Sept. 15-Oct. 20, 1868	Western Oregon and Washington
Sept. 6, 1881	New England
Nov. 19, 1887	Ohio River Valley
Sept. 2, 1894	New England
Sept. 12, 1902	Western Washington
June 5, 1903	Saratoga, New York
Dec. 2, 1904	Memphis, Tennessee
Aug. 20-25, 1910	Idaho to St. Lawrence River

To the above we may add:

Feb. 28, 1923	New York City
Nov. 11, 1933	South Dakota, Iowa, and Nebraska

Many accounts of Black Friday of 1780 have come to us from authentic sources. The darkness started in Connecticut at about 10:00 a.m., coming from the southwest. From there it moved rapidly northward over several states. Dogs, chickens, and birds realized something was unusual. By noon, many people were thoroughly frightened, thinking the Day of Doom had certainly arrived. One Presbyterian minister to whom the people went for comfort gave them none. Instead, he insisted that the event was a fulfillment of prophecy, and their sins had brought it about. A member of the Connecticut legislature moved that that body be adjourned. Col. John Davenport, another member, declared, "Mr. Speaker, I am against this motion. The Day of Judgement is approaching or it is not. If not, there is no need of adjourning. If it is, I desire to be found doing my duty. I move that candles be brought and we proceed." It was so ordered.

The wife of Dr. E. A. Hook, president of the Massachusetts Medical Society, left no hint of fear in her diary. She wrote only this: "May 19. Uncommonly dark. Began at 10:00 a.m. Dined by candle light." A Mrs. Robert Bratte set out a tree on that day. Samuel Thompson, a land surveyor in Massachusetts, wrote: "Began to grow dark between 9 and 10 a.m. and increased until after 12, when it was darker than is usual on a starlit night. Candles were lighted at noon. The people were astonished and called to mind passages of Holy Writ. The darkness gradually departed and natural day revisited the earth at about 3 p.m."

At Norton, Massachusetts, Apollos Leonard left a similar report. "Thunder in the morning after daybreak. The forenoon was very dark with some rain. At about 12 o'clock we lighted a candle. Darkness increased until 1:30 p.m. At the darkest we could hardly see (a neighbor's) house and barn. At 2:10, a sprinkle of rain. At 3:30 the darkness was entirely gone. The yellow color present around the horizon after the light was ushered in soon left the sky."

Phineas Sprague (likely of New Hampshire) recorded this in his diary: "The air had been full of smoke for three or four days so we could scarce see a mountain two miles distant. One day after noon the smoke all left and very black clouds appeared in the south and west. Next morning at about 10 it thundered and began to rain and grow very dark. By noon it was almost as dark as night and we were obliged to light our candles. Between 1 and 2 p.m. it got light, but in the evening the clouds came over us again. The moon was about at full. It was the darkest night ever seen by us in the world."

Dr. Samuel Tenney was at his father's house in Essex County, Massachusetts, on this memorable day. The next day he set out to join his army regiment in New Jersey, and inquired at many places along the way in regard to the conditions on the previous day. His account in the Massachusetts Historical Society's records runs about as follows:

"The darkness was most intense in Essex County, lower New Hampshire, and in Maine. It was not so dark in Rhode Island and Connecticut; and in New York, still less. In New Jersey the darkness was not very uncommon. Previous to the beginning of the phenomenon the sky was overcast with common clouds from which there was a sprinkling of rain. Between these and the earth, another stratum intervened, to appearance of great thickness. As this advanced, the darkness progressed. The uncommon thickness of this stratum, probably occasioned by two strong currents of wind from the south and west, condensed the vapors and drew them into a northeasterly direction. The light from the sun which got through the top stratum was so weakened and refracted that when it reached the thick lower stratum, much of it reflected back and the rest could not penetrate it."

From the Memoirs of the Academy of Arts and Sciences, published in 1785, we find an account by Dr. Samuel Williams, professor of Natural Philosophy at Harvard University. This and Dr. Tenney's report give us attempted scientific explanations. In shortened and paraphrased form, Dr. Williams wrote as follows:

> "Extraordinary darkness was noticeable about 10:00 a.m. It appeared first in the southwest and came on with the clouds. In most places it was too dark to read common print. Fowls went to roost. We dined by candle light. The condition existed all over New England. For several days earlier the air appeared full of smoke and vapor, and the sun and moon were remarkably red and divested of a lucid appearance. This obscuration increased toward the horizon.
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> "On the dark day, the barometer at Cambridge was falling continuously. The clouds were faint red, yellow, and brown. Objects usually green were of the deepest green - almost blue. White objects seemed tinged with yellow. In the early morning, the sun, barely visible, was intensely red. Thunder was heard at most places, and some rain fell before 8:00 a.m. and at times later in the day. The water which fell was thick, dark, and sooty, and gave the same sooty smell observed in the air. Large quantities of scum, being the black ashes of burned leaves, were found floating on the surface of the water in rivers, ponds, and in vessels used for catching rain.
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> "The clouds seemed to form a number of strata, the lowest being of uniform height as far as was visible. From some places vapors seemed to be ascending; but from most, to be descending. Objects seemed to cast shadows in every direction. A number of small birds, some that had flown into the houses, were found suffocated by the vapor.
>
> "In this part of America it is customary to fire the woods in order to clear lands for new settlements. This was the case this spring in much greater degree than common. In county of York (Maine), in New Hampshire, Vermont, and western Massachusetts, uncommonly large fires had been kept for two or three weeks before, and had raged in the woods before they could be extinguished. In addition to what arises from evaporation and constant and natural exhalation, a much larger quantity of vapor arose from these large and numerous fires, which extended all around our frontiers. As the winds had been small and variable for several days, vapors instead of dispersing must have constantly been rising and collecting in the air until the atmosphere became charged with an uncommon quantity of them."

At this point Dr. Williams discussed at some length the differences of density and height of the various portions of the air, and the numerous refractions and reflections of the sunlight coming in from above. He finally concluded: "In this way we may account for all the phenomena observed May 19, 1780." He further reminded his readers that there had been other dark days in the past, similar in appearance and cause. On October 21, 1716, the remarkable darkness was so intense that candles had to be used at noon. August 9, 1732, was also a day of gloom "which was afterwards found to be occasioned by an uncommon fire in Canada." These two dark days were also phenomena of New England, a region often afflicted with such. He also mentioned the phenomenon of October 19, 1762, around Detroit, also caused by heavy forest fires.

One writer commented that after the dark day of 1780, many people believed that the end of the world would come almost at once. "They believed it for two years, then the independence of the country brought songs of joy and victory, and they forgot all about their previous fears."

I have copious notes on various other dark days in the United States and Canada, but space does not permit discussions of more than a few of them. In nearly all cases rainwater falling at the time was found impregnated with soot. "Black rain fell." In most cases artificial lights had to be used. During July 3, 1814, sailors off the coast of Canada had to use lanterns on deck to see to work. Both dust and ashes fell on them. A writer in the Edinburgh Philosophical Journal thought the eruption of an unknown volcano in Labrador was the cause. The Indians were said to believe that there was a volcano in Labrador.

There was unusual darkness over New England during the period November 6 - 10, 1819. The same condition existed, at least on some of these days, in parts of Canada. J. H. Dorwin, writing in the Montreal Star a year or two later, told of it practically as follows:

> "It was the strangest condition in the history of this country and is since known as the 'Phenomenon of 1819.' On Sunday, November 8, the sun rose upon a cloudy sky, which took on a strange greenish tint, varying in places to an inky blackness. It was not long until the entire heavens became terribly dark. Soon there was a heavy shower of rain, which seemed a great deal like soapsuds. Late in the day, the sky cleared and it was fine and frosty. After settling, the rain that fell earlier left a sooty deposit.
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> "On the morning of Tuesday, November 10, heavy clouds were again changing rapidly from deep green to pitchy black. The sun, which occasionally showed itself, was brown and yellow and orange and blood red. The clouds deepened in density and color, and later a heavy vapor seemed to be descending to the earth. The day became almost as dark as night, increasing and diminishing most fitfully. At noon, lights were needed. Some people became alarmed, but the more sensible thought that immense woods or prairies were afire somewhere to the west; others that a great volcano had broken out.
>
> "By mid-afternoon a great body of clouds rushed over the city and it was as black as night. Terrible flashes of lightning added to the terror, and more soapy and sooty rain fell as it had two days before. Lightning was playing around the spire of the old French parish church, when suddenly the great iron cross on top fell to the ground with a shattering crash and broke into pieces. The phenomenon was noticed in greater or lesser degree from Quebec to Kingston and far into The States. It has never been explained."

Accounts from various parts of New England agree well with that given above. Rain water caught in widely separated places was seemingly heavily impregnated with soot. Prof. Frederick Hall of Middlebury College, Vermont, thought it was due to immense quantities of smoke from fires in Georgia where the Indians were burning the prairie grass, often six or seven feet high, in order to drive out the game. "As soon as the wind changed to another direction, it became light again."

The modern Black Friday, September 12, 1902, in the state of Washington was well described in the Monthly Weather Review of 1902 (page 440) by Rev. M. Eells, the Weather Bureau observer for Mason County. He reported that it was the darkest day the oldest inhabitants ever knew. "At 3:00 a.m. the whole heavens were a bright red; at 5:00 a.m., dull red; by 7, gray." By 9 o'clock it was possible to read inside a house only by getting near a window, "and even then it was very trying on the eyes." The greatest darkness came between noon and 1:00 p.m., when it was utterly impossible to read out of doors. By 1:15, one could read outside. At 2, there was a dull red in the sky. Conditions soon changed to normal.

Rev. Eells noted that there seemed not to be enough smoke under the clouds to make one's eyes smart, and that lights seen at a distance along the ground appeared white and clear. He reported that as W. A. Hunter and wife started from the Canal Logging Company property for their home a mile away over a road through timber lands, it was so dark that it was impossible to drive a team without a light. Mr. Hunter borrowed a lantern, and his wife walked ahead to light the way while he drove. He reported that during the noon hour it was just as dark as the darkest night he had ever known.

It was common knowledge that this day of gloom was due to heavy forest fires in western Oregon and Washington. "The darkness traveled like a wave northward. At Astoria, Oregon, the darkness started on the 11th, making it necessary to have lights at 3:00 p.m. The sky was a yellowish green, and the fog from the ocean was said to have mixed with the smoke. On the eastern part of the Puget Sound, at Tacoma and Seattle, the darkness was very marked, but not so much as on the western side at the base of the Olympic Mts."

A dark day occurred in parts of South Dakota, Iowa, and Nebraska on November 11, 1933. Unlike most of the other days discussed, it was caused by dust rather than smoke. The occurrence was brought to my attention by Mrs. Harold Gordinier of Eugene, Oregon, who described it somewhat as follows:

> "An orange color was noted in the sky around 9:00 a.m., when the dust began coming in. It was not long until it was as dark as night, and lights had to be turned on. One could see objects outside only a few feet away at most. Moist handkerchiefs were tied over faces in order to prevent inhaling too much dust. The wind started from the west; later, shifted to the northwest. Finally during the evening it began to blow from the southwest. Soon we noticed the lights of a passing train a short distance away and knew that the air was clearing."

H. M. Shoebotham, present managing editor of the Sioux Falls Argus-Leader, writes me that he was out in "this dust blizzard-hunting-and later described it for our paper." He said that it actually turned day to night. "All lights were turned on as they are at night. Motorists drove with headlights. A 50-mile gale accompanied the storm, which howled all day. Houses were closed up tight, but still fine dust would seep in."

Thus we find that in our country alone there are records of many days so dark as to be very disturbing to the fearful. I am fully convinced that all were due to natural causes - although unusual - and can be explained without any involvement of the supernatural. Combinations of dense smoke and layers of thick cloud seem to account fully for the majority. If any stand out more prominently than others, it seems reasonable that it is merely in degree of darkness - or greater opportunities for publicity - rather than being due to any unexplainable cause.

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ADDRESS - ANNUAL BANQUET - 1947

by

Arthur C. Jones

Twelve years the Geological Society of the Oregon Country has existed, a dozen years of comradship in exploration of the mysteries of the past ages of this marvelous Pacific Northwest. Though these years are as the blink of an eyelash in the long scheme of the geological eras, they are significant, because this society has been an agency in the advancement of scientific knowledge. Many have been led to a scientific curiosity about the past of mother earth, the building stones of continents, the strange animals who possessed the savannahs of the John Day country, and the truth about man's ancestors and man. None of us can tell what far heights may be reached by this group of curious "Geesockers" in the years to come, nor how far the effects of the stimuli we have set up among the people of this region may extend.

It is fitting that we should again pay tribute to the founder of this Society, Dr. Edwin Hodge, without whose enthusiasm and vivid teaching this organization would not have begun. He gave most generously of his time and strength in the earlier days of our growth, and his visualization of Oregon's past and of the future of this Society has contributed equally to our present strength. All the past presidents and their officers have donated much to the cause of geological lore in the Northwest and the growth of this Society, and your incoming executive approaches the task of following their footsteps with much the same feeling that he might have if he were to be required to stride in the tracks of Tyrannosaurus Rex.

A year ago John Allen pointed out the objectives of the Geological Society. In order to emphasize certain of those objectives I wish to suggest that we concentrate on three of them now.

To help establish the museum which is contemplated through the Oregon Museum Foundation, Inc., will fulfill the objective of encouragement of geological study among amateurs, and enhance all the other objectives of the G.S.O.C. The President of the Foundation, Dr. J. C. Stevens, our own past president, has often said that our members have been his firmest support. We will look forward to a year of continued work in this most important cause. Any advantages to the society which the museum would bring need not reduce any credit which our contribution may deserve.

The aid of the Junior Museum through contributions of specimens and talks by members at the Saturday sessions of the museum will add materially to the success of the campaign for the larger museum, since the small beginning at the old Kamm home is under the wing of the Museum Foundation. Parents can be approached through their children's interests, and there are few subjects that can captivate a child's curiosity like rocks and fossils. I hope that many of our members will go to the trouble of giving time to this most worth-while activity.

The "support and promotion of geologic investigation in the Oregon Country" has been helped by work of several members of our Society, particularly by Mr. Vance, Mr. Hancock, John Allen, Lloyd Ruff, and E. M. Baldwin. Dr. Booth has ranged the country for fluorescent minerals. I hope he will take his "doodle-bug" light out among the mine dumps of Oregon on many a moonless night!

It seems that we could combine some research projects with our investigation of terrain for field trips. Let us amateurs search for fossil horizons, more evidences of stratigraphy, or check more tree rings to show the ages of moraines in the Cascades. Even one project outlined for the Society should stimulate interest and might result in a real contribution.

The "designation, preservation, and interpretation of important geologic features of the Oregon Country" should provide a natural outlet for some of the enormous energy of many of our members. I propose that we definitely "adopt" certain features of Oregon geology which are deserving of explanation to travelers through the Northwest, and set up markers which will interpret them to all comers. The Columbia Gorge is full of such points of interest. The Mt. Tabor volcano ought to have a sign which would explain it to visitors and encourage its preservation. Roadside signs or incised engravings might mark such features as points of contact between basalt flows and underlying gravels, a well-defined anticline, or other structural elements seen along main-traveled highways. Every member can no doubt contribute a suggestion regarding this project of the Society. The state highway departments of Oregon and Washington would be receptive to suggestions for similar markings, or for preservation of geological landmarks along the highways.

The passing of war shortages should allow us to take more field trips. It is my sincere hope that a large percentage of our members will support and encourage this activity, which is basic to our continued growth. It is through such visits to the actual evidence of the geological past that we are imbued with the enthusiasm to learn more ourselves and to pass on our enjoyment of this greatest of sciences to others.

I pledge you all with me to a year of continued enthusiasm, curiosity, and persistence for the Geological Society of the Oregon Country.

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LUNCHEON MEETING - FEBRUARY 20, 1947

Specimens which had come to him through the mail from Bristow, Boyd county, Nebraska were passed around by Dr. Courtland L. Booth, who ventured a guess that most of them came from stream gravels....Dr. Arthur Jones' contribution to the day's specimens came from Hi Woods. The piece was from a magnesite mine of World War I vintage two miles south of Success, California, in Tulare county....A. D. Vance exhibited specimens from Hockinson, Washington, a few miles out of Vancouver, to show how the facets vary from the wind-blown facets of the dreikanter specimens shown to the society February 13 by Donald Burch and which were from the Casper, Wyoming, district.

**********Miriam Shepard

MEMBERS ATTENTION!

Compilation of the membership list has been delayed until the next issue of the News Letter in order that it can be as complete as possible. If your dues are unpaid or your address or telephone number changed, please send them to Miss Ada Henley, who is acting secretary until Mrs. May Dale is able to take over the secretarial duties.

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FOURTH OF JULY EXCURSION

Preliminary plans for the John Day field trip have been received from T. P. Thayer, who wrote from Canyon City as follows:

I would suggest the following itenerary: Leave Dayville at 1:00 p.m., July 4th, and spend the afternoon on Tertiary stratigraphy and structure of the John Day valley west of Mt. Vernon, with emphasis on faulting. Stops will be arranged along the John Day highway so late-comers will have no difficulty in catching up with the party. Friday night we could have a campfire at Wickiup Forest camp, about 15 miles south of Canyon City, where there is an unusually nice fireplace. There I could give a brief outline of the major relations of the area, with emphasis on the features to be seen Saturday, which will be spent in the vicinity of John Day, on the pre-Tertiary rocks and structure and physiography of the eastern part of the valley. This part of the show would end about 5 o'clock. On Sunday whose who liked could look for fossils near Picture Gorge, and all could take their time going home.

A little belatedly, perhaps, we realized that our excursion coincides with the big local celebration "The Days of '62," when the Whiskey Gulch Gang puts on a big "shindig." The lodging situation will be rather tight, and I would recommend that reservations be made early. The John Day hotel is good, and a few parties of four (possibly more with their own cots) could be accommodated at the Cote d'or auto court between John Day and Canyon City. McHaley's hotel is reported to be clean and comfortable. For those who wish to camp, the Wickiup Forest camp will be probably most satisfactory. The Joaquin Miller resort, 10 miles south of Canyon City, may have some cabins ready by then. I think it would be better for your secretary to handle the reservations, or for people to make their own arrangements, than for me. I will plan the trip Friday to allow plenty of time for the campers to get settled, and will see about any necessary reservation for the campfire at Wickiup. Those who still have ambition Saturday night can get a good workout at the big '62 dance in Canyon City. They usually have two orchestras, an old time and a good modern one.

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TO EUROPE IN 1948?

If you'd like a personally collected specimen of Old Red Sandstone, make your plans now to attend the 18th session of the International Geological Congress in London from August 25 to September 1, 1948. Excursions are being planned to numerous areas of the British Isles both before and after the session, at a cost of approximately two pounds, five shillings per day. If you've collected around Buxton, Oregon, why not try Buxton in the Pennines? For details, especially regarding the time limit for presentation of papers, ask the State Department of Geology and Mineral Ind.

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LUNCHEON MEETING - MARCH 27, 1947

The advantages and disadvantages of joining a new federation of geological societies were discussed by the members. Dr. Courtland L. Booth suggested that we might rather enter the Northwest federation, and A. D. Vance moved that a committee be appointed to study the matter of the national group.....A middle Eocene cephalopod from the Dallas lime quarry was displayed by Dr. Ewart M. Baldwin, and Mrs. Palmer had a geode for exhibit.....Among the Oregon Museum Foundation's specimens exhibited at the First National Bank are a varied group belonging to society members, including the old American glass collected by Miss Margaret Hughes and quaint mechanical banks owned by Tom Matthews.

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Miriam Shepard

SILL-LIKE INTRUSIONS IN THE CENTRAL COAST RANGE OF OREGON*

by

Ewart M. Baldwin

Remnants of sills and sill-like bodies as much as 750 feet and commonly 300 to 500 feet in thickness cap most of the peaks and plateaus in the central Coast Range of Oregon. Marys Peak, Fanno Ridge, Laurel Mountain, Saddleback Mountain, and Mt. Hebo are outstanding examples. Although many of the intrusives are true sills, some appear to be discordant with the underlying strata. Where the sills have been removed by erosion, feeder dikes form prominent ridges and also constrictions in the stream valleys.

Most of the sills intrude middle or upper Eocene sediments. Oligocene and younger sediments are generally absent from the central part of the Coast Range. However, near the coast in a few places sills of this stage of intrusion penetrate beds probably of Keasey age (uppermost Eocene or lowermost Oligocene). The upper age limit is as yet undetermined. The sills were gently folded, and in a few places faulted, during late Tertiary arching of the Coast Range.

Petrographic examination by Dr. W. D. Lowry showed that most of the intrusives are quartz-bearing gabbros, including granophyric gabbro. They are not related to the quartz-free feeders of the middle Miocene Columbia River basalt.

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UNUSUAL OCCURRENCE OF ILSEMANNITE*

by

Lloyd W. Staples

Ilsemannite, a rare molybdenum mineral of uncertain composition, is found at the Kiggins mine on the Oak Fork of the Clackamas River in Clackamas County, Oregon. The writer corroborated his identification of the mineral by microchemical and X-ray methods. The ilsemannite is similar in appearance and behavior to that first described by Höfer from Bleiberg, Germany, and also that studied by Hess from Ouray, Utah.

The ilsemannite occurs in a strong, nearly vertical calcite vein, and in places the blue color has worked into the cleavage of the clear calcite. Halotrichite usually covers the ilsemannite, and the separation of the two minerals is very difficult. Of the dozen or more known occurrences of ilsemannite throughout the world, this one is unique in being associated with cinnabar, which is found at the Kiggins mine in commercial quantities. The cinnabar is one of the last minerals to have been deposited, and well-defined veinlets of it cut across most of the other minerals in the deposit.

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*ABSTRACT. From papers presented at the Geological Society of America, Cordilleran Section, Annual Meeting, April 10-11, 1947, at Palo Alto, California.

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LUNCHEON MEETING - MARCH 6, 1947

"Poker chip" disks of granite which were samples of building stone belonging to his father were passed around the luncheon table by Earl Minar. Many of the specimens came from Sweden, but there were blue pearl and moss green from Norway, two labradorites, gabbro, two granites from Finland, a piece from Scotland, as well as samples from Vermont, and Wisconsin. The latter was described as the hardest material in the building business, since words cannot be cut into the stone but have to be etched..... Pres. Jones displayed an ammonite from the Mitchell country of Oregon. Mr. Ward called it of the Chico formation and probably Cretaceous, although possibly older..... Mr. and Mrs. Tom Palmer, new members, were introduced by Miss Henley. Mrs. Palmer, who is Phil Brogan's sister, stated that last year they sold their eastern Oregon ranch where leaf impressions had been found. Dr. Jones introduced as his guest Mr. S. Bonnievie of Seattle. ****************************** Miriam Shepard

GEOLOGICAL SOCIETY NEWS.LETTER

Volume 13, No. 6 June 1947

SOCIETY ACTIVITIES

LECTURES: On the second and fourth Fridays of each month at the auditorium (third floor) of the Public Service Building, 920 S.W. 6th Ave., at 8:00 p.m. through the month of June only. Watch the Oregonian, Oregon Journal, and the July issue of the News-Letter for further announcements.

TRIPS: Watch for announcements of at least one trip each month. If you know of or can lead a trip yourself, call Norris B. Stone, BR 2683 or OS 6531.

LUNCHEONS: Every Thursday noon at the House of Kilroy restaurant, 425 S.W. Taylor St., between S.W.4th and S.W.5th Avenues. Luncheon 85¢.

MEETING ANNOUNCEMENTS

Friday June 13 — "Death Valley Days," by Orrin E. Stanley. Colored slides will be shown. Mr. Stanley obtained these pictures as a member of the College of the Pacific caravan which recently visited Death Valley.

Friday June 27 — It is hoped that Dr. Ralph Chaney of the University of California will be able to talk to the Society on this date, but the matter is not yet definite. Watch daily papers for further announcements.

FIELD TRIP ANNOUNCEMENTS

July 4, 5 — Dr. Thomas Thayer will lead a field trip to the John Day region. Have you made your reservations? Don't overlook the precaution of tick shots.

August 23, 24 — John W. Robinson, a member of the Geological Society who now lives in the Tacoma region, has offered to lead a field trip to points of interest near Tacoma, Hood Canal, and the east side of the Olympic Peninsula. John has spent considerable time studying these areas and is an authority on much of this region. The tentative date set is the weekend of August 23 and 24. It is not too early to plan to attend this trip. Further details will be published later.

PROGRAM COMMITTEE

Members of the program committee are Franklin Davis, Lloyd Ruff, A. D. Vance, and F. W. Libbey, Chairman. Suggestions concerning programs would be welcomed by any member of the committee.

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NEW MEMBERS

Donald R. Campbell, Junior member, 2505 N. Emerson, Portland 11, WE 0573.
Mrs. Coralie S. Nelson, Maplewood, Oregon, AT 0123, Ext. 408.

Change of telephone: Mr. and Mrs. Carl P. Richards, Salem 4315.
Change of address: Mr. and Mrs. Darrell Currier, Zigzag, Oregon.

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THE ELLENDALE QUARRY

by

Ewart M. Baldwin

The basalt quarry located a short distance west of Ellendale along Rickreall Creek within the Dallas quadrangle produces road gravel and rip rap. Basalt, being an igneous rock, is not generally thought of as a source of fossils. However, a lens of basaltic grit and pyroclastic material, with an appreciable calcium carbonate content, has yielded a very interesting fauna. The material appears to be contemporaneous with volcanism, and supports the conclusion that much of the basaltic mass in that region is of submarine origin.

The most interesting fossil form is a large coiled gastropod of the genus Pleurotomaria. This genus is not plentiful, and its occurrence at Ellendale is particularly notable because of its scarcity. The first specimen, which was in a good state of preservation, was collected by Mr. L. M. Lambert, operator of the quarry, and donated to the State Department of Geology and Mineral Industries. A specimen of this genus was collected some years ago in the Oregon-Portland Cement quarry a short distance to the south by Harry Wheeler, who deposited it at Stanford University. The specimen from the cement quarry was the subject of an abstract published in the 1934 proceedings of the Geological Society of America by Drs. H. G. Schenck and F. E. Turner. Dr. Schenck is studying the entire genus and it is hoped that his work will be published soon.

Among the other forms noted in the quarry were large oysters, several species of brachiopods, a few pelecypods including the genus Lima, and a few corals. Dr. J. Wyatt Durham of the California Institute of Technology has studied the fauna and the list will be published soon. Dr. Durham concluded that the fauna, on the basis of the brachiopods and a species of Turritella, appears to be about equivalent in age to the Capay stage of the Eocene of California. Dr. Durham concluded that the sediments were deposited in water less than 20 meters in depth and of tropical temperature. The Umpqua formation of southwestern Oregon is likewise of this approximate age.

An abundant foraminiferal fauna is likewise present. The large foram, Discocyclina, which is sometimes nearly half as large as a dime, is abundant. This type is not found in beds younger than the Tyee formation in Oregon and they are commonly found in parts of the Umpqua formation. Besides the Discocyclina, other forams are being studied by R. E. Stewart of the State Department of Geology and Mineral Industries.

Other limy lenses occur within the basaltic mass. These are not unlike the limestone deposits being quarried for cement and agricultural limestone. However, the faunas are not entirely the same. In both the basaltic grits and the apparently younger limestone lenses environmental conditions might have been quite restricted and thus be "provincial." It is hoped that the abundant faunal evidence already uncovered may some day be correlated with other West Coast formations.

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HONOR ANNOUNCED

Donald O'Connell has been elected to Sigma Xi (Associate) at the University of Oregon.

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DR. CONDON AS A TEACHER

Memories of Dr. Thomas Condon as impressed on one of his students were written by Mr. George Gilbert of 1114 North Prospect, Tacoma, Washington, in a letter to George F. Beck of the Central Washington College of Education at Ellensburg. Mr. Gilbert is a member of the Tacoma Rocks and Mineral Club. He was manager of the laundry in Puyallup until five or six years ago when he retired.

My first summer in Oregon, that of 1894, I taught a little country school three miles inland from Newport. Being a country boy from Ohio, the beaches had great attraction for me. One morning as I walked in along the bay front I noticed a small group standing on the tiny wharf looking down at some object, a big flat fish. I arrived just in time to hear one of the group say to another, "What is it, Professor?" "A skate," was his answer. That was my first sight of Dr. Thomas Condon.

Then well into his seventies, Dr. Condon had the benign look of a prophet, kindly, earnest and soft spoken. In height he could not have been over five feet four inches. He had a massive head with black hair worn rather long and a long black beard. His neck was unusually short and he had the appearance of sturdiness, doubtless fortified by forty years of exploring Oregon's hills and mountains. He wore a generous-sized hat and a black "Prince Albert" coat which looked long for his short frame. In my four years at the University I never saw him dressed otherwise. The striking, benign figure of Professor Condon, and the recommendations of my county school superintendent were my only links with the University of Oregon, which I entered a year later.

My all too brief course with Professor Condon, as everybody lovingly called him, was in the school year of 1896-7. He had a room nearly 40 feet square in the northwest corner of Villard Hall. The room was almost filled with cases of specimens used in instruction. With not more than 300 students in the college, his classes were bound to be small. There was just room for a few chairs backed against showcases. Before these small groups he stood and spoke informally and rather slowly in a soft, musical and friendly voice. He took for granted the interest of his students. The interest in geology at that time was entirely cultural, and few people ever sat at the feet of a more reverent and enthusiastic student of nature.

The controversy concerning the theory of evolution was still on, and often bitter. Dr. Condon was both a devout Christian and a believer in the evidences of evolution which he himself had found. I recall his statement to our class that there is enough evidence in the John Day canyon to prove the theory of evolution.

I recall his mentioning to our class his belief that the Siskiyou mountains form the oldest land mass in the emergence of the North American continent. Though commanding a broad use of our language, in which I never detected any trace of Irish accent, he had one striking expression which he often used, "the tooth of Time."

Immediately after graduation I went to Montana and at the end of 1900 I was sent to the Philippines, where for eight years I was first a private secretary and then a bureau chief clerk. I did not revisit Eugene until the twenty-fifth anniversary of my class. By that time Dr. Thomas Condon, the most revered man on the campus, had long since passed and his precious collection of minerals and

fossils, which I particularly wished to see again, was hidden away somewhere in a basement. However, while driving to Arizona six years ago, Mrs. Gilbert and I paid a reverential visit to the new science building where much if not all of the Condon collection was on display. And I was glad, both because of its historic and scientific value and of my association with the great man whose love and effort and learning had brought them together.

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SCAPPOOSE-PITTSBURG BLUFF-VERNONIA TRIP

by

Ewart M. Baldwin

Sixteen carloads of would-be geologists, including a larger than usual contingent of will-be would-be geologists, decided to take advantage of good weather on April 27 and accompany Mr. Earl Minar, the trip leader, on a circuit which included Scappoose gravel, Colport iron ore, Pittsburg Bluff, and Keasey fossil localities. They swarmed all over the large gravel pit on the north edge of Scappoose. While the kids got gravel in their shoes, the elders tried to decide what it was and from whence it came. There was the usual high-grading of specimens and the lowering of car springs as the group followed John Allen up a narrow road toward the Colport mine. This is one of the localities of limonitic ore which occurs as interbeds within the Columbia river basalt. It is often referred to as bog ore, brown ore, etc. It is used for paint pigment but in other parts of the world such ore is used for making pig iron. The cars parked about midway up the hill and the group took off in pursuit of knowledge, butterflies, and other interesting objects. Many flowers were in bloom and Leo Simon was consulted frequently as to their identity. The iron mine consisted of a series of cuts in the hillside. The ore could be seen along with decomposed basalt. One or two pieces of ferruginous bauxite float from a higher horizon were noted. Mr. Minar had been given a metallic substance by a workman who had claimed to find it in one of the iron deposits. It is not magnetic and is still in the process of being identified.

Those who had had a light breakfast soon urged removal to the picnic grounds. The power of suggestion made the rest hungry so we moved on to a basaltic promontory that overlooked the north fork of Scappoose creek. We soon deduced that this was a favorite spot of earlier inhabitants because of the kitchen middens of the "bottle age" that rested on the basalt. Professor Gilchrist joined the group at this point. Being the first day of fishing season, we had the opportunity of witnessing the catching of a minnow. The retreat of the fisherman was accompanied by an encounter between his and the Ruff dog. It was declared a draw and the other dog walked off on his two hind legs but not because his others had been immobilized during the encounter.

Al Vance was delegated to lead the party to a fossil locality on the east fork of the Nehalem. However, by the time the two lead cars reached the summit, the rest of the party was nowhere to be seen. In due time they arrived. Al now believes that there is no need to get a more modern car because they can't keep up with him as it is.

The fossil locality is in an old railroad cut just south of the highway bridge as one approaches Wilark. The Pittsburg Bluff fossils were plentiful just prior to our visit but are now less so. They were so much better than at the actual bluff that the latter stop was skipped. Some stopped for gas and refreshments in Vernonia, others stopped at a road junction south of the town from uncertainty, but in due time all reached the high railroad trestle from which the favorite Keasey collecting ground may be reached at either end of the trestle. Some who decided that they should go home earlier took off from this point, others looked for fossils.

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COLLEGE OF THE PACIFIC DEATH-VALLEY EXCURSION

by

Orrin E. Stanley

The 56 cars of the College of the Pacific Death Valley Excursion left Stockton, California, at 7:30 o'clock on the morning of March 29, 1947, led by a state highway patrol car which set the pace over Highway 99 as far as Bakersfield, and which radioed ahead to the towns we approached so that local police could get the long string of cars through without entangling with traffic. Besides the highway patrol, there were two large vans carrying the bed-rolls and kitchen equipment and supplies to feed the 281 persons for eight days, a pickup truck for suitcases, and a jeep with two auto mechanics and their tools and equipment for roadside repairs to ailing autos.

The car from Portland carrying Elizabeth M. Barr, Ruby and Hazel Zimmer, and Orrin E. Stanley, the driver, who had spent the previous three days on the trip to Stockton, was given the number 45 and a purple pennant and was assigned to Section 5. This group was led by Dr. Allen Waldo of the department of geology in the College of the Pacific and the Stockton Junior College. During the trip Dr. A. T. Bawden looked after all details except the food, which was handled by Prof. J. H. Jonte. It appeared that every contingency had been cared for, but the Portland car managed to get lost right out of the middle of the caravan, and later to lose a camera, but neither of these imprudences resulted disastrously.

Saturday evening the caravan pulled into Kern River camp near Isabella at six o'clock, to be greeted with the news that the gasoline stoves were obstinate and dinner would be delayed. The time of waiting was used to find places for the beds and to struggle to them with the bed-rolls, which seemed heavier than necessary. There was group singing, and before anyone had fainted from hunger the long lines had formed to the three serving tables. The dinner was worth waiting for. This camp is well shaded by digger pines and Fremont cottonwoods.

Sunday morning we stopped to inspect the Joshua trees before going through Walker Pass and turning south to Red Rock canyon where Palm Sunday services were held against the fluted canyon wall several hundred feet high. This wall of loosely cemented gravel and sand is nearly vertical and is approached over a long slope of the outwash from the steep gullies which scar the face of the bluff.

At Trona the Portland car rejoined the caravan after skittering around over the desert on rough and dusty roads, and in its assigned place proceeded to Valley Wells to camp. Nearly everyone had a good swim in the large outdoor swimming pool, then after dinner met in a fraternal hall which was opened for the "campfire" meeting. The hall was jammed, with 90 percent of the people sitting cross-legged on the floor. This made rising to be introduced a painful procedure.

Monday morning a visit was made to the potash plant of the American Potash and Chemical Corporation at Trona, into which brine is pumped from 25 wells in Searles Lake and evaporated to produce 1400 tons of various chemicals a day. It is estimated that at the present rate of operations the contents of the lake will be depreciated about one percent in 100 years.

From Trona the caravan crossed Panamint Valley and wound its way up the steep and crooked Wild Rose Canyon, many of the cars coming to a boil before reaching the service station where water was replenished, and the journey continued to Mahogany Flat where 10 charcoal kilns, built by the Indians to make charcoal for smelting the ores from nearby mines, still stand in their neat, orderly row.

Two clicks of the shutter and one interior inspection of a kiln was all there was time for before we turned and coasted down the dusty road, then up another climb to an elevation of 6000 feet at Aguerrberry Point overlooking Death Valley, a wonderful view.

Crossing the Panamint Range through Emigrant Canyon a stop was made at Stovepipe Wells Hotel for gas and water before going ten miles farther to Stovepipe Wells Camp, where the water is charged with epsom salts to an extent that makes it undesirable to drink and impossible to make a lather with for shaving. This camp was 50 feet below sea level. Leaving this camp before 7 o'clock Tuesday morning, we were over Daylight Pass and into Nevada before 9 and had reached Hoover Dam before one o'clock. There we spent two hours inspecting the dam and listening to talks about its construction. At Boulder City a motion picture and another lecture on the subject occupied an hour and a half before we left for the public camp ground on the shore of Lake Mead, where the stars were brighter and more plentiful than we had ever seen before.

Travelling north from Lake Mead on Wednesday, April 2, the directors thought best to pass quickly through Las Vegas with its many temptations, but a stop was made at Rhyolite, a ghost town of the mining days, and at the Bottle House, a small residence built entirely of bottles laid up in mortar. A visit was made to Death Valley Scotty's "castle", where the guides were found to be unnecessarily snippy. The place is interesting because of its architecture and construction and particularly because of its location in such a desolate spot. The furnishings are unique, many of them having been made especially for the place, while others were antiques imported from Europe. Members of the last section of the caravan met "Scotty" on the road.

From the "castle" a short run was made to Ubehebe Crater, an 800-foot deep hole in the top of a hill with no noticeable evidence of lava in the vicinity. It had the appearance of being the result of a subsidence rather than of an explosion or eruption. After dinner in camp at Stovepipe Wells many of the cars drove to the sand dunes about a mile distant where a campfire was built and talks and community singing were enjoyed.

The excursion visited Golden Canyon, yellow muds and shales with pink rocks above, on Thursday, then went south to Badwater, 279 feet below sea level, where there is a small lake of evil-tasting water surrounded by salt flat. Returning northerly a stop was made at Zabriske Point for another fine view of the valley. The hills around the point are a good example of "bad lands" topography. The ridges are eroded to sharp edges and the sides of the hills have uniform slopes, said to be Mid-Tertiary deposits.

At Furnace Creek Inn we had time to sit still and eat our lunches instead of following the former custom of eating them at the rate of two bites to a mile. At Furnace Creek Ranch some relics of the Twenty Mule Team days were seen - the feed wagon, an old buckboard, an old stage, and the steam traction engine which was to have replaced the teams but didn't. There are cabins and a store here as well as palm trees and tamarisks, at 178 feet below sea level.

A short visit was made to the Old Harmony Borax Works, operated in 1880 by "Borax Smith." From this place we went through Mustard Canyon (so called from the color of the bluffs) and out of Death Valley over Towne's Pass where the motors were supposed to overheat but failed to on account of a cold breeze carrying some rain and a little snow. The trip down the west side of the pass and across Panamint Valley was quickly made and we were soon winding up the canyon to Darwin Falls, where a small stream trickles down the rocks and over a rocky bed

for a few hundred feet before sinking into the gravel. Wild celery grows in the stream bed. It is said to have been washed down over the falls from a Chinese garden on the high ground above the falls during a cloudburst which destroyed the garden and drowned the gardener.

The kitchen at the Darwin Falls camp was established near the falls at a point above where the water disappeared into the gravel. All cars were turned around and headed down stream so that a quick getaway might be made in case of a storm. Beds were carried up onto the terraces well above the stream bed.

At Lone Pine we had a view of Mt. Whitney, the highest mountain in the United States. The caravan went from Lone Pine to the Alabama Hills where we again ate lunch at ease, this time among the ruins of a motion picture set where "Gunga Din" had been filmed. The rocks here are badly weathered, giving the appearance of greater age than older rocks that have been glaciated or water-worn.

At Little Lake a stop was made to view the petroglyphs and to indulge in ice cream cones, the price of which doubled while the caravan was there. The U.S. Naval Ordnance test station was passed on the way back to the Kern River camp at Isabella, where Friday night was spent, before the return trip through Bakersfield to Stockton on Saturday.

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PROPOSED MUNICIPAL FOREST-PARK DESCRIBED

At the May 9 meeting a few minutes were devoted to the movement to create a 5000-acre forest park on the north hills of Portland. This subject was presented by Dr. Thornton T. Munger, past director of the local Forest Experiment Station and chairman of the recently organized Forest-Park Committee of Fifty.

A six-foot map was displayed showing the tract in question, which lies on the rugged wooded terraine between St. Helens Road and Skyline Boulevard, north of Macleay Park. It is about one mile wide and nine miles long with a difference in elevation of 1000 feet from the river to the ridge. Except around the edges, it is practically uninhabited. Its highest use is as a recreational area. Its wilderness nature was well shown on a large scale aerial photograph mosaic, taken by the U.S. Coast and Geodetic Survey, which was on display.

The City Club made a thorough study of this area two years ago and recommended that it be set up as a municipal park to be left largely in its natural condition. Then prospecting for oil started and some of the land was leased for drilling. The oil boom has passed and interest in the proposal is again aroused. A committee representing about 45 civic, commercial, educational, and outdoor agencies has been formed to study and promote this forest-park project. Leo Simon represents the G.S.O.C. on this city-wide committee.

A significant feature, shown in colors on the map exhibited, is the large amount of land already in either city or county ownership because of tax delinquency and foreclosure. Of the 5000 acres more than half is already publicly owned.

The project has had the endorsement of many groups. The City Planning Commission has just recommended it to the City Council and soon the matter may be up for public hearings before the City and County Commissioners, at which time the G.S.O.C. should be heard from, according to Dr. Munger.

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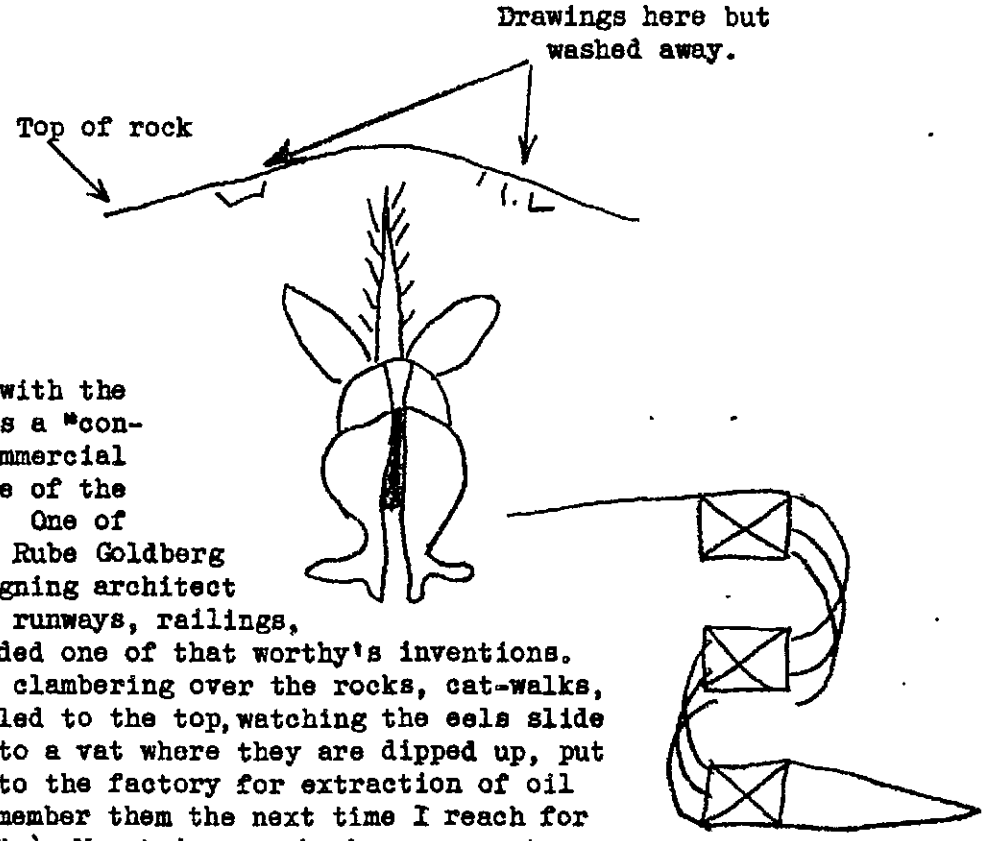
OREGON CITY PETROGLYPHS

by

Mrs. R. Erickson

An afternoon trip was enjoyed by some twenty-two members and their guests on Sunday, May 18. The group met at the Courthouse at Oregon City at one thirty o'clock. After waiting some twenty minutes in the hope that other members would put in an appearance, we left for the Willamette Falls to view the Indian writing on the rock cliffs. Sergeant Everett Meads of the State Police, detailed at Oregon City with the State Fish and Game Commission, arranged for his assistant, Martin Christensen, to take our party by boat. The men decided to walk part of the way and were picked up by Mr. Christensen after he had deposited the ladies on a float immediately below the Falls.

The first stop was at Black Point, a quarter of a mile below the Falls, where a number of interesting petroglyphs were seen on the abutment of rocks at that point. There were seven or eight designs chiseled in the rock in simple geometric patterns. At the second stop, close to the falls (to the right looking south) were found pictographs which appeared to have been traced with a black paint. Traces of writing appeared also at the extreme top edge of the rock. Apparently other designs had at one time been there but the rock had been eroded away, obliterating the main part of the drawing.



Vying in interest with the writing at this spot was a "contraption" built by a commercial company at the very edge of the falls for snaring eels. One of the group remarked that Rube Goldberg must have been the designing architect for the maze of flumes, runways, railings, board-walks, etc. reminded one of that worthy's inventions. We spent some time here clambering over the rocks, cat-walks, and rough timbers that led to the top, watching the eels slide down the sluice runs into a vat where they are dipped up, put into barrels and taken to the factory for extraction of oil for vitamins. (I'll remember them the next time I reach for my bottle of vitamin "A".) Mountaineers who have a yen to climb up sheer cliff fronts might learn something by watching the eels do that little trick at the Willamette Falls.

After spending some time at the Falls, we returned by boat to the dock, then proceeded to our cars where a note was found on the windshield of Norris Stone's car:

"We came, we saw, but didn't conquer. Met at Journal Building but no transportation. Came by slow freight - couldn't find the rest so adjourned at three p.m.

(Signed) Ewart M. Baldwin
Maisie Dailie
Fred Laird
Mr. & Mrs. Herbert Laurence
Rose Jennings."

We were much disappointed. Had they waited a short time longer, we would have connected. After discussing means of finding them and no feasible was presenting itself, we proceeded to our next stop, an old gravel pit at Park Place a few miles east of Oregon City.

No sooner had our motors stopped than some of the members were up the side of the cliff like a pack of monkeys up a tree after cocoanuts. Soon samples from the ledge of gravel that runs through the formation were flying down to the less agile members of the group who waited below. The exposed cliff showed a series of ledges; at the base a deep strata of yellow sand, then five or six feet of vesicular gravel, then more sand, a smaller ledge of gravel, then a claylike sand in various grades and colors to the top where there appeared to be several feet of what looked like extremely coarse clay. The depth of the cut was approximately 60 feet.

We missed our professional members very much at this point as there was no one to give us an explanation of the formation. The armchair geologists took over, however, and "surmised" and "conjectured" a number of conclusions.

Leo Simon thought the gravel may have come in with a thick flow of sand and gravel similar to a thick mud flow. The formation appeared to be Troutdale. Some suggested re-worked Troutdale. Another thought the deposit may have been left by a lake. Dr. Jones said it was similar to formation found on the east side of the Sandy River. (Dr. Allen later told us it was a fine example of Troutdale gravel.) Quartzite pebbles were found, some faceted on one, others on two sides. Also a Dreikanter, a three-edged pebble.

After conjecturing for some time and regretting the absence of Dr. Baldwin or Dr. Allen, we left for the Norris Stone residence to view the finds he and Clare Stone brought home on their recent trip to Chicago. They had specimens from Portland to the windy city and back. It was getting late and we were able to give only a quick "once over" preparatory to a later inspection, which we hope Norris will arrange for in the near future.

We then proceeded to the residence of the Rudolph Ericksons where sandwiches and coffee were served.

Guests of the afternoon included Mrs. George Jones and Mrs. Bickner of Oswego, Mrs. Pearlite Stiff of 5802 N. Glisan Street, Portland, and her daughter and son-in-law, Mr. and Mrs. Hedin of Portland.

The trip was led by Rudolph Erickson.

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MRS. HAVEN SCORES

The NEWS-LETTER always enjoys giving recognition to outstanding accomplishments of its members and it takes pleasure now in congratulating Mrs. Haven on heading the list of 44 applicants who took the account clerks' examination recently given by the city civil service board. Mrs. Haven was the only applicant without veteran's preference who scored 100. To write a perfect paper in any examination is noteworthy but when only 15 of the 44 who took the examination were able to make a passing grade, her feat becomes outstanding. If she should take up geology seriously our professionals had better look out.

This NEWS-LETTER and society members wish her all success in any advancement this examination may bring to her.

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LUNCHEON MEETING - THURSDAY, APRIL 3, 1947

As a follow-up of the Oswego field trip, Norris B. Stone and Rudolph Erickson reported the finding of the largest number of granites, schists, and quartzites found in Oregon in a group of 60 to 70 erratics in that area. Quartzite pebbles were also found.....Earl Minar passed around two specimens, one of which was labeled chromite-picotite. The other, which was given to him as jasper and had also been called cinnabar, was stated by Dr. John E. Allen to be too light for cinnabar, but possibly stained with it.....Quite rare was a large gastropod, a Pleurotomaria from the middle Eocene, which Dr. Ewart M. Baldwin stated came from the Ellendale basalt quarry near Dallas. A similar species is living in Japan.....A fossil "porcupine", zeolites from the Kalama district, was shown by A.D.Vance.....Sunspots visible to the naked eye have been crossing the sun for the past month, according to Bruce Schminky.....Chunks of siliceous sinter from the hot springs at Steamboat, near Carson City, Nevada, were passed around the table by John W. Robinson.....An assortment of Ordovician fossils, including some interesting bryozoa, were exhibited by Dr. Arthur Jones, and came from the Cincinnati area. They included brachiopods, gastropods, pelecypods, trilobites, and crinoid stems

Miriam Shepard

LUNCHEON MEETING - THURSDAY, April 10, 1947

Dr. J.C.Stevens introduced as his guest, Mr. Curran, chief electrical engineer for the Eugene Water Works. Mr. Curran, who is a member of the Eugene "Obsidians," spoke of his interest in earth sciences, chiefly along mountain-building lines..... Mr. Stanley gave a resume of his participation in the recent College of the Pacific motor caravan trip to Death Valley. On this trip Mr. Stanley was accompanied by G.S.O.C. members, Mrs. Barr and the Misses Zimmer. He took many pictures and will show them to the Society on one of the lecture nights in June. Some of the highlights of which he spoke were the good roads and good food. Hot breakfasts and evening dinners were provided cafeteria style, and each morning cold lunches were distributed to each car, and occupants of the cars could partake of these lunches whenever they wished. Mrs. Barr was asked by Pres. Jones to make some comments on the trip and she spoke briefly of some of her experiences. She passed around samples of adobe obtained in Southern California.....Bruce Schminky mentioned an article in Science News Letter on sunspots. He also passed around a "Chico pan", used for panning out concentrates from gravels or crushed rock. This pan has certain advantages for prospectors and collectors. It is distributed by Al Bartel, mining engineer, Platt Building, Portland. ...Mr. Hancock spoke of his trip with the geology class of Lewis and Clark College into central Oregon. He passed around specimens of fossil nuts, a redwood twig impression obtained on the trip, and also, of much interest, was a head of the miohippus, the little Oligocene horse which he dug out of John Day beds at a locality five miles down the John Day River from Turtle Cove. How does he find such very fine specimens?

F. W. Libbey

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FAULT FINDING IN THE JOHN DAY COUNTRY*

A day and a half tour of the John Day Valley and Strawberry Mountains, under the leadership of Dr. T. P. Thayer, geologist, U.S. Geological Survey, will begin at 1 P. M., July 4, at Dayville, and end near Prairie City about 5 o'clock July 5. The first afternoon will be devoted to study of the Tertiary formations and the structure of the portion of the John Day valley between Dayville and John Day. The next day will be spent on the pretertiary rocks in the vicinity of Canyon City, the gold deposits, and the general features of the portion of the valley east of the town of John Day.

Rock Formations to be Seen

The discussions in the field will be more readily followed if the members of the party are familiar with the names and general features of the formations to be seen, and with their major structural relations. It is suggested that the accompanying cross sections and the following formation descriptions be carried in the field for ready reference. The formations are listed in order from oldest to youngest.

Paleozoic rocks

Ancient basaltic lava flows, banded chert, and shaly sediments containing small scattered lenses of limestone. Highly folded, and in part altered to schist, slate, and marble.

Mesozoic rocks

Upper Triassic shales and dark gray sandstones, well cemented but not metamorphosed. Strongly folded and faulted. Unconformable on the Paleozoic rocks, and intruded by large masses of gabbro and peridotite, which contain the chromite deposits and have been partly altered to serpentine.

Tertiary rocks

Eocene (?). Andesitic volcanic conglomerates and mudflows, and a few thin lava flows. Deposited on an irregular surface eroded on the older rocks. Probably similar in age to the lower part of the Clarno formation.

Lower-middle Miocene. Columbia River lavas; mainly basalt flows, with interbedded pumiceous tuffs and waterlaid beds in the upper part. Separated from the volcanic conglomerates by an angular unconformity.

Middle-upper Miocene. Mascall formation; a thick series of ashy waterlaid beds, including pumice tuffs and beds of well-rounded polished gravels. The Mascall is conformable on the Columbia River lavas and probably interfingers with the uppermost basalt flows.

Pliocene-Pleistocene. Rattlesnake gravels and tuff; poorly sorted red to brown, coarse, semi-angular gravels, which filled the John Day Valley to a depth of 500 feet or more. A bed of pumiceous tuff, which forms prominent rim rocks, was deposited near the middle of the gravel section. The Rattlesnake has been deformed very little, and is separated from the Mascall formation by a great angular and erosional unconformity.

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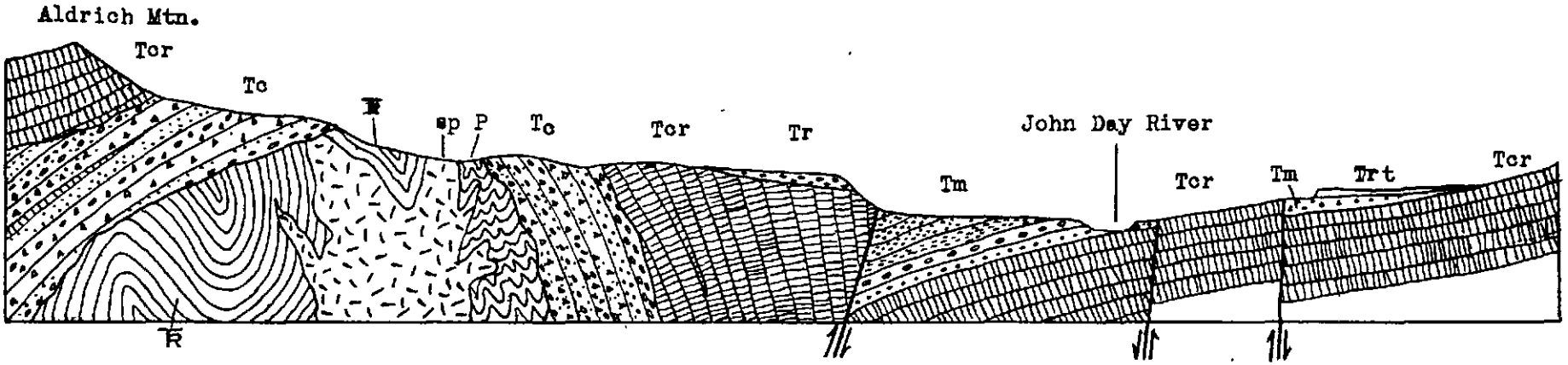
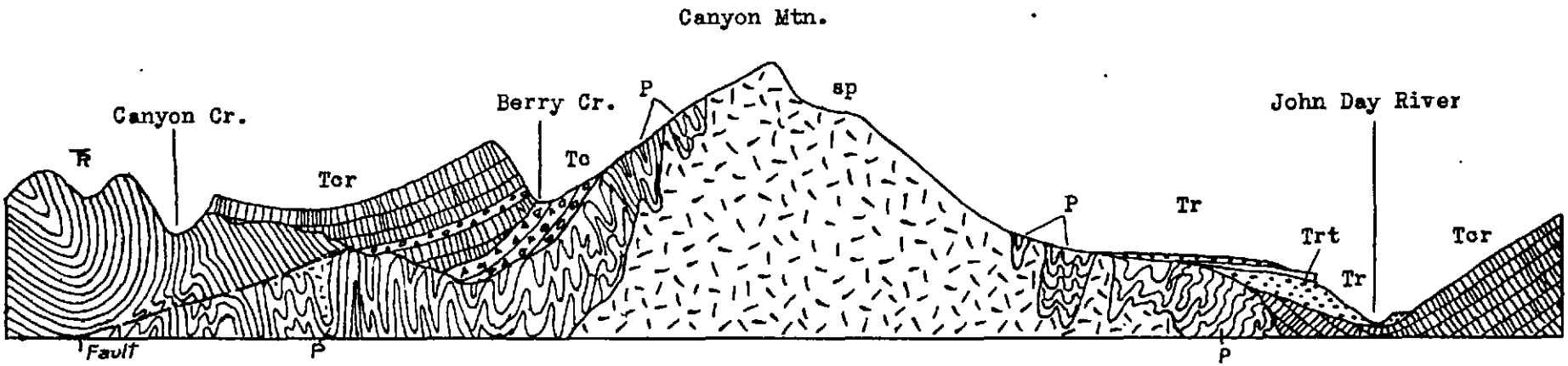
*Prepared by Dr. T. P. Thayer and published with the permission of the Director, U. S. Geological Survey.



Generalized section across the Aldrich Mountains and the John Day River valley, showing relations between the various formations. Formations, in order of age are: Paleozoic rocks, P; Triassic rocks, $\overline{R}$; serpentine and gabbro, sp; Clarno (?) volcanic rocks, Tc; Columbia River lavas, Tcr; Mascall formation, Tm; Pliocene gravels, Tr; Rattlesnake tuff, Trt. Arrows indicate movement on faults.



Diagrammatic section through Canyon Mountain and the John Day River valley, to show structure of the Strawberry Mountains. Not drawn to correct scale.

Periods of Major Deformation

Post-Paleozoic (?). Intense folding and faulting, and probable intrusion of dioritic rocks. Most severe deformation in the district.

Late Mesozoic. Folding and faulting, probably including overthrusting, of Upper Triassic rocks, accompanied by intrusion of gabbro-peridotite complex.

Middle Eocene (?). Folding of andesitic conglomerates to angles of 60° or more, along major axes of late Tertiary deformation.

Late Miocene. Folding of Columbia River lavas to vertical dips, and local high-angle reverse faulting. Erosion following this deformation gave the region essentially its present form.

Pliocene-Pleistocene. Minor warping (?) and small-scale faulting along lines of earlier slips.

Geologic Section near Picture Gorge

The Tertiary rock succession is admirably exposed along the John Day River in the vicinity of Picture Gorge, near the junction of State Highway 19 and U. S. Highway 28. The lower Tertiary conglomerates form conspicuous bluffs along the river 3 to 4 miles north of the highway junction. The formations all dip to the south, and may be identified as follows: the John Day beds, brightly colored tuffs; the Columbia River lavas, massive basalt flows that form the gorge; the Mascall formation, drab to white soft beds that form the low hills south of Picture Gorge; and the Rattlesnake tuff, which forms a prominent level mesa on the sloping upper surface of the Columbia River lavas. Those who go via Arlington will see the entire section, and the others who go via Prineville will find the short detour well worth their time, scenically as well as geologically. It is noteworthy that the John Day beds are not present in the area mapped east of Dayville.

Itinerary

July 4th

Leave Dayville at 1 P. M. sharp.

0.0 S. Fork John Day River, at east end of Dayville. Bluff of Rattlesnake formation to right.
1.3 Roadside stop. Rattlesnake-Mascall relations.
5.8 Roadside stop. Mascall beds at intersection of two faults in Columbia River basalts.
7.4 Half-mile detour to left. Mascall beds in graben, one fault exposed. Discussion of the John Day fault.
10.0 Roadcut. Lignite and fossil leaf locality in Mascall formation.
10.3 One-mile side trip up Cummings Creek. Role of landsliding in erosion of John Day valley.
13.8 Roadside stop east of Fields Creek. Van Horn ranch graben and Belshaw fault.
16.2 Roadside stop. Easternmost exposure of John Day fault; view of extensive high terrace in Mt. Vernon section of the John Day valley.

Itinerary (cont.)

23.9 (If time permits) Turn left at Mt. Vernon 0.4 mi. up U. S. 395 to exposure of Rattlesnake tuff.
25.4 Roadside stop. Faulting of lower Tertiary beds against Columbia River lavas.
29.9 Roadside stop. Lavas and tuffs in north limb of the John Day syncline.

End of trip, about 5 P. M.

Note: Mileages given are along the John Day Highway, for the benefit of late arrivals, and do not include side trips.

July 5th

8:30 A. M. Meet at summit of grade on Highway 395, at road to Fall Mountain lookout, and proceed to lookout. (Cars must be parked on flat about a quarter of a mile from the lookout, as there is very little room for cars on top.) Discussion of the general geology of the Strawberry Mountains, the east end of the Aldrich Mountains, and physiographic comparisons of the John Day and Bear valleys. On return to Canyon City, stops to see the Triassic rocks and figure out which way is up, stratigraphically speaking; to see gabbro and serpentine; and Paleozoic schist.

12:00 Noon. Lunch in Canyon City or John Day.

1:00 P. M. Leave Canyon City for Iron King chromite mine; chromite and peridotite; gold deposits and their relation to the physiographic history of the John Day valley; Paleozoic pillow basalt included in serpentine. Return to Canyon City for rest stop, and proceed about 15 miles east to view point east of Prairie City for general discussion of eastern end of John Day valley. Trip ends at about 5 P. M.

Evening Campfire

There will be an informal campfire gathering at about 8 o'clock in the evening of July 4th at the Wickiup Forest Camp, 17 miles south of John Day, for discussion of features seen during the afternoon, and notes on the program for the next day. There will also be Kodachrome slides of parts of the area that will not be visited.

To reach the Wickiup Forest Camp, go south on U. S. 395 about 10 miles to Joaquin Miller resort, and turn left up road along Canyon Creek. Turn right at first bridge across Canyon Creek beyond gate to Williams ranch.

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Note: It is not too early to arrange for transportation, lodging, etc. Because of crowded conditions in and around John Day, there will be a larger number than usual planning to camp out. This calls for some careful plans - let's start now. Those planning to go should register both cars and capacity as well as need for transportation with Norris B. Stone. Phone Br. 2683 or Os. 6531.

———*********———

M E N U

Crab cocktail Fruit salad

Relish bowl

Sautéed Dinner Steak

(Fish for those who desire it)

Potatoes au gratin New green peas

Hot rolls Butter

Ice cream Cake

Coffee Tea Milk

P R O G R A M

GREETINGS President John Eliot Allen

MASTER OF CEREMONIES Dr. Courtland L. Booth

DE RE GEOLOGICA Song by group

1946 THOSE WHO COME AND GO 1947

Dr. John Eliot Allen Dr. Arthur C. Jones

THE WEST AFRICAN RAIN FOREST
AND OREGON'S TROPICAL PAST

Dr. Thomas P. Thayer Guest Speaker

INTERMISSION

FOSSIL DREAMING Song by group

WITH LODES OF SEDIMENT, by Grand Master S.O.A.P.

DIET AND HEALTH, by Cornelius Quack, M.D.

I DON'T BELIEVE IT, by Rough and Ready

COSMIC IMPULSES, by Spark and Gap

THE GREAT CONSOLIDATED ERIWYAH
Featuring that renowned cure-all, Dr. H. A. Wire

GOD BLESS AMERICA Song by group

TWELFTH ANNUAL BANQUET COMMITTEE

General Chairman	H. Bruce Schminky
Speaker	John Eliot Allen
Place and Menu	Mrs. Viola Oberson
Stunts	Kenneth N. Phillips
Decorations	Earl W. Minar
Program Cover	Miss Dorothea Minar
Song Leader	Norris B. Stone
Reception	Franklin L. Davis
Gifts	A. D. Vance
Accompanist	Mrs. A. W. Hancock
Transportation	A. W. Hancock
Tickets	Leo F. Simon

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1946	1947
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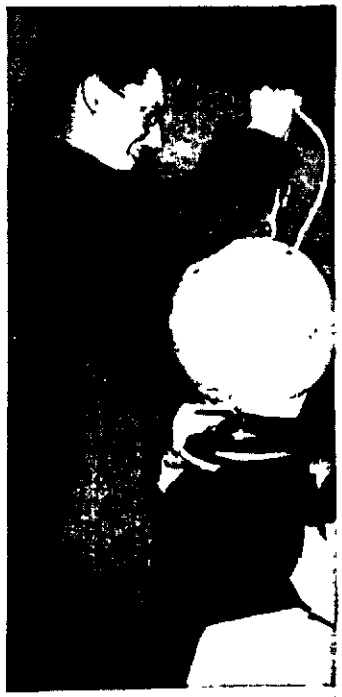
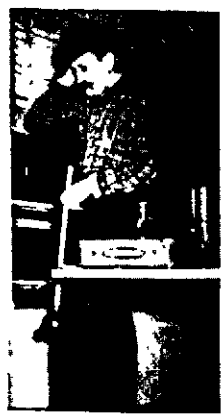
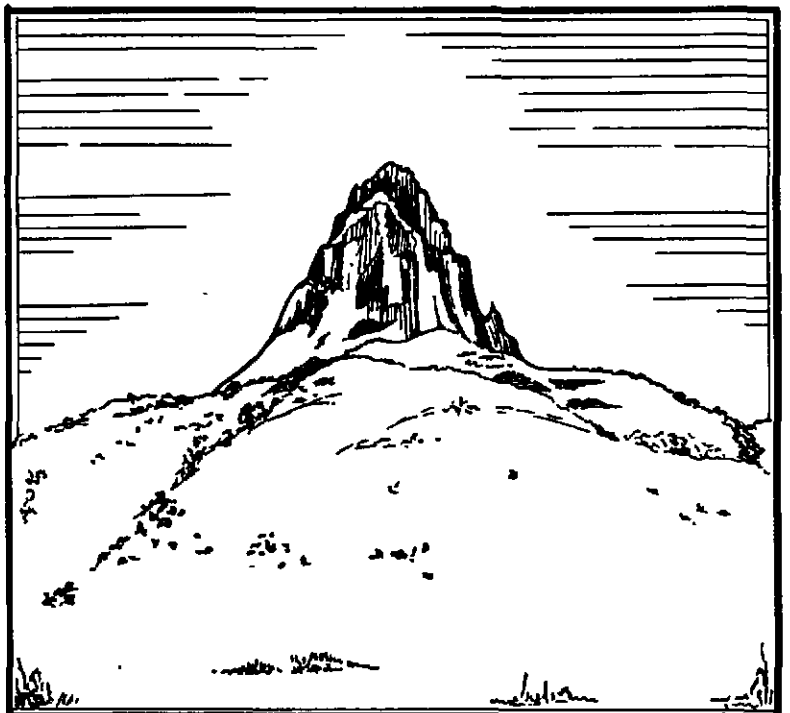


PHOTOS
by
O. E STANLEY



Twelfth Annual Banquet



Alesna, or The Bodkin, northern New Mexico...
DOROTHEA MINAR

G. S. O. C.

March 14, 1947.

GEOLOGICAL SOCIETY NEWS LETTER

Volume 13, No. 7 July 1947

SOCIETY ACTIVITIES

LECTURES: On the second and fourth Fridays of each month in a room in the First Unitarian Church, 1011 S.W. 12th Avenue. Watch the Oregonian, Oregon Journal, and News-Letter for further announcements.

TRIPS: Watch for announcements of at least one trip each month. If you know of or can lead a trip yourself, call Norris B. Stone, BR 2683 or OS 6531.

LUNCHEONS: Every Thursday noon at the House of Kilroy restaurant, 425 S.W.Taylor Street, between S.W. 4th and S.W. 5th Avenues. Luncheon 85¢.

MEETING ANNOUNCEMENTS

Friday July 11 — Geology and exploration in Snake River Canyon, by Ford Wilson, U.S. Engineers. Illustrated by moving pictures and kodachrome slides.

Friday July 25 — Title not definite. Speaker, Mr. Donald Birch, geologist with General Petroleum Company.

FIELD TRIP ANNOUNCEMENTS

August 23, 24 — John W. Robinson, a member of the Geological Society who now lives in the Tacoma region, has offered to lead a field trip to points of interest near Tacoma, Hood Canal, and the east side of the Olympic Peninsula. John has spent considerable time studying these areas and is an authority on much of this region. The tentative date set is the weekend of August 23 and 24. It is not too early to plan to attend this trip. Further details will be published later.

CHANGE OF MEETING PLACE

Note: The Public Service Building is no longer available for meetings and it has been necessary to secure another place. The committee has decided to hold future meetings, until otherwise announced, in a room at the First Unitarian Church, 1011 S.W. 12th Avenue (at Salmon St.).

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NEW MEMBERS

Mrs. Edna Bickner, Oswego, Oregon.
Mr. and Mrs. George S. Jones, Oswego, Oregon.
Mrs. Pearlita C. Stiff, 5802 N.E. Glisan St., Portland 13, Oregon, Telephone LA 0509.
Mr. and Mrs. John T. Hedin, 5802 N.E. Glisan, Portland 13, Oregon, Telephone LA 0509.
Mr. and Mrs. Howard E. Bowers, 1033 S.E. 84th Ave., Portland, " " TA 3847.

NEWS-LETTER SUBSCRIBER

Alfred G. Ross, Box 632, Portland 7, Oregon.

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DALLAS-VALSETZ TRIP

by

Ewart M. Baldwin

Five fully loaded cars of the more daring (some would say foolish) GESOCKERS braved the rain and showed up in Dallas at the appointed time, 10:30 a.m., June 8th. Some indulged in a late breakfast while the gang assembled and the loads were reassigned. The proposed itinerary took us to Fanno Ridge overlooking Valsetz and the lake nearby. Although it had been cloudy most of the time it began to rain and the intensity increased as we neared the crest of the Coast Range. One stop was made at a quarry for road rock. The group stood beneath a gravel bunker while noting the contact between the sill and the overlying platy yellow sediments. The next stop at the top of the hill would have been a dead loss except for the fact that one has to eat anyway and it was about that time. The rain never abated so most of the group obtained a rather exaggerated impression of the extent of Valsetz Lake, there being little difference in wetness above or below the accepted surface level. Valsetz has an average rainfall of 122 inches per year. Being defeated at this point, the group turned back to Falls City, looked at the sill over which the water tumbles, and at the adjacent baked sediments. From there the caravan pushed on to the Oregon-Portland Cement quarry near the Oakdale school. The rain had stopped so the ardent fossil hunters had a field day. Several relatively good specimens were obtained. May Dale found an Epitonium, the first reported from this quarry. Mr. A. D. Vance found a better echinoid than is usually found. Miss Ellen James found an excellent Terebratuloid brachiopod from the basaltic breccia exposed at the base of the limestone in the quarry. She also found a fossil form that has so far confounded those viewing it.

The limestone deposit is unique. It has yielded many fossils most of which are unlike those in nearby deposits. Besides this, it is one of the very few commercial limestone deposits in the Tertiary section of the Willamette Valley.

The next stop was at the basalt quarry by Rickreall Creek above Ellendale. A tuffaceous gritty lens of sediments containing some fossils occurs in the upper part of the quarry. Mr. Lambert, the quarry operator, had bulldozed large boulders of this material to one side so that the fossils could be observed. Imprints of oysters, brachiopods, and the large gastropod, Pleurotomaria, were seen. This basaltic series is middle Eocene and older than the limestone bed at the cement quarry. The overlying sediments, into which the large sills and dikes have been intruded, are mapped as the Umpqua-Tyee series. They are believed to be in general equivalent to these formations in the Roseburg area. Upper Eocene sediments overlie these sediments farther east along the edge of the Willamette Valley.

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LUNCHEON MEETING - APRIL 24, 1947

A group of several species of Upper Devonian brachiopods from the Lost River range in Idaho was shown by Dr. Ewart Baldwin.....A.D.Vance passed around a specimen of heulandite with chabazite crystals, from near Kalama, Wash.....Earl Minar had a piece of petrified wood and an agate pebble from a gravel pit near Scappoose, which was on the itinerary for the Sunday trip to the Vernonia area.....Dr. John Allen showed a specimen from Grays River.....Mr. and Mrs. Palmer invited the G.S.O.C. to visit their home and inspect the rock specimens in their garden at 1640 S.W. Sunset Blvd.....Guests attending were Mr. McLarty, instructor at the Museum Art School, and Mrs. McLarty; also Miss Mary Ellen Binechus, an art student.....A letter was read by Miss Ada Henley from John C. Cleghorn, a long-time subscriber to the NEWS-LETTER from Klamath Falls.

E. M. Barr

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ASH FALLS IN PLUVIAL FORT ROCK LAKE*

by
Ira S. Allison
Oregon State College, Corvallis, Oregon

Three layers of volcanic ash occur in the uppermost 12 feet of lacustrine sediments in the Fossil Lake area of pluvial Fort Rock Lake, Lake County, Oregon. The earliest contains abundant flakes of biotite. The associated beds are mostly sands. Minor disconformities and differences in distribution of the beds in a small area indicate fluctuations in a shoaling lake. Next earlier beds consist mainly of pumiceous sands which have supplied most of the fossils of the Fossil Lake fauna.

These three ash falls, attributed to Newberry Volcano or its subsidiaries, are recorded in the Summer Lake basin also, where a crystal-rich pumice layer next preceding the biotite-bearing ash is assigned (Allison) to the climactic eruption of Mount Mazama on the site of Crater Lake (Williams). Although other pumice beds are known, a correlative of the Mount Mazama pumice layer in an undisturbed position of its fall has not yet been identified with certainty in the lake sediments of the Fort Rock-Christmas Lake Valley. As exposures are limited to deflation basins, it may be concealed. However, most of pluvial Fort Rock Lake either was already too shallow to preserve the primary fall or reworked the material as the lake level went down. The Fossil Lake area was lower than most of the remainder of the lake bed, and so a shallow remnant persisted there through the final waning stages beyond the time of the last ash falls.

* * * * *

CHRONOLOGY OF POSTGLACIAL VOLCANIC ACTIVITY IN OREGON AND WASHINGTON*

by
Henry P. Hansen
Oregon State College, Corvallis, Oregon

The chronology of volcanic glass and pumice strata interbedded in many peat bogs in the Pacific Northwest has been determined indirectly by pollen profiles from the peat sections. The postglacial climatic trends interpreted from the pollen profiles and correlated with chronological data from several sources provide a basis for segregating the Postglacial into a series of time intervals. The stratigraphic position of the volcanic ejecta in relation to the climatic stages serves to date both relatively and approximately some of the volcanic activity. The eruption of Mount Mazama, which formed the caldera holding Crater Lake, occurred about 10,000 years ago, or before the warm, dry period of 8000 to 4000 years ago. The position of Newberry pumice above Crater Lake pumice in Summer Lake basin of south-central Oregon reveals that Newberry Crater erupted after Mount Mazama, but before the late Wisconsin lakes had become entirely desiccated. It is dated between 9000 and 8000 years ago. The stratigraphic position of a layer of volcanic ash in Washington peat columns, attributed to Glacier Peak, suggests that the eruption took place about 6000 years ago. A pumice stratum in peat sections of the northern Willamette Valley is believed to have come from Mount St. Helens and is dated at about 5000 years. The most recent volcanic activity recorded in peat sections that were analyzed was that of Devil's Hill in the Three Sisters region, and it is dated at about 4000 years.

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*Abstract. From papers presented at the Geological Society of America, Cordelleran Section, Annual Meeting, April 10-11, 1947, at Palo Alto, California.

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LIBRARIAN'S REPORT

(Continued from Vol. 13, No. 3, 1947, page 23)

Gift of Rodney L. Glisan Estate, courtesy of J. L. Minott, Executor:

The Mountain that was "God"
By, John H. Williams, 1910.

The Valley of ten Thousand Smokes - Alaska
By, Robert F. Griggs, 1922.

High Sierra of California, A Journal of Ramblings
By, Joseph LeConte, 1930.

Mountains of Oregon
By, W. G. Steele, 1890.

The Columbia, America's Great Highway
By, Samuel Christopher Lancaster, 1916.

The Living Past
By, John C. Merriam, 1930.

The New Encyclopedic Atlas and Gazetteer of the World
Collier and Sons, 1907.

Art Work of the State of Oregon -
Oregon the Great State
By, G. A. Gifford and G. H. Williams, 1909
Scenic Pictures by Gifford and History by Williams.

Pictures of the Pacific Coast
Scenery in Washington and Oregon from Kiser Bros.' famous collection of pictures, 1904.

From Lillian F. Owen:

Birds of Mt. Rainier National Park
By, Naturalist, Department of Mt. Ranier National Park, 1939.

The Story of Mt. Rainier National Park
By, C. Frank Brockman, 1940; revised 1946.

From Salem Geological Society:

The Geode - numbers of the bulletin to complete the 1946 file.

From Anonymous:

Bulletins of Colorado Museum of Natural History, Popular Series -
No. 3, Fossils, by Harvey C. Markham, 1945
No. 4, Ancient Man in North America, by H.M.Wormington, 1944.
No. 6, Nature as Sculptor, A geologic Interpretation of Colorado Scenery, by Richard M. Pearl, 1941.

Librarian's report (cont.)

The G.S.O.C. expresses its thanks to the above donors.

In closing this report for the year ending March 14, 1947, we wish to call special attention to the number of valuable books added to the shelves of the library from a private library left in an estate. Such a source for material may be developed through coming years to build this library to meet greater opportunities of service.

Margaret Hughes,
Librarian.

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LUNCHEON NOTES - APRIL 17, 1947

It has been decreed that one of the luncheon members each week shall be selected by Bruce Schminky to report the goings-on during the Thursday luncheons. For this unsuspecting victim, the place was suddenly transformed into a House of Kiljoy.....Dr. Allen introduced his two guests, a new member, Mr. Dick Anderson, managing engineer of the Raw Materials Survey, Inc., and Mr. Eugene Borax, geologist for General Petroleum, who gave a short talk about his recent visit to Guam, stressing the fact that the island, both in appearance and geology, did not conform very well to the picture he had formed from his reading.. ...Much to the relief of the reporter for the day, who is excellently equipped with ignorance of geology, the only specimen sent around the table was a shiny stainless steel pan apparently well adapted to the camping job of frying eggs and bacon, but designed to be used for panning gold from most any Oregon country stream, we hope. Any of the professionals will instruct you as to the way to pan sand for gold. If you cannot get any color into the pan from swishing sand around in it, we suggest you leave a little nugget of hard fried egg yolk sticking to the bottom. Carl Richards was telling some of us how stainless steel was accidentally discovered but Dr. Arthur Jones called for order before Carl got to the happy accident.....Dr. Courtland L. Booth told of his interesting trip down the coast to San Francisco, where he and Mrs. Booth saw their daughter and her family sail for Kabul, Afghanistan.....Carl Richards disclosed to the group the sudden death of Dr. George E. Lewis, one of the very active members of the Salem Geological Society.

E. N. Bates

* * * * *

LUNCHEON NOTES - May 8, 1947

The programsfor the next two regular meetings would be "real geology," according to the announcement of Mr. F. W. Libbey.....Dr. Arthur Jones, who presided, passed around two military handbooks used by the U.S.Army, "Outlines of Physical Geology" and "Outlines of Historical Geology."....Mr. Richard J. Anderson brought samples of quartzite gold from South Africa which had been made into an ash tray and bookends. Mr. R. Erickson displayed fossils from Alum Rock Cave in Alum Rock Park. He will lead the trip which was announced for May 18 to the Oregon City fish ladders and Indian writings. Mr. Lloyd L. Ruff brought porphyry and porphyritic basalt from Hell's Canyon on the Snake River, and Paul W. Howell displayed pictures showing the geology of that region. President Jones passed around a quartz crystal from Brazil, and a plate of piezo-electric quartz for control of high frequency.....The arrival of a gift of stuffed animals was announced by Dr. J. C. Stevens. The animals are on display at present at the Sportmen's Show.

T. C. Matthews

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LUNCHEON NOTES - MAY 15, 1947

The group met once more in the Lincoln Room of the House of Kilroy...Orrin E. Stanley presided in his usual droll manner, and showed his photographs taken on his Death Valley trip. Mrs. Barr was detected among the subjects....Dr. John Allen showed a set of colored restorations of Paleozoic and Mesozoic life put out by the Hughes Tool Company of Houston....Dr. J.C.Stevens told about the stuffed animals that the American Museum of Natural History had donated to the Oregon Museum Foundation. They arrived just in time to be set up at the Sport Show... Mrs. E.M.Barr had some Jurassic ammonites from Seneca, Oregon, and some salts from Bad Water, the lowest place in Death Valley....E.N.Bates called the crowd's attention to new developments in the extraction of aluminum from clay, and delivered one of his stories about the two ghosts that were playing poker.

Ewart M. Baldwin

* * * * *

LUNCHEON NOTES - MAY 29, 1947

The usual group plus a few new faces showed up and Dr. Jones presided..... Dick Anderson presented specimens of ore from the Sunshine mine, formerly the largest silver producer in the U.S. The main sulphide minerals present are pyrite and tetrahedrite; siderite and quartz are the gangue minerals. Mr. Paul Howell passed around specimens of welded tuff from Hills Creek and Gate Creek on the Middle Fork of the Willamette and McKenzie River drainages...Miss Lotus Simon, home from the University of Wisconsin, was among those present. She is doing graduate work in zoology as well as some teaching...Mr. Birby and Mr. Armold M. Johnson, professional photographer from Hollywood, were guests of Dr. Jones...Mr. A.D.Vance had a cloud agate first found at Newport Beach and later found in the garden.

Paul Howell

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NEWS NOTES

Dr. Wallace D. Lowry, geologist with the State Department of Geology and Mineral Industries, has accepted a position with the Texas Company and will move to California in the near future.

* * * * *

Members of the Geological Society extend their sympathy to Mrs. A.D.Vance whose mother recently passed away following a long illness.

* * * * *

Mr. A.W.Hancock accompanied a group of Mazamas to the Steens Mountain area and Jordan Craters in southeastern Oregon and the Homedale area just over the line in Idaho. Mr. Hancock is well versed in the geology of this region. Besides knowing where the thunder eggs lie, Mr. Hancock is likewise consulted for his paleontological knowledge. A photograph of a tusk of a woolly mammoth, a type of elephant common in the northwest about 20,000 years ago, was shown in the Sunday Oregonian, June 29th. It was discovered near Seaside by Gailard Lampert who brought it to Mr. Hancock for identification.

* * * * *

A postcard from Dr. John Allen reports that he and family are nearing their destination in Wisconsin after experiencing windstorms in Utah that nearly lifted their tent away, a blizzard in Estes Park, and them fighting floods in Iowa for several days. One wonders what is the best time of the year for travel.

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GEOLOGICAL NEWS-LETTER
MEMBERSHIP LIST

Compiled by Mrs. May R. Dale

Name	Address	Zone	Telephone
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	Residence phone		Hillsboro 1442
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*Baldwin, Mr. & Mrs. Raymond L.	4804 S.W. Laurelwood Drive	1	CH 1452
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*Charter members

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Nelson, Miss Clara	9529 North Edison St.	3	UN 0869
Nelson, Mrs. Coralie S.	Maplewood, Oregon	AT 0123,	Ext. 408
Nordgren, Miss Emma	4936 N.E. Going St.	13	
*Norton, Mr. & Mrs. Russell R.	Box 326, Wecoma, Oregon		

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Shepard, Miss Miriam R.	Box 164, Rte. 2		AT 7141-896
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Bus.	711 S.W. Ankeny St.	5	BE 0300
Simon, Miss Lotus	514 North Lake, Madison, Wis.	6	
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Smith, Miss Alameda	Rte. 1, Box 610, Oswego, Oregon		Oswego 7802
Smith, Mr. & Mrs. Ben F.	1350 S.E. Flavel St.	2	EA 1565
*Smith, Dr. Warren D.	1941 University St., Eugene, Oregon		1334W
Stanley, Mr. Orrin E.	2601 S.E. 49th Ave.	6	TA 1250
Steere, Margaret L.	1954 Independence Ave., Ann Arbor, Michigan		
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Stiff, Mrs. Pearlita C.	5802 N.E. Glisan	13	LA 0509
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Stone, Mr. & Mrs. Norris B.	Rte. 1, Box 179 A, Oswego, Ore., BR2683,		Oswego 6531
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*Teeters, Miss Glenna	3107 N.E. 32nd Ave.	12	GA 6205
Thayer, Dr. Thos. P.	Box 116, Canyon City, Oregon		
Thompson, Miss Ethel L.	1417 S.W. 10th Ave., Apt. 201	1	AT 2986
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Travis, Mr. & Mrs. H. F.	7225 S.W. Corbett	1	AT 1445
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Triol, Miss Ella	2708 Broadacres, Apt. 3650 Vanport City, Oregon		WE 3244 Ext. 11
Twiss, Mr. & Mrs. Stuart N.	Rte. 6, Box 1226	1	CH 3442

Name	Address	Zone	Telephone
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*Vance, Mr. & Mrs. A. D.	5516 N.E. Rodney	11	MU 5204
*Wade, Mr. & Mrs. Tracy	3326 N.E. 25th Ave.	13	TR 6060
Walters, Miss Kathleen	P. O. Box 852	7	
Warner, Mrs. Clara	168 N. E. Lombard St.	11	
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Weber, Mr. & Mrs. J. Martin	2410 N.E. Multnomah St.	12	TR 1645
Weinzirl, Dr. & Mrs. Adolph	3536 N.E. 27th Ave.	12	GA 5706
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White, Mella C.	415 N.E. Laurelhurst Place	15	EA 8384
Wilkinson, Mrs. M. J.	2807 N.E. 23rd Ave.	12	GA 2579
Wilson, Mr. & Mrs. Ford E.	1327 Plaza St., Salem, Oregon		
*Woodard, Mr. & Mrs. E. Clyde	Rte. 9, Box 951	16	
Woods, Owen J.	6423 S.E. 66th Ave.	6	
Zimmer, Miss Ruby M.	805 S.E. 60th Ave.	15	LA 8319

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New York Public Library, Reference Department, Room 116,	476 Fifth Ave.,	New York 18, New York
Partridge, Mr. F. W. Jr.,	609 W. Hamilton,	Flint 4, Michigan
Ross, Mr. Alfred G.	Box 632,	Portland 17, Oregon

SUMMARY

Honorary Members	2
Charter Members	33
Members	108
Junior Members	2
Total	145

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GEOLOGICAL SOCIETY NEWS LETTER

Volume 13, No. 8 August 1947

SOCIETY ACTIVITIES

LECTURES: —On the second and fourth Fridays of each month in a room in the First Unitarian Church, 1011 S.W. 12th Avenue. Watch the Oregonian, Oregon Journal, and News Letter for further announcements.

TRIPS: Watch for announcements of at least one trip each month. If you know of or can lead a trip yourself, call Norris B. Stone, BR 2683 or OS 6531.

LUNCHEONS: Every Thursday noon at the Chamber of Commerce, 824 S.W. 5th Avenue, between S.W. Yamhill and Taylor Streets. Luncheon 75¢.

MEETING ANNOUNCEMENTS

Friday Aug. 8 — Annual picnic to be held in Mt. Tabor Park. Assemble at 6:00 P.M. Bring your own lunch. Coffee will be served. The program of entertainment will vastly surpass all previous programs.....new..... daring.....you can't afford to miss it!

Friday Aug.22 — "Geology of Black Hills and Environs," by Dr. John Eliot Allen, an account of recent trip, with color films.

FIELD TRIP ANNOUNCEMENTS

August 23, 24 — Trip to Hood Canal and the east side of the Olympic Peninsula, led by John M. Robinson. Make your reservations now. For details of the trip see page 79.

* * *

Dr. Warren D. Smith has expressed his willingness to lead a group into the Upper McKenzie country if he is in that vicinity in September. If it cannot be arranged then, he has suggested October, when the autumn foliage will be at its best. He writes that it would be a most interesting trip and the plans should include Clear Lake.

****

CHANGE OF ADDRESS

Mr. and Mrs. J. Martin Weber, Parker Dam, California.

* * *

GEORGE S. JONES

Mr. George S. Jones, a new member of the society, died July 28 at Burns, Oregon. Mr. and Mrs. Jones lived at Oswego, but his business was in Burns. Funeral services were held in Portland July 31.

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SOME ADDITIONS TO GRAND COULEE GEOLOGY

by
George F. Beck

Nine years ago members of the G.S.O.C. accompanied the writer through Grand Coulee and the Columbia Basin. May he now invite the reader upon a somewhat more eventful trip taken a few weeks ago. This recent trip was considerably above average in that it provided (1) evidence of glaciation near Moses Lake, (2) several new fossil leaves from the old roadside silt bank, (3) a new leaf locality on the main ditch, and (4) a petrified log in the lavas immediately adjacent to the latter.

This trip began at Ellensburg at 5 o'clock and included 2 cars of geology students from the local college. By 7 o'clock the Petrified Forest State Park had been visited and the group was seated at breakfast in Vantage on the Columbia. An hour later we paused briefly five miles east of the Burke junction to investigate a Pleistocene vertebrate locality exposed beside the road. No new bones had been uncovered by the wind although a bison's lower leg had been the prize a month earlier.

The Mormon cricket horde had passed on leaving but an occasional straggler to sing at us from the sage clumps. At 10 o'clock or thereabouts we were in Moses Lake, more concerned in its mushroom growth than geology for the time being. From this point, central to the Columbia Basin, we proposed to drive directly north to Coulee City - a route the writer had not used within thirty years.

As we proceeded north we watched the Ringold sediments thinning out above the basalts along the west exposure of Willow Creek, but were probably more concerned about the moraines that might cross the road in our more immediate foreground. Dr. W. Hobbs had visited Moses Lake with us in '45 and had pointed out the moraines flanking the Lake that he identified now with the Okanogan lobe, now with the Spokane lobe of the continental ice. Just as we approached the Willow Creek crossing we stopped to check the low, moraine-like ridge that crosses the road, and hesitated, again, somewhat beyond to observe the fine columns exposed in a roadside butte.

As we checked the basaltic columns for size and form, we became aware of slabs of polished lava lying scattered among them and, having climbed the butte, found polished surfaces and grooves everywhere. This was the sequel to the polished surfaces found several years ago on Jasper Horn of Blue Lake. It could have been one and the same lobe of ice that extended down Dry Coulee from Blue Lake - past Adrian and down Willow Creek. More startling is the geological significance. What a far cry from the Bretzian Dry Falls - a five-mile lip with 50 feet of water - to one that may have been partly or even largely occupied (and excavated) by ice.

What we took to be the left-hand lateral moraine was encountered northward as we rode out of Willow Creek bottom.

A few miles farther along this utterly abandoned road we crossed the eastward trending main ditch of the federal irrigation project, and again just beyond Stratford. On High Hill we had a marvelous over-all view of the scablands and Coulee, and at noon, precisely, were seated at lunch opposite the fossil leaf bank.

As a coincidence, Harold Henry, who is principal of one of the Vancouver public schools, was along this day after an absence of almost twenty years. He was present when we uncovered the ancient ginkgo leaf on one of our first collecting trips to the Damsite - it was not even dreamed of as a real damsite in those days - an event that set me off on the long quest for a ginkgo log. (See Wash. Hist. Quarterly, Nov. 1935, for this story.)

Befitting his return we did find another ginkgo leaf - almost the only one since those initial trips - and also another Chinese leaf of the elm alliance, Zelkova, new to the Grand Coulee silt beds if not to the Spokane beds farther east.

We soon heard rumors about a log encountered in the ditch back (west) of town and drove up to explore. We were led to the location by exposures of the yellowish palagonite that often accompanies the logs in pillow lavas. It has turned out to be another of the Chinese trees that so intrigue the worker among either the petrified logs or leaf impressions of the Coulee area. At first glance it appears to be redwood, but it lies closer to swamp cypress and the illustration accompanying shows clearly the large, essentially "simple" field pits that are the basis of separating the Chinese genus Glyptostrobus from the American swamp cypress. This Coulee glyptostrobus is perhaps a better example of the type than that reported by me from Vantage in 1945.

Returning along the ditch bank we ran into some large silt blocks that promised leaves and we spent the remainder of the afternoon in the successful quest. The types to be found are comparable to those collected at the old roadside locality but are present in different proportions. The heart-shaped moonseeds (Cebatha) so abundant in the roadside silts are wanting entirely in the ditch bank and this holds almost for the somewhat similar, grape leaves.

We over-stayed our schedule so long in the town limits that we could give Dry Falls but a glimpse - always most impressive however in the last or first rays of the sun. We were obliged to pass up entirely the Blue Lake rhino for the first time since it was reported to us by the Peabodys in 1935, yet the excursion was one of the most eventful we have made in the period of over 20 years.

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DR. BALDWIN GOES TO EUGENE

After four years as geologist for the Oregon Department of Geology and Mineral Industries, Dr. Ewart M. Baldwin has accepted a position as assistant professor of geology at the University of Oregon. Dr. Baldwin, a native of Washington, is a graduate of Washington State College, where he received his master's degree in 1939. In 1940 he went to Cornell University as a laboratory assistant, and he received his doctor of philosophy degree from that university in 1943. Last year he was editor of the News Letter.

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NEW PUBLICATION

A report on the surface water supply of the United States, 1945, part 14, "Pacific slope basins in Oregon and lower Columbia River Basin," is listed among the April publications of the U.S. Geological Survey. It can be ordered from the Superintendent of Documents, Government Printing Office, Washington 25, D.C., for a 50¢ money order. It is listed as Water-Supply Paper 1044.

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"FAULT FINDING IN THE JOHN DAY COUNTRY"

July 4th & 5th, 1947

By

Norris B. Stone

What started out to be a medium sized migration to the John Day Valley turned out to be a very delightful expedition. It was at first thought that about six or seven cars containing about 25 people would make up the party. However, on July 2 there were twelve cars and 47 people, or Gesockers, as Dr. Ewart Baldwin dubbed us in his Valsetz trip report, all booked to go. And right up to the last it looked as if we did not have transportation for three who had to leave late the 3rd and be back for work Monday morning. However, our worthy president, Dr. Arthur Jones, who claims to be able to fix anything from charley horses to fallen arches, came to the rescue and we are proud to report that everyone who wanted to make the trip got there.

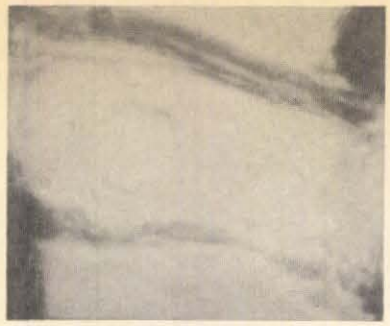
Some of the wealthier ones and those who were out of work anyway made the trip up leisurely on the 3rd. Others drove all night and some arrived in the middle of the afternoon of the Fourth. At one time, including parties from Bend, Pendleton, Salem, and several local cars, there were 23 cars in the caravan, including around 65 people.

The entire field trip through the John Day Valley and into the Aldrich and Strawberry Mountains was very ably planned and handled by one of our own members, Dr. Thos. P. Thayer of the U.S. Geological Survey, at present located in Canyon City. The June News Letter carried an article by him describing what we were to see and giving some cross section charts of the Aldrich and Strawberry mountains so that we were given some clues as to what we had in store.

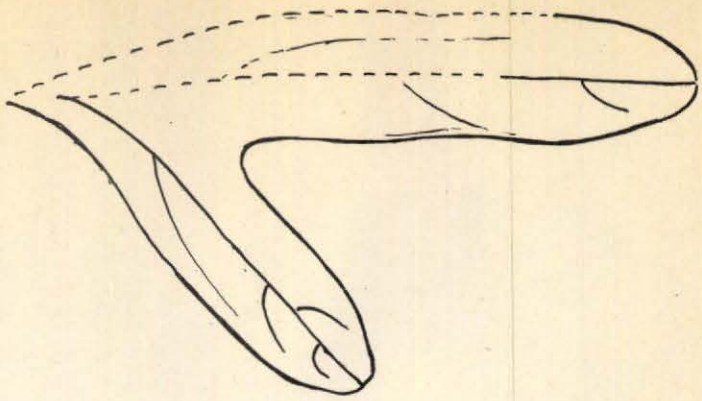
You don't have to go south of the Mason-Dixon line to find real Southern hospitality. Dr. Jerry van der Vlugt and his charming wife, Dr. Martha van der Vlugt, known up there as Dr. Jerry and Dr. Martha, held open house for any and all who wanted to sleep out. However, although they offered the members and guests of the Geological Society shelter for their sleeping bags, it finally turned out that most of them were taken right into the home and fed very copiously.

About five miles north of Dayville, on a road coming from Portland, is beautiful Picture Gorge which gets its name from a very fine group of ancient Indian pictographs displayed on the side of the gorge; some of them at the road level and some of them up 12 or 15 feet. Dr. Thayer told us that this Picture Gorge is of very recent origin geologically. The John Day valley proper for about three miles south of Picture Gorge, and then on east, was filled to a depth of at least 500 feet with the Rattlesnake gravels and tuff during Pliocene and Pleistocene time. From the display of outcroppings along the valley, it is apparent that when the river flowed on top of the Rattlesnake formation, it was many feet higher than the top of Picture Gorge. When the John Day River began its most recent period of downcutting, it had only a relatively thin barrier of basalt to cut through, the other rocks being the soft beds of the John Day, Mascall, and Rattlesnake formations; it, therefore, from a geological standpoint, rather quickly carved out the valley down to its present level.

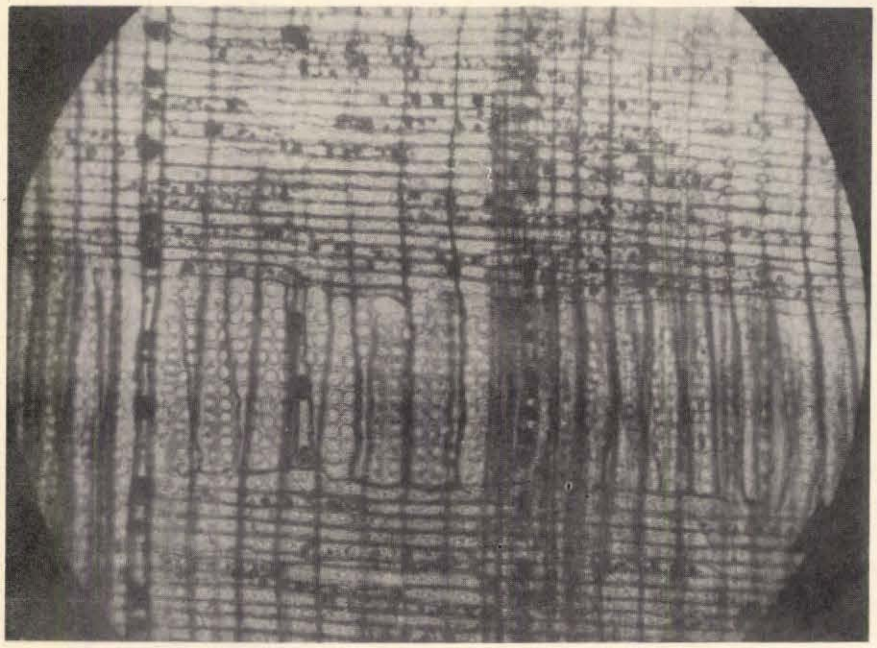
We went through the valley, making many stops from Dayville through Prairie City, with side trips into the Aldrich and Strawberry mountains. To the casual observer it looks just like a simple valley, but Dr. Thayer brought out clearly that the John Day Valley is the result of a very complex system of folds, faults, and rocks of ages all the way from Paleozoic to Pleistocene, a matter of some two hundred million years; in fact at one of the stops close to Mt. Vernon we stood



(1) Single ray-cell of Grand Coulee log showing the large, round, slightly-bordered pits characteristic of Glyptostrobus. x750±

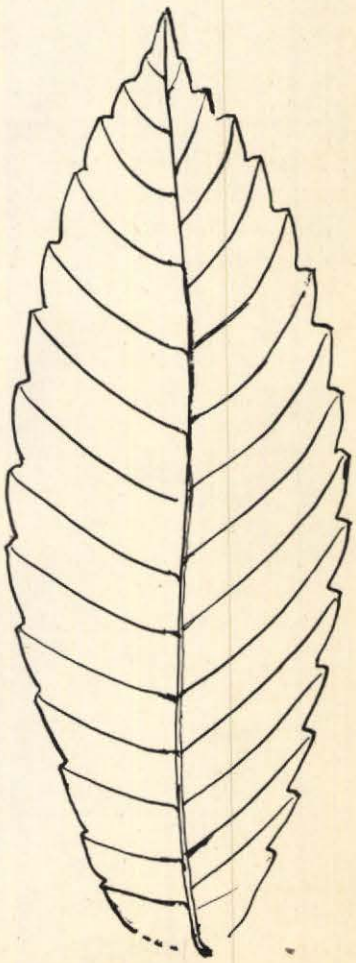


(3) Fruit wing of Engelhardtia (?) from the Grand Coulee brown silts. x2 (above)



(2) Radial view of the Grand Coulee log showing pitting and several strands of longitudinal parenchyma. x300±

(3) Leaf of Zelkova oregonia Brown from the Grand Coulee brown silts. x2 (below)



(4) Glaciated butte in Willow Creek channel about ten miles due north of Moses Lake city, and to the left of Stratford highway.

on an outcrop of Paleozoic greenstone where we looked north up a small lateral valley literally through 200,000,000 years of geologic history from the Paleozoic to the present. Two main faults, separated by a gap of a few miles in the vicinity of John Day, run nearly the full length of the valley proper, with many lateral ones which were pointed out from time to time.

We covered the valley proper from Dayville to John Day the afternoon of the Fourth. The following morning the party followed Canyon Creek for about ten miles south and then on up to Fall Mountain Lookout in the Aldrich mountain range about 6000 feet elevation. From here we had a splendid view of the entire valley and the country to the south of us nearly to Burns, Oregon. Fall Mountain Lookout is on the top of upturned Triassic beds. In the cuts coming up Canyon Creek we saw a very fine demonstration of how a quick stream has cut its way through folded Mesozoic rocks and hard gabbro formation. Dr. Thayer pointed out one place where a fold had actually been pushed over and the sedimentary formations were nearly lying on their backs. Layers of graywacke, or impure sandstone, which were coarse in texture at the bottom and running up to very fine sand at the top, provided the proof that they were nearly upside-down.

At Fall Mountain Lookout we were given a very lucid demonstration of what a geologist goes through to prepare maps of his findings. Dr. Thayer had a rough chart of the very upturned Triassic formation on which we were standing, showing the various dips and strikes taken in roadcuts and outcrops, and lines indicating the outcrops of two beds. From this information the positions of a syncline and an anticline were deduced. This practical demonstration clarified a lot of reading for a very confused number of us tyros.

An amusing thing happened while we were still listening to /Dr. Thayer tell us of the surrounding country seen spread out before us from Fall Mountain Lookout. He told us that Canyon Creek, being a precipitous fast stream, had cut its bed back southward through Paleozoic and Mesozoic rocks much faster in its south to north course than the more nearly level slower waters draining from this mountain divide to the south. Discussion of the topography that we were seeing convinced us that Canyon Creek was apt, in the geological future, to become a river pirate of the worst sort and actually steal the south moving waters that now flow into the inland basin south of Burns and divert them to the John Day River and hence to the Pacific Ocean. Some wisecracking listener in a David Harem voice said, "Doc, don't you know them fellers over there in the basin that uses that water for stock and irrigation are goin' to put up a awful holler when that happens?" To which Dr. J. C. Stevens, with his keen eye and alert ear ever on the lookout for a little business, either to sell a precision instrument or build a great Museum, immediately jumped to the fore with the assurance that when that happened he would be on hand to build a retaining dam to save the situation for the inlanders. The fact that it might be several million years hence didn't seem to mean a thing to Doc or the wisecracker.

On the road back down from Fall Mountain Lookout several steps were made at the roadcuts showing the Triassic formations and good samples of these strata such as graywacke, shale, mudstone, and pencil shale were procured. At one point we saw a dyke of lamphrophyre (a rock rich in hornblende) very plainly in the roadcut.

At 1:30 P. M. on the 5th, after slacking our thirst and hunger at Canyon City, we started for the Iron King chromium mine on Canyon Mountain in the Strawberry Mountain Range, Canyon Creek being the dividing line between the Aldrich and Strawberry mountains. It was 2200 feet nearly straight up maneuvered by one sedan, Gail Dewitt's new pickup, another pickup from John Day, a Geological Survey pickup,

and a Survey G.I. ambulance dubbed the "Silver Bullet." Those of us who took the trip up to the perlite mine in the Deschutes and have climbed the 2000 foot canyon out of Lewiston, Idaho, just had a few more ghastly moments. On the road up we skirted Little Canyon Mountain which, we were told, is the source of the wealth of gold that has been and is being taken out of that vicinity. The rich findings in Canyon Creek Gulch in early days were eroded from Little Canyon Mountain from the east and large placer workings before us were on the north side of the same mountain. These workings are going on in a much smaller way at present and, in the John Day Valley proper until they were stopped by the war, dredges were still piling huge windrows of river bed water-worn pebbles and getting gold. A dredge reminds one of one of Paul Bunyan's moles burrowing for prehistoric earthworms.

The chromium mine is at the 5400-foot level, Canyon City at 3200, so we maneuvered some 2200 feet, and a lot of it straight up, to get there. A black serpentine holds the chromium oxide. A brown scratch means good ore; a white one, barren serpentine. On account of the low,average grade, however, the mine is now idle but was worked during the First World War. Many of us brought back nice specimens of the ore, also serpentine, beautiful aragonite crystals, gabbro, hornblende schist, pyroxenite, greenstone, and diorite.

At the mine Dr. Thayer gave us a description of a system used in aerial mapping. Just a short distance away we saw where vegetation was very low and bushy while at a definite line it immediately changed to high forest tree growth. The answer was that the outcropped formations, serpentine and diorite, were very different in mineral composition. The forest began at the exact line where the diorite had disintegrated into soil containing potash so needful for good growth. From the air these demarcations are very helpful in mapping what lies under them.

On our way back down we stopped at one of the placer-made canyons where the advertising started as we all told our real names and businesses and it is surprising what some of us do to make a living.

Our next and last stop about 5:00 P. M. was in the John Day Valley at a point just east of Prairie City where we were given a fine view of the easternmost end of the John Day Valley and the actual source of the John Day River was pointed out in the southeastern distance. A fault running on the north side of the Strawberry Mountains had widened the valley here very perceptably. Columbia River basalt underlies most of the entire valley but here, because of this fault, it is rather level. Farther west the basalt forms a syncline across the valley.

Just 30 miles northeast of this point near Bates, two of our members live, Mr. and Mrs. Gail DeWitt have a cattle ranch there on the headwaters of the Middle Fork of the John Day River. The DeWitts announced an open invitation to visit them Sunday. Some of us took advantage of it and were recompensed by seeing a fine new country and an outstanding collection of polished agates, petrified wood, etc., originating in that vicinity just north of Dixie Mountain. Gail's ranch is loaded with tons of material he and his wife have collected. Some of us returned also with specimens of hornblende biotite diorite from Granite Mountain in the Greenhorn Range, Elkhorn argillite, and andesitic breccia from Big Boulder Creek and one Thompsonite zeolite. Rudolph Erickson, his wife Jane, her nephew Gregg, your scribe and his wife put one over on the whole expedition. We stayed all night at the DeWitt's ranch the 5th and what hot biscuits with everything that goes with them!

Several groups on the 3rd and 6th made trips into the John Day fossil beds north of Picture Gorge with some success. Nothing like Lon Hancock brings back

but enough to whet the appetite for more. One of these trips made confirmed tyro geologists out of our genial hosts the Doctors Jerry and Martha.

Dr. W. D. Lowry of the Oregon Department of Geology and Mineral Industries, Portland, was with us, and together with Mr. Allan Griggs, located in Canyon City temporarily with Dr. Thayer, helped answer and explain some of the many questions asked. We understand Allan is down there working on his thesis that will make him a full-fledged Doctor of Geology. By grapevine we learned why Dr. Thayer can cover so much ground with so little help. It develops that while his wife is making some of the hardest trips over that rough terrain, he is home peeling potatoes. Mrs. Thayer is a graduate geologist from Oregon University, where they met.

Our secretary, Mrs. May Dale, was on the job every minute and our worthy president, Dr. Arthur C. Jones and Mrs. Jones arrived with a car full. They had made the trip through Salem and picked up two more charter members, Mr. and Mrs. Carl P. Richards. Carl is also co-founder of the Salem group. One of our directors Mrs. Mildred P. James, and several others came up in Dr. Ward A. Anderson's car. Doc is one of our new members. Mr. and Mrs. Emil Nordeen were in attendance from Bend. Leo and Mrs. Simon went up and back via the Antelope-Shaniko route and with no fried chicken??? Mrs. Arrigan of Vancouver, Washington, picked up Miss Eliza Stevens at Bonneville, then drove through Arlington and back via the Ochoco and Maupin.

The whole caravan reluctantly left Dr. Thayer at our last stop of his trip in Prairie City on the 5th. It was the end of a field trip well planned and carried out. Many thanks from us to the Thayers and their aides who helped make the trip such a fine success.

Those of us who like to do the right thing, to cooperate with the subject of the day, to be a cog in the wheel of whatever action is under way, came up to the John Day in a very very critical frame of mind. We meant to be that way just as hard as we could, and we expected to find as much fault as possible. For after all, Dr. Thayer's subject presented to us in our June News Letter read very specifically:

"FAULT FINDING IN THE JOHN DAY"

But we were doomed to disillusionment, for the only fault we could find was this: That such a fine entertaining and educational trip among such a fine group of people could come to an end so soon.

AND, if you were along and your name isn't mentioned, remember - there's a paper shortage on.

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LUNCHEON MEETING - THURSDAY, JUNE 12, 1947

Lloyd L. Ruff introduced the only guest at the luncheon, Mr. C. J. Monahan..... Asked to take a bow as being almost a guest was Mr. Chester A. Wheeler, an old time member who left the fold and only recently returned.....Mr. Libbey passed around a specimen of kemmererite, chrome chlorite containing mercury. It came from California, just across the Oregon boundary line.....Dr. John Allen showed a new book by Prof. Henry P. Hansen on Post Glacial Forest Succession, Climate and Chronology in the Pacific Northwest.....Twenty-one were present.

E. M. Barr

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MOLLUSCAN GROUP MEETS

Among the 86 persons registered at the 13th annual meeting of the American Malacological Union at Asilomar, Pacific Grove, California, June 18 to 21, were four Oregonians, the Misses Lotus Simon, Lucia Wiley, and Miriam Shepard from Portland and Ruth Coats of Tillamook, all but Miss Wiley being members of the G.S.O.C. The Hopkins Marine Station and Pacific Grove shell collectors were hosts to the organization at the first west coast meeting in many years. A number of scholarly papers were presented to the group, of which the most interesting to this society might have been that on Protozoans and Foraminifera by Dr. Earl H. Myers, since the balance were devoted to living forms of marine and land mollusca. Exceptionally low tides inspired exceptionally early rising to search for shells, and other field trips were made to Cypress Point and to the Asilomar sanddunes for land shells which occur only in that vicinity. The day the meeting broke up, the San Andreas Fault gave a practical demonstration of its ability to move the earth, although little damage was done.

Miriam Shepard

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LUNCHEON NOTES, JUNE 5, 1947

Twenty-two members were present, presided over by the vice-president, Mr. O. E. Stanley.....A letter from Dr. Thomas Thayer was read, in which he enclosed material describing the field trip to be taken over the July 4 weekend. Mr. A.D. Vance was appointed to arrange a program for the campfire.....Dr. Courtland L. Booth, just returned from a trip East, passed around specimens of ruby sphalerite and calcite on fluorite. Dr. John E. Allen passed around a new amply illustrated book on "Paricutin" authored by Ezequel Ordoney, in three languages. Mr. A. W. Hancock passed around a thunder egg showing the successive tilting of the bedrock while the agate was being deposited, with total tilt about 15° in three stages..... Dr. Ewart M. Baldwin announced the Dallas-Valsetz trip for the ensuing weekend..... Dick Anderson introduced member Connie Walters; Mr. Stanley introduced Mrs. Pearlita C. Stiff. The program for the first meeting in June,-to be the pictures of the Death Valley trip attended by Mr. Stanley, was announced by Mr. F. W. Libbey..... We hope to have Ralph Chaney for the second meeting in June.....Dr. J. C. Stevens reported that the Museum Foundation has presented a certificate as Founder, in appreciation of the donation of her glass collection, to Miss Mary Margaret Hughes. He also told of the negotiations for the aircraft carrier Enterprise which may be located at Portland, and the efforts to obtain a location for the museum.

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J. E. Allen

LUNCHEON NOTES, JULY 3, 1947

The approaching holiday cut the attendance drastically, only a dozen persons being present.....Miss Edith Starbuck was the guest of Miss Mella White.....The group was saddened to hear of the illness of Mrs. A. D. Vance.....Announcement that the use of the Unitarian church quarters were available for the evening meetings, thanks to Mrs. Arthur Jones, was made by Orrin E. Stanley.....A discussion of the Folsom Man was led by Mr. Vance and Dr. Jones.....A young dynamo was the description Dr. J. C. Stevens gave of John W. Forbes from the William T. Hornaday Memorial Foundation of New York, whose services as director of the Museum Foundation have been obtained for next year. He is expected to arrive in November. "I think this is a turning point in the history of the museum program. He will not only help with the development of a temporary museum but will work on the financial program," declared Dr. Stevens.

Miriam Shepard

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LIMPING ALONG THE OLYMPICS

by

John W. Robinson

On August 23rd and 24th, a two-day assault on some of the secrets of the Olympic Mountains will be led by John W. Robinson who has uncovered but not solved many of the problems of that region. SATURDAY the 23rd will be spent along the shores of Hood Canal seeking scarce fossils in Oligocene ? sediments and studying glacial deposits. Sunday will be devoted to a trip up the North Fork of the Skokomish River to near Lake Cushman to study the volcanic border of the Olympics and associated manganiferous deposits, also to glimpse some of the pre-basalt sediments making up the core of the mountains. SATURDAY NIGHT a real Indian Sluitim (salmon barbecue) will be held at Indian Beach near Lilliwaup, a favorite camping spot of the Skokomish tribe in by-gone centuries. The cost will be not over 75 cents each. Those interested in salt-water fishing and bathing come prepared. Good cabin accommodations at Rest While Park, Hoodsport, Washington. Everything furnished to cook and eat. If you don't bring your own bedding an extra charge of 75 cents per night is made. Several cabins with double beds for $5.00 per night. Two cabins for 3 each at $4.50 and one cabin for 2 at $4.00. Make your reservations at once. Report Saturday morning at Lilliwaup at 8:00 A.M. for the fossil hunt. Those who do not come up Friday night should arrive by noon and, as it is about 165 miles, should leave Portland by 7:00 A.M. for the 1:30 P.M. start of the afternoon trip. Then the Salmon Barbecue from 6:00 P.M. on. Plenty to eat, songs, bonfire, etc. Sunday leave at 8:00 A.M. with luncheon for Lake Cushman trip. Lunch at Staircase at 12:00 noon and finish trip by 2:00 P.M. All will then be free to do what they will. Phone Norris B. Stone, BR 2683 or Oswego 6531, if you have room in your car or if you need transportation. Those who want to sleep out, there is plenty of room, and see Mr. Robinson about it.

Rock Formations in the Area

Rock formations are listed in order, from youngest to oldest, as that will be the order in which they will be seen.

Pleistocene

Wisconsin - Vashon glacial till and associated gravel, sand, and silt. Relatively fresh glacial deposits lying at or near the land surface over most of the Puget Sound Basin.

Pre-Wisconsin glacial deposits semi-consolidated and locally weathered of complex origin which have not as yet been studied in detail in the Olympic area.

Oligocene (?)

Steeply dipping sediments exposed along the shore of Hood Canal for about 3 miles directly south of Lilliwaup. The following section measured in company with Dr. C. E. Weaver will serve as a guide to these rocks.

Eocene

A section of folded and steeply dipping rocks chiefly of volcanic origin estimated up to 30,000 feet thick consisting mainly of basaltic lavas and agglomerates interbedded with tuffs and other sedimentary materials. The upper members of the series are chiefly dark-colored, somewhat altered, flows and

tuffs with but few pillow flows. The lower members are more commonly pillow basalts, green limy or siliceous sediments and associated manganiferous deposits.

Early Tertiary or Pre-Tertiary (?)

The core of the Olympic Mountains consists of closely folded argillites, graywackes, schists, and quartzites, probably of Cretaceous or basal Tertiary age. These rocks are overlain by the rocks previously described. No rocks of intrusive origin with the exception of rare dikes or sills are known in the Olympic Mountains.

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LUNCHEON NOTES - THURSDAY, JUNE 26, 1947

Today's attendance - an all time high of 42 - was swelled by the presence of many guests and teacher members, marking the close of schools and colleges. Miss Mella White introduced six guests, all members of a recent Mazama trip to Eastern Oregon - Mary M. Burnett, Dorothy Reed, Anna B. Dolezal, Rachel Storer, Maxine Faircourt, and Clara Nelson. Miss Marion Glaeser of Buffalo, New York, was presented by Mrs. Arthur Jones; Mrs. Moss, Mrs. John Allen's mother, by Miss Henley; Mrs. Eva Arrington was introduced by Miss Eliza Stevens, and Mr. J. C. Kasse of Wilsboro, Oregon, by Richard J. Anderson.

Numerous specimens were passed around, including diatomaceous earth from Trout Creek, Oregon, by Miss Burnett; fossil leaves from the Painted Canyon by Miss Reed; lava from Donner Crater and cinnabar and opal from Central Oregon by Mella White. Miss Storer's contribution was a sample of rose obsidian, thunder eggs, and gingko leaf. Miss Faircourt showed a granite core from under Coulee Dam and cinders from Donner Crater. A borite concretion from Kansas and mica from Oklahoma were shown by Mr. Erickson. Mr. Hancock, who was also a member of the Mazama party, brought specimens from Jordan Crater. Dr. Booth passed around a platter of bones containing the fossil jawbone of a horse, some teeth, including one of a mastodon found in association with mammoth peccaries, sloth, and other animals. Three interesting looking agates, including plumes, from near Prineville, were shown by Mr. Vance. An extremely heavy sample taken from the gravel pit on the Scappoose trip, together with its chemical analysis showing 10 percent iron, was brought by Mr. Minar, also a piece of manganese from Russia. Dr. Arthur Jones, who presided, had only two small contributions to make - a bit of quartzite and a tiny gastropod from the beach at Atlantic City - where he professed to have seen no bathing beauties. Asked about the physical condition of the animals at the Bikini test, Dr. Jones said that both the goats and rats were in good shape.

Dr. Edwin T. Hodge spoke of the problem of flood control, saying that there were two schools of thought on this subject: one, to build levees and confining walls to carry the water to the sea, the method used in the Po valley, where the levees are higher than a church steeple, but which would be very expensive if used in the United States. The other method is to shorten the course of the stream, cutting off the meanders, and dredging. The latter theory has not been approved by government officials, and its practicality is questionable. Dr. Jones cited the McKenzie River in Oregon as an example of protection by forests.

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GEOLOGICAL SOCIETY NEWS LETTER

Volume 13, No. 9 September 1947

SOCIETY ACTIVITIES

LECTURES: On the second and fourth Fridays of each month in a room in the First Unitarian Church, 1011 S.W. 12th Avenue. Watch the Oregonian, Oregon Journal, and News Letter for further announcements.

TRIPS: Watch for announcements of at least one trip each month. If you know of or can lead a trip yourself, call Norris B. Stone, BR 2683 or OS 6531.

LUNCHEONS: Every Thursday noon at the Chamber of Commerce, 824 S.W. 5th Avenue, between S.W. Yamhill and Taylor Streets. Luncheon 75¢.

MEETING ANNOUNCEMENTS

Friday Sept.12 — "From Portland to Death Valley," by Orrin E. Stanley. There will be colored slides connected with Mr. Stanley's trip to Death Valley, California, as a member of the caravan of the College of the Pacific last spring.

Friday Sept.26 — Several members will participate in showing slides from their collections. A maximum time limit will be allowed each participant so that the meeting will not be unduly prolonged.

FIELD TRIP ANNOUNCEMENTS

Dr. Warren D. Smith has expressed his willingness to lead a group into the Upper McKenzie country if he is in that vicinity in September. If it cannot be arranged then, he has suggested October when the autumn foliage will be at its best. He writes that it would be a most interesting trip and the plans should include Clear Lake.

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NEW MEMBERS

		Phone
Mr. and Mrs. Robert C. Johnson 6910 N.E. 22nd Avenue, Portland, Oregon		WE 3754
Dr. Ralph A. Fenton		BR 6338
Route 2, Box 551, Oswego, Oregon	(business)	BE 4715
Chester K. Sterrett		SU 2114
3328 S.E. Knapp St., Portland 2, Oregon	(business)	AT 9411
Kenneth B. Wood 601 Cascade Bldg., Portland, Oregon		AT 5004
Miss Joy Belle McCoy (junior member) 6617 S.E. 44th Ave., Portland, Oregon		SU 0346
Richard D. Smith (junior member) Star Route West, Tillamook, Oregon		295 J 4

CHANGE OF ADDRESS

Mrs. May R. Dale 20 N.E. 22nd Ave., Portland 15, Oregon	(home)	EA 2938

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HOOD CANAL - OLYMPIC MOUNTAIN TRIP

by

Ewart M. Baldwin

August 23-24

Thirty-five members of the Geological Society, arranged in ten cars by last-minute juggling of personnel by our efficient Trip Chairman, Norris Stone, journeyed to beautiful Hood Canal and the southeast margin of the Olympic Mountains, a part of the Oregon Country that has too long been ignored by the Society. The weather was anything but good when most of the group left Portland, but cleared to the north and turned out to be ideal. A few members arrived Friday evening at Rest While Park, the headquarters of most. Those planning to sleep out were spread out in and around the home of Mr. and Mrs. Frank Robinson, the father of John Robinson, our leader, who generously made his delightful home overlooking little Lilliwaup Bay headquarters for those without a roof.

John Robinson, Mrs. Robinson, and three charming daughters arrived from Tacoma for the occasion. John is well known to most members of the Society as he was one of our members while stationed in Portland with the Ground Water Division of the U.S. Geological Survey. He is now consulting geologist working for the City of Tacoma aiding in their development of city wells. John has specialized in a study of the glacial deposits of parts of Puget Sound in relation to ground water and has a broad knowledge of the complex glacial history. The Geological Society was particularly lucky to have the benefit of his knowledge of Hood Canal and the margin of the Olympics that he has also studied.

The advance guard was met by John about 9 o'clock Saturday morning and they walked up Sun Creek to the falls in search of fossils in the steeply eastward dipping massive sandstone and tuffaceous shale bed of Oligocene (?) age. Many interesting specimens, some of it glacial material, were observed and one or two foraminifera were found.

Hood Canal is a long canal-like arm of the sea in the Puget Sound region. It was a former stream valley that had developed parallel to the general strike of the steeply dipping Oligocene (?) strata which in turn rested upon a thick series of dark basaltic lava of middle Eocene age. The belt of sediments being less resistant, was eroded to form the ancient subsequent stream valley. When the glacial ice advanced over the Puget Sound region, it naturally followed the valleys but parts of it spread over the intervening lowlands. In the northern part of the Olympics the surface of the ice attained an elevation of 3700 feet and the base was well below sea level. The southern part of the canal was nearer to the end of the glacier and the ice may not have been much more than 2000 feet above sea level in this region. There were several advances of the ice which left their record as till, glacial outwash, ponded side streams - a very complex record indeed. Examples of various phases of this record were pointed out to the group by our leader.

It was Saturday afternoon, after everyone had arrived, that the group started northward along the Canal. The first stop, a short distance north of the Rest While camp, was in search of fossils in the steeply dipping Oligocene (?) sediments, a part of the same series seen by a few in the morning. Dr. Arthur Jones was fortunate in finding a rich foraminiferal stringer of coarse sandstone within the usual nearly barren shale which we hope will tell the age of the beds when studied by the paleontologists at the University of Washington. While most of the group were looking for evidence of past life, a few were combing the rocky shoreline for live specimens. Oysters, which are plentiful in the Hood Canal tidal

flats, could be seen plastered on the rocks. Starfish and small crabs were fairly abundant. Miss Zimmer spotted a large naticoid shell similar in shape to the fossil Natica and Polinices. Till rested directly upon the upturned strata and someone found a large striated boulder from parts unknown.

North of Lilliwaup Bay the glacial deposits were clearly exposed in the high roadcuts. Some glacial till could be seen, particularly in pockets of bedrock. The most common exposures were the fresh gray more or less sorted and poorly cemented sands and gravels of the latest Wisconsin advance. However, in places, more consolidated, stained outcrops of older glacial material could be seen, some of them were bedded clay and fine sands. At the end of our northward advance a section of varved clays was inspected by the group. These clays were formed in local and temporary pools along the edge of the ice sheet, perhaps where a side stream had been dammed by the advance of the ice. Most of the clay was contributed during the summer when the ice was actively melting and a much smaller amount during the winter when the sediments contained a larger percentage of organic material. Thus the varves as we saw them consisted of bands of light brown clay 6 to 8 inches thick, with intervening darker bands of clay about one inch in thickness and this sequence was repeated. Shoving by the ice had contorted some of the beds.

Lilliwaup creek, which enters the bay by the same name, falls from a marshy plateau over 300 to 400 feet of lava to bay level. It is probably another example of drainage disrupted by the glacial advance and like most of the streams it probably occupies a new channel with its old buried by sand and gravel. The falls consist of a series of cascades with intermittent shear drops. The upper falls could be reached by trail but the group did not have time to go up. The lower 200 to 300 feet of channel seen from the base reminded many of Waukena Falls in the Columbia River Gorge. The rock is a nearly black massive basalt that showed evidence of pillow structure and breccia coated by palagonite as is exhibited by some lavas that have been extruded in large bodies of water. The falls area has been purchased by a wealthy Chicago manufacturer who has closed it to the public but who is willing to show the area to groups on arrangement. He has a 14-inch pipe from the upper falls, which he has "improved," which feeds his power plant. The grounds are nicely developed with a lawn and beautiful shrubs. Plans call for a large new house. A fountain in the center of a large circular pool is located between the falls and the present house. Because of the tremendous pressure the water shoots about 135 feet into the air as was seen by the group when the owner opened the gate valve and the fountain took off like Old Faithful in full eruption.

The creek has developed a sinuous channel upon the face of the falls. At stages of higher water this would probably be obscured by a broader spread of water. The owner outlined his plans for constructing a concrete dam in the notch midway up the face of the falls with a broad even lip over which the water would drop as a broad sheet of spray and upon which colored lights would play. Such plans did not seem to meet with the general approval of the group. There was much shaking of the heads and the generally expressed opinion was to the effect that nature was pretty difficult to improve.

The long anticipated Indian Sluitim (salmon barbecue to those that don't know the language) was held along a beautiful stretch of the beach at the home of Mr. and Mrs. C. E. Hill. Mrs. Hill is a sister of John Robinson. The weather was just right in all details which coupled with the ideal setting and hospitality of both the Hills and the Robinsons left little to be desired. Those who wanted to swim were shown to the convenient dressing rooms, a few steps from the pebble beach while the rest sat by the fire and drooled as the slabs of salmon, neatly

arranged between laths of cedar and held by split green sticks of vine maple tied at the top with baling wire (the Indians would use cedar roots), sizzled by the bed of coals. When done, the salmon was spread on a flat board, covered with hot butter and eaten with an addition of lemon juice and additional salt according to the individual taste. As of this was not enough in itself, there were ample side dishes of green beans, scalloped potatoes, salad, and coffee topped off by unsurpassed apple pie baked that afternoon by Mrs. Robinson and Mrs. Hill. There was no record of anyone being hungry when they settled by the fire on comfortable cushioned seats to listen to John Robinson tell of the early day Indians and their customs. Then he gave a summary of the glacial history of the Hood Canal region and discussed the trip to Lake Cushman and the upper Skokomish River the next day. Some of the old time GSOC songs were resurrected abd sung either in group or duet depending on the number that remembered them. The group dwindled away a few at a time leaving comfortable seats and a perfectly good fire to go to waste at what some would call a very early hour, all things considered.

Sunday morning found all raring to go so after the cars were gassed, watered, and in some cases tired, the group drove to Hoodsport and then up the hill to Lake Cushman, a large body of water impounded behind the high dam built in 1925 for the City of Tacoma. The North Fork of the Skokomish River during the glacial advance was forced from its now filled valley and cut a gorge in the basalts to the south. This narrow canyon furnished an ideal dam site. Fish could be seen in the water near the dam. The bare logged-off hills were contrasted with the forested slopes farther back near the jagged peaks of Mt. Washington and Mt. Elinor. The group then left by way of a gravel road through the glacial outwash for the upper part of the river valley near Staircase resort. The road finally left the outwash delta and followed along the steep sides of the canyon where it was carved in pillow lavas of the thick series comprising a circular belt around most of the Olympics. The Skokomish River at the end of the lake is a crystal clear greenish body of pools and whiter rapids. Some chose to freeze in the water while the less rugged crossed by bridge and followed a broad trail down the south side to Copper Creek. At this point the abundant boulders of the creek allowed one to examine the common spilitic lavas (albitized basalt), manganese silicate (a low-grade manganese ore), red argillaceous limestone, green argillaceous limestone, and quartz-veined jasper. The geology of this part of the Olympics is very interesting. An amazingly thick series of altered lavas with interbedded red argillaceous limestones and red jasper accompanied in places by manganese deposits is now steeply tilled away from the core of the range. Fossils in the upper part of the volcanic series indicate a lower middle Eocene age, but the possibility exists that the nonfossiliferous altered lavas lie disconformably beneath. Beneath the lavas in the heart of the range is a closely folded series of sandstone and argillite now altered to phyllite that is perhaps Mesozoic in age. The trail wound through the tall timber beneath which abundant varieties of ferns and other plants could be viewed by those interested in broader aspects of nature. After lunch the trip was officially over and the carloads bid farewell and departed for Portland, well pleased with a perfectly delightful weekend.

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ARTICLES REQUESTED

"That should make an article for the News Letter!" If that thought has come to you on a field trip, a vacation, or a ramble near home, why not write the article yourself, or bring it to the attention of someone familiar with that particular field? The News Letter welcomes contributions. Please sign all articles and luncheon notes.

- Ye Ed. -

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KHYBER PASS WAS ONLY A START

(We are privileged to print excerpts from a letter written from Kabul on July 11th by Mrs. Frances Wheaton Wharton, daughter of Dr. and Mrs. Courtland L. Booth. Just prior to her departure from the States, she was a guest at a February luncheon meeting of the society.)

We left Peshawar at 5 P.M. Friday evening, June 27th. We were traveling, the four of us Whartons, in an army carryall. Behind us came a heavy trailer loaded with all our baggage. It was the Legation carryall and trailer, and the driver was an Indian. The road through the Khyber to the Afghan frontier was hard surfaced and easy going. Got through the Khyber before dark, arriving at the Afghan frontier at 7:30. The Khyber was as beautiful and savage and wild as all the books say, but I cannot rave about it too much because the pass leading into Kabul is so much more majestic and imposing and completely terrifying that the Khyber is almost nothing by comparison. I think the Khyber has achieved its fame more through its strategic importance and because of all the battles fought there, rather than through any incredible magnificence. The pass into Kabul - that is the really incredible thing! All through the Khyber we saw the British forts and outposts perched high upon rocky crags so that they truly could cover the whole route with their guns, and all the surrounding country as well. The pass is very narrow and tortuous so that an army could easily be trapped. All along the road were stone markers in memory of British regiments which had been trapped at those particular spots. We saw whole villages of people who live in caves - the entrance to each dwelling is a hole cut in the side of the mountain.

Through India we had been traveling about 40 miles an hour. The very minute that we crossed the frontier we slowed to 10 miles an hour, sometimes 5, and not once did we go one mile faster, the whole way to Kabul. It is 40 miles from Peshawar to the frontier (of Afghanistan). From the frontier to Kabul it is 150 miles. It took us 14 hours to get from the frontier to Kabul. Does that give you some idea of how bad the road is? I would say that it is just about like that road we took into the perlite mine, Dad, except that it was twice as uncomfortable because we were in a carryall. Every bone ached. But the scenery was so majestic that we were torn between enjoyment of scenes of unparalleled grandeur and the wish that the horrible nightmare would come to an end. Not once in 150 miles did the car stop bouncing. And so we left the frontier at 7:30. The first 30 miles in Afghanistan were nothing more than the bottom of a dried-up river bed. We just followed the course of the river - couldn't even see any sign of a road.

About midnight we came to a small encampment with a huge barrier of logs stretched across the road. As the car rolled to a stop, some men who were sleeping on cots out under the stars rose up and came up to talk to us. There ensued a fifteen-minute argument between the driver and the men, of which we could understand not one word. Finally the driver switched on the car light and exhibited us and the sleeping children to the men, and with that the barrier was lifted and we passed on. The driver explained that about a year ago one of the men from that tribe disappeared into the mountains with a gun and never returned. They still demand the right to search the luggage of every car passing through to see if they can locate the gun. It took the driver fifteen minutes to convince them that our luggage should not be searched.

We were just about starved when we rolled into Jalalabad (the half-way point) at 1 A.M. We had come 90 miles from the frontier. The trip so far had been all flat, uncultivated, completely deserted country - sagebrush, sand, rocks - it is as if it rained rocks instead of water in this country. As far as you can see,

nothing but rocks - small pebbles, bigger rocks and then huge mountains of nothing but solid rock. Not a tree, nor a blade of grass. We were crossing a huge plateau of pebbles, with every mile coming closer to the massive ring of mountains of rock that was in the distance. At Jalalabad the hotel was of course closed. But our driver said that there was always a place to sleep and food at the Morrison-Knudsen camp. So we went there. Walked into the enclosure which was supposed to be the camp, and up sprang a sentinel. Whereupon we saw people sleeping in cots under the trees and beside the road. Afghans. Morrison-Knudsen had moved two days before to a new camp six miles farther on where it was cooler. So we climbed back in and went on. Finally came to the camp, everybody sleeping on cots outdoors around the buildings. Nobody even stirred as we drove up. The driver went around among the sleeping men until he located the cook. He arose with a smile and opened the kitchen for us. He was an Indian cook and certainly one grand person. He had a pot of Silex coffee simmering on the stove! And from the icebox he brought cold meat, bread, cheese, marmalade, stewed apricots, tomatoes, etc. A meal we will never forget. So there we sat in the camp dining room, a long mess hall made out of rough hewn timber, and rested our aching bones. The children didn't even wake up when we stopped. So we spread our sleeping bags on the ground and let the children continue their sleep in the back of the carryall. The camp was up at 4:30, and so were we. Had breakfast with the men, some of them from Portland. They work from 5:30 to 1 in the afternoon - it is too hot to work after that. So we bade them farewell at 5:30 and started on our way. They expect to have the new road to Kabul completed in 9 months.

I cannot describe the rest of the trip. First we drove for hours through the river canyon. It is a beautiful stream, and the road is carved out of the cliffs that rise up hundreds of feet on both sides of the river. Road wide enough for one car, with turning-out places. The road followed the river bed, at the same level, so we were completely hemmed in by cliffs on both sides. The gorge couldn't have been more than 50 feet wide. And all along the way were the famous bands of nomads moving to higher ground for the summer. Trudging along the road with all their belongings, children sleeping strapped to the donkeys' backs, and roosters and chickens riding merrily along on the donkeys' heads. Every time we stopped to rest, the women and men would gather around the car and ask about the children and about my nail polish (interpreted by the driver) and smile and gesticulate. They were all dressed like gypsies with bangles and shiny jewelry, and they all use a red paint to make rings around their eyes, even on the babies.

And then we started over the barrier of mountain. Climbed to 10,000 feet and then back down to 5800 feet to Kabul. They say we climbed from 4000 to 10,000 feet in 40 miles, and I can almost believe it after traversing that road. The mountains were all solid stone - nothing like mountains in the U.S. No vegetation. Nothing to confine your vista. Riding along the road was just like going through those papier-maché mountains that are usually found in fun houses when you pay a nickel to take the boat ride. It was like a contour map in bas relief. You could see all the surrounding territory for miles, and all of it was just up and down from one rocky crag straight down to a bottom somewhere and then straight back up again on the side of another mountain of solid rock. And the road just wound from one rock mountain to another and always there were more and more mountains ahead and on all sides of us. It will be wonderful when the new road makes it accessible to more people.

Arrived in Kabul at 12:30 noon, Saturday, June 28th. It is really nice. Surrounded by these rock mountains - the old city is built right into the rocks, they impinge upon the town so closely. There is only one direction in which the town can expand on level ground, and that is where the new city is being built. Climate is lovely, and such a relief after the parched heat of India.

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PHOTOS BY
O. E. STANLEY

WHEN THE RAINS CAME

The annual picnic of the Geological Society was held at Mt. Tabor park on Friday, August 8th. Following the meal, the Program Committee took charge for the first showing of a new play by Ellen James entitled "A Field Trip." Ellen was ably assisted in the preparation of the final script by Peggy Allen and Mrs. Rudolph Erickson.

The play concerns a hypothetical (some say not so hypothetical) field trip in the far West which featured an old but able vehicle.

Norris B. Stone was Master of Ceremonies. He introduced the players and served as narrator.

The play was preceded by a short talk by our prompt President, Dr. Jones, and a brief review of the geology of Mt. Tabor by Dr. Edwin Hodge. Prof. J.H. Jonte of the College of the Pacific described the Death Valley excursion.

A light rain, specified in the first line of the script, began falling during Dr. Hodge's talk and slowly increased in intensity. When the field car, piloted by Doc and Al Vance, thundered onto the natural stage, a drenching shower was in progress. The attention of the audience was divided between the necessity of improvising some type of shelter, e. g., newspapers, blankets, etc., and the moving melodrama taking place before them under the glaring light of two Coleman lanterns. The confusion caused by this unplanned precipitation well nigh disrupted the show and probably accounts for the manner in which the student forgot his lines. Doc was very eloquent in his prolonged proclamations on geology in general. Mrs. Bartow and Lovey Lou were indispensable in their realistic roles.

The cast for the play consisted of the following:

Layman (Dumb, that is)	Thomas Matthews
Doctor (Ph.D., of course)	John Eliot Allen
Collector (of anything)	Mrs. Leslie Bartow
Lovey Lou ("It" girl)	Louis Oberson
Student (in a stew)	Richard Anderson
Lon Hancock (tree grower)	Lon Hancock
J. C. Stevens ("The Redcoats are coming")	J.C. Stevens
Al Vance (say, Al!)	Al Vance
Ladies (who appear)	The Misses Zimmer

I can only briefly acknowledge here the able assistance of Thomas Matthews who privided the lighting, and the very adequate bonfire which was built by Rudolph Erickson. I wish to thank allof the members of the Picnic Committee who gave so freely of their time and energies to furnish an amusing play for this year's picnic.

If I have neglected to mention anyone's name, it was not intentional.

Richard J. Anderson

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DR. WARREN D. SMITH RETIRES

Thirty-three years ago a young geologist, who, at the age of thirty-four, already had a brilliant record behind him, joined the University of Oregon faculty as head of the Department of Geology and Geography. Since that day in 1914, Dr. Warren D. Smith has become as much a part of the University as Condon Hall itself. To him we owe a large share of the credit for the present Department of Geology and Geography. His "boys" are scattered over the face of the earth - from an Army Colonel in Japan to a University Dean of Arts and Sciences in Louisiana. Nor has his influence been restricted to the campus; just ask a member of the Chamber of Commerce, a Willamette Valley farmer, or a prospector in the Wallowas if he's heard of Dr. Smith. Nine times out of ten the answer will be in the affirmative (though they'll hasten to point out that it's 'Doc' you mean - not Doctor).

Dr. Smith's career has been both colorful and full. Born May 12, 1880, he graduated from the University of Wisconsin in 1902, received his Master's Degree from Stanford in 1904, and his Doctorate from Wisconsin in 1908. From 1901 to 1903, he served on the Wisconsin Geological Survey. He worked in the Philippine Islands, 1905 to 1914, first as a geologist in the U.S. Government Mining Bureau at Manila, and later in the Division of Mines of the Bureau of Science in Manila. For 7 years, 1907 to 1914, he was Chief of the Division of Mines at this institution. Since his arrival at Oregon University in 1914, he has taken one leave of absence (1920-1921) to serve again as Chief of the Division of Mines for the Philippine Government.

Since 1921, Dr. Smith has, in addition to his duties at the University, worked as Ranger-Naturalist at Crater Lake (1934-35) and with the State Department of Geology and Mineral Industries.

He was, in 1935, a member of the Government's Special Mining Commission; is a past President of the Cordilleran Section of the Geological Society of America; and is, at present, President Elect of the Oregon Academy of Science. He was a United States delegate to the International Geologic Congress at Toronto in 1913, and was also a delegate to the first Pan Pacific Scientific Congress in Honolulu in 1920.

Dr. Smith is also known as the author of at least fifty different papers and monographs on the Philippines, Malaya, Oregon, and the Pacific region. He is the author of Scenic Treasure House of Oregon and Geology and Mineral Resources of the Philippine Islands, and was the editor of The Physical and Economic Geography of Oregon.

Today, after thirty-three years at Oregon, Dr. Smith is leaving the University. An association such as his has been with the University is not easily broken off, and we hope (and believe) that we'll see the "Skipper" around frequently.

From Dips and Strikes,
Condon Club Bulletin

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DR. ALLEN GOES TO PENN STATE COLLEGE

Members of the Geological Society were sorry to hear that they are losing one of their most enthusiastic members as well as former presidents when it was announced that Dr. John Eliot Allen was leaving to accept a position as Associate Professor of Geology at Pennsylvania State College, State College, Pennsylvania. John, as he is generally known, has been active in Society affairs ever since he was transferred in 1939 from the Baker office to the Portland office of the State Department of Geology and Mineral Industries to become Chief Geologist of that organization. He has been a frequent leader of field trips, a speaker at our meetings, and a teacher of others who attended his classes in general geology conducted under the auspices of the Oregon Board of Higher Education.

Dr. Allen received both his BA and MA degrees from the University of Oregon, in 1931 and 1932, and his Ph D degree from the University of California in 1945. He has done field work in parts of California, Washington, and Nevada and throughout Oregon. He is a member of Phi Beta Kappa, Sigma Xi, and Theta Tau, a fellow of the Geological Society of America, and a member of the AAPS, AIMME, Seismological Society of America, and the AAAS.

Members of the Society wish Dr. and Mrs. Allen well in their new undertaking and hope they will retain their interest in Society affairs.

E.M.Baldwin

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LUNCHEON MEETING - July 17, 1947

Twenty members of the society gathered for luncheon at the House of Kilroy. Miss Ada Henley read a very enlightening article from the Salem Geological Society News Letter concerning the explosives that were shipped during the war to Chinese collaborators. The ammunition, known as Aunt Jemima, had to be in a form that could pass undetected through the Japanese lines, and the idea was developed to disguise it in the form of flour. Mr. Libbey had a rare specimen of lead and silver found along the road near Provo, Oregon. Dr. Courtland L. Booth passed around a beautiful piece of galena, sphalerite, and marcasite from Joplin, Mo. Just returned from an automobile trip to Wisconsin, Dr. John Allen had more stories to tell of freak weather he and his family encountered than of the geology he saw. A blizzard in Rocky Mountain National Park, floods in Nebraska, a hurricane in Wisconsin, and thunder storms in Montana added variety to the trip. Dr. W.D.Lowry gave a short resume of the geological features seen on the recent John Day trip.

Grace M. Poppleton

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LUNCHEON MEETING - July 31, 1947

The group assembled in the Chamber of Commerce building after rather sudden notice that the House of Kilroy was no more. The shift did not seem to cut the attendance very much, though. Mr. Ferman, who travels among the farmers for Libby, McNeil & Libby, introduced himself. Mr. A.W.Hancock had been prowling around the John Day region again and came up with an excellent skull of an oreodon. He had a few other bones that may or may not have gone with the skull. Dr. Jones had a small gastropod from the Devonian of the San Juan Islands, Washington. Mr. Stanley told of the emergency that arose over a shift in meeting place. He discussed several other places but the group heartily approved his selection of the Chamber of Commerce and gave him a vote of confidence. From now until further notice we will meet in alternate rooms in the Chamber of Commerce restaurant. Miss Poppleton announced the passing of Mr. Geo. Jones, one of our new members.

Mr. Stone discussed a trip up the McKenzie River which he arranged when in Eugene recently. Dr. Warren D. Smith will be the leader and the date is tentatively set for early in October. Dr. Jones suggested a trip to the Kelso region. The group went that way once before but spent nearly all of the time searching for zeolites.

Ewart M. Baldwin

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LUNCHEON NOTES - August 7, 1947

Thirty-four members and guests present at our new quarters in the Chamber of Commerce - almost a full house. Outstanding visitor was Dr. Don Lawrence of the University of Minnesota who is here continuing his investigations on the age of timberline trees on the north side of Mt. Hood, with the able help of the Mazama Committee on Glaciers, headed by our Ken Phillips. Dr. Lawrence also passed around specimens of volcanic mini-bombs from the Craters of the Moon, and a gorgeous air photo of Eliot Glacier with a map explaining the features pictured. Other "guests" were Harry Clark, a charter member of the society; Mrs. Simon, whom we rarely see at luncheons; Lotus Simon, back from a summer in the San Francisco and Monterey Bay region; and Miss Jane Chase, formerly secretary for the Williams Avenue Y.W.C.A., introduced by Dr. Jack Stevens. Mr. Libbey announced the appointment of John Allen, geologist for the Oregon Department of Geology and Mineral Industries since 1938, as associate professor of geology at Pennsylvania State College. Mr. Bates gave of a few reminiscences of his teaching days there, and asked that it be noted that he was going to Penn State, not the reverse. Mr. Bates also told about his trip through the Bighorns, Hoover Dam, and the museum at Meteor Crater, passing around a pamphlet with a small specimen of the meteoric material found near the crater. Other specimens passed around consisted of variscite slabs (Dr. Booth); fossil leaves (John Allen); a new book on Grand Coulee, which may be ordered through our efficient service chairman, Leslie Bartow; a peculiar nodule from Owyhee Canyon and a still more peculiar object from Newport Beach, and a wood burl from Friday's (Hancock).

John Allen

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LUNCHEON NOTES - August 21, 1947

The thirty-two people present today included Joy McCoy, a new junior member, and her three guests from the State Department of Geology and Mineral Industries, Margaret Sachtler, June Roberts, and our intrepid multigraph operator, Lillian F. Owen. Kenneth B. Wood, a new member, was present as the guest of Norris Stone. A.D.Vance passed around a specimen of Epitonium condoni, an attractive fossil gastropod from Oligocene shales near Buxton. Richard J. Anderson showed a specimen of orbicular jasper and found that the authorities pronounced his "specimen of obscure origin" not only a liver stone, but one with cirrhosis. Ada Henley brought a small piece of Mastodon tusk from Alaska. Mella White brought various specimens collected in the Crater Lake area during the recent Nature Camp session there. Passed around were pumice from a Rogue River pothole, charred wood from the vicinity of Diamond Lake, quartz crystals from near McCleod, obsidian from Obsidian Mountain near Paulina Lake, and fulgurite and scoria from Union Peak. Orrin E. Stanley displayed pictures taken at the annual picnic. John E. Allen told of visiting a new "meteor" near Oswego. The core stone had had a layer of red obsidian from eastern Oregon pasted over it, and had a layer of what looked like smelter slag over that. The core stone proved to be non-magnetic, although the locality was. The claim of the "discoverers" that the "meteor" caused a rise in blood pressure of a visitor to the area was not checked by Dr. Allen.

Lotus Simon

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GEOLOGICAL SOCIETY NEWS LETTER

Volume 13, No. 10 October 1947

SOCIETY ACTIVITIES

LECTURES: Note the change of time and place for lectures.

On the second and fourth Thursdays of each month in Public Library Hall (exception Oct. 24). Watch the Oregonian, Oregon Journal, and News Letter for further announcements.

TRIPS: Watch for announcements of at least one trip each month. If you know of or can lead a trip yourself, call Norris B. Stone, BR 2683 or OS 6531.

LUNCHEONS: Every Thursday noon at the Chamber of Commerce, 824 S.W. 5th Avenue, between S.W. Yamhill and Taylor Streets. Luncheon 75¢.

MEETING ANNOUNCEMENTS

Thursday Oct. 9 — A talk, together with a showing of slides, has been arranged but it is not certain just who will give the talk. Look for the announcement in the newspapers and also for a change of meeting place.

Friday Oct. 24 — "A Glimpse of the Cretaceous Seas of Oregon," by Dr. Earl L. Packard, head of the Department of Geology, Oregon State College. Dr. Packard's studies in central Oregon have revealed most interesting information for the subject of his talk. (In hall 714 S.W. 11th Avenue.)

FIELD TRIP ANNOUNCEMENT

Saturday and Sunday Oct.11 & 12 — UPPER McKENZIE RIVER territory will be visited under joint sponsorship with the Eugene Obsidians and the Department of Geology and Geography, University of Oregon. Dr. Warren D. Smith and Hugh Currin will lead the trip from Belknap Springs to Clear Lake and the three falls. For the program, information regarding reservations, and an outline of the high spots of the trip, see the back pages of this issue of the News Letter. If you plan to go, telephone Norris B. Stone immediately.

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GIFT ACKNOWLEDGED

The Society is grateful to Mrs. Amza Barr for the welcome gift of two bound volumes of the Geological News Letter, Volumes 1 and 2.

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MEMBER MARRIED

Harrie Jennison and Ruth Guerin were married July 26 and are now at home at 1561 S.E. Linn Street, Portland, Oregon.

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FUN WITH FOSSILS*

by
Katherine Van Winkle Palmer
Paleontological Research Institution, Ithaca, N.Y.

Fun with fossils is the thrill of finding the unexpected. One never knows what may be turned up in a layer of rock. One may unearth the bones of a horse with three toes where now roams a horse with only one toe; one may chisel from a mountainside the skeleton of a fish preserved ages ago though there may be no piscatorial luck in the stream below; one may dig the leaves of ginkgo, magnolia, or sweet gum from the rocks of "Greenland's icy mountains" or, at heights of over 7,000 feet in the Rockies, wrest impressions of the delicate tissue of a fossil jellyfish. The search is full of adventure, fun, many times failure, but always hope.

Henry Fairfield Osborn contrasted the hunter of living creatures with the hunter of fossils. He said: "The hunter of live game, . . . is always bringing live animals nearer to death and extinction, whereas the fossil hunter is always seeking to bring extinct animals back to life."

Delving into the rocks to obtain the secret of the past is a gamble, but it is a game which people from the rich man to the chief enjoy playing.

In the city of New Haven, there was once a certain rich man by the name of O. C. Marsh, who had so much fun with fossils that he became one of the "three founders of the science of vertebrate paleontology in America." Because this man wanted all his time to study and explore for fossils he served (until his last years) as a professor at Yale University without salary. He had persuaded his rich uncle, George Peabody, to establish and endow a museum of natural history at Yale. And to this museum were brought the many fossil bones of dinosaurs, flying reptiles, marine lizards, birds with teeth, extinct mammals, immense and small, which Marsh had collected or had had collected during the time between 1868 and 1892. There were over 3,000 shipments on which he spent $200,000 of his own money. In addition, he had had dug enough fossils for the U.S. Geological Survey to fill 9 freight cars and cost the federal survey nearly $150,000.

Living at the same time, in the "City of Brotherly Love," was another rich man, Edward D. Cope, who also had fun with fossils in a big way. He was one other of three founders of American vertebrate paleontology. He built up a great collection of fossil reptiles, mammals, birds, and much else, which was ultimately bought by the American Museum of Natural History.

Those two great rivals, the brilliant Cope and the able Marsh, with their organized expeditions of expert collectors in the Great Plains and Rocky Mountain areas in the pioneer days of the second part of the eighties, engaged in a furious race to obtain and describe the bones of extinct creatures of the past. Although their methods became cutthroat and their feelings bitter, they built up vast collections which, together with their own brilliant and scholarly studies and those of subsequent gifted, trained, and leading fossil students, have made possible the beautiful, scientific, and popular restorations and learned treatises of the Peabody Museum, the American Museum of Natural History, and the U.S. National Museum.

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*From an address, American Nature Study Society Dinner and Annual Meeting, Boston, December 27, 1946, and published in The Scientific Monthly, vol. 54, no. 5, May 1946. Reprinted with permission from Katherine Van Winkle Palmer and from the editor of The Scientific Monthly.

But one does not need to be wealthy or go thousands of miles to have fun digging fossils from the earth. We may be reminded of Robert Dick (1811-66), the poor, humble, and modest baker-naturalist of Thurso, in the dreary northernmost town of Scotland. Dick, self-educated, earned his daily bread by baking it. Never neglecting his baking, he timed his duties so that he could frequently start at midnight on his roamings over the countryside. He loved all nature and knew its forms well, whether fern, flower, insect, shell, stone, or fossil fish. Through wind and rain he tramped, 16, 20, 50, or even 80 miles, but he never traveled beyond the limits of his native county of Caithness. Here, carrying "3 pounds of iron chisels in his trousers pocket, a 4-pound hammer in one hand, and a 14-pound smiddy forehammer in the other; and his old beaver hat filled with paper and twine," he would leave the drudgery of his bakeshop and ramble amongst the objects he loved. Dick discovered and collected the remains of queer, primitive, extinct fossil fish of the Old Red Sandstone or Devonian rocks. Many of the specimens were glorified in the writings of another famous Scottish fossil-fish collector, Hugh Miller. Some of Dick's and Miller's fish reached the great Agassiz and thereby formed the basis for many of Agassiz' fish descriptions. Dick's was the joy of original discovery, and his fun was cracking the rocks to unearth the unknown creatures of the past. As he puts it in rhyme:

Hammers and chisels an' a'
Chisels and fossils an' a'
Resurrection's our trade; by raising the dead
We've grandeur an' honour an' a'

Hammers and chisels an' a'
Chisels and fossils an' a'
In spite of the devil we'll dig as we' able
Hurrah for the hammers sae braw.

Even poverty does not prevent exploring in science. Lamarck, France's illustrious botanist, zoologist, and paleontologist, at a time when thinking was fettered by the biblical version of creation and the Flood, gave to the world for the first time a scientific intelligible conception of main trends in evolution and an appreciation of the vastness of time not previously grasped. Throughout his eminent career, Lamarck lived on a pittance, and when he died there was naught to buy him a decent grave. His body, like that of a common beggar, was thrown into the general pauper trench, from which the bones were removed after a certain period and dumped in the catacombs of Paris; the place of his burial will ever remain unknown. Lamarck is called the founder of invertebrate paleontology, and his position as naturalist and philosopher is among the great. It was in the vicinity of Paris, from the rich Tertiary rocks, that he gathered the remains of mollusks, which he described and from the facts formulated general evolutional truths.

To some, the joy of having fossils could only be satisfied by keeping what did not belong to them. In 1848 the skull and carapace of a glyptodont, the ancient relative of the modern South American armadillo, was discovered in Montevideo. This fossil was presented to Vice Admiral Dupotet, who took it to France to give to his home city of Dijon. On the way, he left the specimens for exhibition in the Jardin des Plantes in Paris. When Dupotet later tried to remove his fossils, the authorities of the Jardin des Plantes had become so enamoured of the glyptodont that they refused to part with it. Unsuccessful in obtaining his own property, Dupotet made a will bequeathing the glyptodont to the Museum of Dijon and died, leaving his wife to carry on in its behalf. She eventually was partly successful, for the Jardin des Plantes parted with the carapace but retained the skull. Thus the skeleton of the glyptodont became a "house divided."

When Professor Henry Ward, of the early Ward's Natural History Establishment, went to Europe to make casts of representative fossils in the various museums, he asked permission of the Jardin des Plantes to make a cast of the skull of the glyptodont. He was at first refused, but later permission was granted provided he did not sell a replica to the Museum of Dijon. Ward also asked the Museum of Dijon to be allowed to make a cast of the carapace. They too refused but eventually gave permission if he would promise not to sell a cast to the Jardin des Plantes. These promises Ward of course gave, and he returned home with casts of skull and carapace of the fossil. These he combined and later distributed duplicates to the early institutions of our country. Many of those Ward casts are still available in remnants of the museums of the Gay Nineties, where they were gazed at with awe. So, if you ever see one of those large replicas, particularly identified by its heavy armored carapace, like a coat of mail, and the long spiny tail, or one with a clublike tail, like the cudgel of the funny-paper cave man, ponder the moral of how much fun stolen property can lead to!

The life of a doctor is traditionally busy. Yet physicians have been a leading group in the pursuit of natural history. Perhaps a form of relaxation from the arduous duties of visiting the living may be obtained from association with the silent relics of the past. Dr. John Collins Warren, born in Boston in 1778, Professor of Anatomy in the Harvard Medical School, one of the founders of the Massachusetts General Hospital and the McLean Asylum for the Insane, onetime president of the Boston Society of Natural History, and perhaps best known for having been the first to use ether in surgery, took time off occasionally to enjoy working with bones of prehistoric creatures. The most nearly complete and perfect skeleton of a mastodon, one of the extinct proboscidians which roamed North America 20,000 to 30,000 years ago, was found in the region of Newburgh, N. Y. In 1846 Dr. Warren purchased that skeleton for $5,000 and subsequently built a fireproof building at 92 Chestnut Street in Boston to house it. That building became famous as the Warren Museum, and to it the doctor brought specimens of mastodons from all over the world; he finally wrote a fine book on the subject. In 1906, many years after Warren had ceased practicing in this world and the last of his heirs were no more, the Warren collections were sold to the American Museum of Natural History. In 1908 the Warren mastodon was given a new mounting, a shampoo, and glorified by the paintings of its restoration by Charles R. Knight. It is now exhibited as one of the prize showings of the Museum of the city of the Great White Way.

The profession of law may well do honor to one of its profession, Sir Charles Lyell, who because of his love for rocks and fossils finally gave all his time to that pursuit. He wrote much and well and when he died in 1875 he was properly buried in Westminster Abbey, for it was said he was "the most philosophical and influential geologist that ever lived." He traveled from England over the world, including four trips to America. Amidst the fun that he had in collecting fossil sea shells from certain of the rock layers of France and Italy, he contemplated the fact that in each area the percentage of the fossil shells which appeared like those living today was different in each of the four places. And when the percentages were calculated it was found that those in the Paris Basin were the least like the Recent or present-day forms, those in southern France were less like the Recent, those in central Italy were more like the Recent, and those in Sicily were the most like the living sea shells. So Lyell translated the geological history of clams and snails into Eocene, Miocene, Pliocene, and Pleistocene, names which give us handles to talk about parts of the great periods of time previous to our own.

But besides being of philosophical and scholarly use, the love of fossils may have a practical application. One of the most unusual of merchants was the female fossilist Mary Anning, who, in 1810, a child of eleven, set up and then continued until her death a fossil shop in her native town, the watering place of Lyme Regis in west Dorset on the southern coast of England, near the border of Devonshire. The cliffs of Lyme are famous for the wealth of fossils which weather from their flanks and are strewn along the beach or lie half buried in the clays. There the vertebrae, or "verterberries," in the Dorset dialect, of strange Mesozoic fish, sea reptiles (the ichthyosaurs and plesiosaurs), the remains of ammonites and belemnites (extinct cephalopods), primitive cuttlefish, and many other queer fossils are common wares in the village stores. Both living and fossil fish have been seen for sale on the same counter.

Mary Anning became the Tiffany of the fossil vendors of her day. Through her skill foremost scientists were provided with many remarkable and perfect specimens, and from her stores the visitors to the seashore were furnished curiosities. When selling a fine six-foot ichthyosaur to the King of Saxony and signing her name to the transaction, she quietly and concisely summed up the status of her reputation: "I am well known throughout the whole of Europe." At her death and down through the ages, the geological world has paid tribute to the talent and labor of this female fossilist.

The pleasure derived from the study of fossils may also be a panacea for those who suffer the headaches of public affairs. Thomas Jefferson, when Vice-president of the United States, was elected President of the American Philosophical Society in Philadelphia. This man who wrote the draft of the Declaration of Independence and helped frame the constitution of Virginia, along with many other important documents, in 1797 read to the members of the Philosophical Society a paper entitled "A memoir on the Discovery of certain Bones of a Quadreped of the Clawed Kind in the Western Parts of Virginia." He named his "Great Claw" Megalonyx. Later Jefferson's name was perpetuated among the names of the animal kingdom by his giant ground sloth being named Megalonyx jeffersoni. While President in 1806, when political debates were many, Jefferson had brought to the White House many hundreds of fossil bones from Big Bone Lick in Kentucky. These relics occupied an empty room in the first house of the land, and the President spent happy moments in this sanctum when not engaged as with affairs of state. But such pursuits in science did not strike the public anything but ridiculous, and in squirtish fashion William Cullen Bryant vented his spleen in poetical satire:

Go, wretch, resign thy presidential chair
Disclose thy secret measures, foul or fair
Go, search with curious eyes for horned toads
'Mid the wild wastes of Louisiana bogs
Or where the Ohio rolls his turbid stream
Dig for the huge bones, thy glory and thy theme.

Thus from the parade of human endeavors have been picked examples to show that fossils have delighted the soul and stimulated the mind of rich man, poor man, the beggarman, and even the thief, the doctor, the lawyer, the merchant, and the chief.

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WILDLIFE SUBJECTS TO COME

The Oregon Museum Foundation, Inc., and the Oregon Audubon Society have announced a series of Audubon Screen tours, consisting of colored outdoor motion pictures illustrating lectures on natural history subjects. The lectures are open to members of the foundation and to school children, and are to be held at 8 o'clock P. M. in the Benson high school auditorium. The initial lecture, "Fun with Birds," by Laurel Reynolds, was held October 3. Lecturers to appear are: Alexander Sprunt, Jr., on Wednesday, November 5, speaking on "Our Living Earth"; Roger Tory Peterson, on Friday, January 30, 1948, his title being "The Riddle of Migration"; Tom and Arlene Hadley, Friday, March 12, with the topic "Happy Valley"; and Dr. Telford H. Work on Monday, May 10, who will close the series with "Bits of Land Along the Coast."

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LUNCHEON MEETING, AUGUST 14, 1947

Dr. W. Claude Adams sent around an 1896 campaign dollar. It was about the size of a sauce dish. Some of the older folks may remember those old Free Silver Days and the ratio 16 to 1. That Adams dollar looks to us just about as large as our silver dollar would have to be today to buy as much meat as a regular sized dollar bought in 1896.....Orrin E. Stanley sent around a box of rocks and some of the pictures he took at the picnic. The rocks came around the table on scheduled time, but the pictures never got around to us. When Stanley takes your picture you hold it as long as you dare and admire his fine photography. Most of the picnic actors were at the other table.....Richard J. Anderson presented to each of the group a fine specimen of pyrite concretion from the "Hoh" formation of the Washington coast.....Mr. A. W. Hancock displayed a couple of petrified nuts. I don't recall what variety they were and they weren't exactly fresh or I could have tasted them to find out. I'm told that this kind of nuts loses the fresh flavor during the first 20 million years.....Norris B. Stone called for a scientific identification of a rock he had given to Dr. John Allen to examine. Allen announced that he had found that the rock fizzed in hot acid but did not fizz in cold acid. That seemed to satisfy Mr. Stone and everyone else, but both tests seemed to me like fizzles.....Earl W. Minar showed us a sample of asbestos in serpentine from Globe, Arizona.....Dr. Ewart M. Baldwin exhibited a sample of staurolite garnet schist from British Columbia, also the head of a trilobite from New York state.....Dr. and Mrs. J. C. Stevens had as their guest their grandson, Norman Hoy of San Francisco.

E. N. Bates.

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LUNCHEON MEETING, AUGUST 28, 1947

The thrill of observing an eruption of Paricutin against the night sky was described by Miss Glenna Teeters, who had recently returned from an automobile trip to Mexico. Two villages have been destroyed by the eruptions, but the villagers were somewhat awed by the fact that a portion of a church has so far been spared. The lava flows reminded Miss Teeters of those at the McKenzie Pass. The difficulties encountered by a hired car in negotiating the road, which consisted of planks, were related to an appreciative audience. Miss Teeters' party also flew from Mexico City for a five-day stay in Guatemala City. Among the specimens displayed at the meeting were two rock samples from Paricutin with which the visitor to Mexico confounded the immigration officials.....Mr. F.W.Libbey described tentative plans for the September 26 meeting, and requested that members who have slides around which they can weave ten minute talks make arrangements to take part in the program.

Miriam Shepard

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GEOLOGY NIGHT SCHOOL TO CONTINUE

Extension division classes in rocks and minerals (fall term) and geology of the Pacific Coast (winter and spring terms) will be taught this year by Richard J. Anderson, managing engineer of Raw Materials Survey, Inc., formerly geologist for the Alcoa Mining Company and a graduate of Columbia University. Mr. Anderson was acting state geologist for Arkansas for a year, and taught at the University of Minnesota for three years previous to that. He is one of the active members of the Geological Society of the Oregon Country. The classes, which started September 22, will held on Monday nights between the hours of 6:45 and 9:25 o'clock at Lincoln High School.

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LUNCHEON MEETING, SEPTEMBER 4, 1947

Mr. C.H.Works of Cincinnatti, Ohio, who spoke at the August 22 meeting on fossil collecting in his home territory, was a luncheon guest who was introduced by Mr. A.D.Vance. Mr. Works displayed specimens of flint from Flint Ridge, Ohio, a half-mile-wide ridge which is nine to 10 miles long. The specimens, some of which were cut and polished, graded into what he thought might be jasper. Miss Ada L. Henley introduced a seldom-seen member, Miss Margaret L. Steere, who recently obtained her Master's degree at the University of Michigan. Mr. Vance showed a piece of dinosaur bone which he had polished and which Paul Howell had brought from Utah. Mr. George V. Elder's contribution was a chunk of serpentine which Mr. Cash brought from Gold Beach, and Mr. Libbey produced a specimen from Nickel Mountain west of Riddle. At the request of the presiding officer, Vice-President O. E. Stanley, Dr. J.C.Stevens discussed the five lectures to which membership in the Museum Foundation will entitle admission. Children will be admitted free but no plans are made for paid admissions. John Ripley Forbes will be here in November to take charge of the museum affairs for a year, and meantime, according to Dr. Stevens, the group is trying to find a temporary site in which to set up collections. He added that among the effects of the Rodney Glisan estate which were received by the foundation are 12 boxes of lantern slides. He called for volunteers to run the slides and to classify them for the purpose of making assortments that could be shown to schools and organizations. Dr. W. Claude Adams, who was present on Mazama trips when many of the pictures were taken, offered his services. Miss Margaret Hughes described difficulties she and Miss Rose Jennings had in Seattle in attempting to locate a collection of glass. They found it was packed away until such time as there is a museum in which to display it.

Miriam Shepard

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LUNCHEON MEETING, SEPTEMBER 11, 1947

Twenty-one members were present with President A. C. Jones in the chair and Dr. E. T. Hodge at the head of the table. Dr. Jones passed three bits of glaciated granite fromdrumlin near White Bear Lake, Minnesota, a part of the Wisconsin glacial drift which he secured on his recent eastern trip. Dr. Booth gave a report on the Seattle meeting of the Northwest Federation of Mineralogical Societies, at which it was decided that the 1948 meeting would be at Bozeman, Montana, and the 1949 at Bend, Oregon. The Seattle meeting was very well attended, and a large number of most excellent exhibits were on display. Several excellent ones were by Portland members. Dr. Booth passed around two specimens of Eden Valley, Wyoming, teredo-infested petrified wood, each of which had a cystlike inclusion containing microscopic oval-like bodies which because of their association with the teredo wood,

he thought might be teredo larvae. Biologist Lotus Simon thought that instead they might be some form of insect larvae. It was decided to give the subject further study before final determination. Dr. Booth also described the recent slide at Cle Elum, Washington, as a result of which the Yakima River was diverted and the Milwaukee railroad tracks buried. He brought out that a high line irrigation ditch at the top of the slide was probably the cause of the seepage into the gravel bank which caused the loosening of the mass. Lloyd Ruff stated that some years ago the U.S. Engineers conducted an extensive seismographic investigation of that locality, having in mind the construction of a dam, but recommended adversely the project because of unstable ground in the area.....Dr. Hodge related the circumstances of seepage from a drainage canal at Frazier River canyon at Spence's Bridge, British Columbia, which caused a slide completely blocking the Fraser River, as a result of which the salmon run in that stream has never been resumed. He cited it as an example of oversaturation of the land. Bruce Schminky stated that another explanation for the failure of the run had been given as the swiftness of the current through the narrow Hellgate which caused the Canadian Fish Commission to build fishladders around that point. He also told a story of seeing flying disks which was verified by other members of his family. It was told so convincingly that even the chairman thought there might really be something to the stories.....Mrs. Barr showed three rock specimens from Vancouver Island and Miss Margaret Hughes passed around "The Geode," the bulletin of the Salem Geological Society.

Courtland L. Booth

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NEW MEMBERS

	Phone
Mr. and Mrs. R. L. Bryan, 6309 S.W. 32 Avenue, Portland 1, Oregon.	CH 1058
Mr. and Mrs. Shirley Buck, 2730 McLoughlin Blvd., Milwaukie, Oregon.	2-6471
Laurie Leondards, 309 S.E. Union Avenue, Portland, Oregon.	LA 3639

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CHANGE OF ADDRESS

Mr. and Mrs. Leo W. Haven, 4730 N.E. Columbia Blvd., Portland 11, Oregon.

Miss Sallie McCoy, 2829 S.E. Belmont Street, Portland 15, Oregon EA 7342

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FIELD TRIP TO THE UPPER MCKENZIE

(Under joint sponsorship with the Obsidians and the Department of Geology and Geography, University of Oregon.)
October 11-12, 1947

LEADERS: Dr. Warren D. Smith and Hugh Currin.

PROGRAM

Saturday Oct. 11 — 8:00 p.m., Short talk about the geology of the region in the lobby of Belknap Springs or at the Obsidians Cabin, by Dr. Warren D. Smith.

Sunday Oct.12 — 8:30 a.m., Leave in cars for Clear Lake - visit by boats to the large spring on east side of the lake.
Work down to the Upper Fall by car and lunch there. (Bring your lunch). Traverse by foot (some can go by car on the rim drive) of the lower canyon to the Middle and Lower Falls. The trip between the Middle and Lower Falls is fairly strenuous and may require more time than some can devote to it if they drive home Sunday but to those who get Monday the 13th as a holiday (Columbus Day) time will not be a factor.

GENERAL DESCRIPTION

The North Fork of the McKenzie from Belknap Springs to Clear Lake is interesting for the following features:

1. Belknap Hot Springs.
2. Clear Lake with its submerged forest and large spring on the east bank.
3. The recent a-a lava flow which dammed the McKenzie about 1000 years ago and produced the lake.
4. Pahoehoe lava flow in the bottom of the canyon below the lake.
5. The three scenic falls, Upper, Middle, and Lower (the last one probably dry at this time.).
6. The three kinds of lava in this valley are:
   a. The older lava of the valley walls
   b. The intra-canyon lavas
   c. The recent lavas.

These lavas are all basalts, though some facies so closely resemble andesite that only petrographic study can make the determination certain.

The principal student of the area is Harold T. Stearns of the U. S. Geological Survey, whose bulletin (Water-Supply Paper 597-D) "Geology and Water Resources of the Upper McKenzie Valley, Oregon" is the most authoritative printed discussion of this subject.

The Salem group has been invited to enjoy this field trip with us and under such fine leadership all who can will want to be on hand.

RESERVATIONS

Write to Belknap Hot Mineral Springs, P.O. Belknap Springs, Oregon.

Accommodations:

Belknap Springs Inn -
Has 25 beds @ $3.50 for single and $4.00 for double.
7 cabins with 1 double bed @ $3.50.
8 cabins with 2 double beds @ $4.00
Trailer spaces @ $1.00
Camping priveleges @ 50¢ for two and 75¢ for four.

Cabins have 1 room and kitchen, electric lights, running water, stove, wood furnished, sink, table, chairs BUT NO bedding, linens, dishes, or cooking utensils.

Sleeping bags:

Dr. Smith writes as follows: "There will be accommodations for some of your party, maybe 20, in the Obsidian Cabin, about a mile from Belknap Inn, if they bring their sleeping bags and something for breakfast. There are some eating places along the highway but not in the immediate vicinity. They will be expected to pay a small sum for use of the cabin, not over 50¢ each. There are cooking arrangements in the cabin. We expect to get a Forest Service Building nearby also."

Food:

The restaurant and coffee shop are closed so we will have to arrange our own food, BUT the grocery store will be open Saturday and Sunday. It has been suggested that those having cabins will just have to cook hot coffee for the Inn lodgers Sunday morning.

Transportation:

If you are driving and have room to take extra passengers and those wishing transportation call your trip chairman, Norris B. Stone, BRoadway 2683 or Oswego 6531 immediately.

Warning:

As the deer season is on, it has been suggested that RED HATS be worn for safety.

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GEOLOGICAL SOCIETY NEWS LETTER

Volume 13, No. 11 November 1947

SOCIETY ACTIVITIES

LECTURES: On the second and fourth THURSDAYS of each month in Public Library Hall, S. W. 10th Avenue and Yamhill Street. Watch the Oregonian and Oregon Journal for further announcements.

TRIPS: Watch for announcement of at least one trip each month. If you know of or can lead a trip yourself, call Norris B. Stone, BR 2683 or OS 6531.

LUNCHEONS: Every Thursday noon at the Chamber of Commerce, 824 S. W. 5th Avenue, between Yamhill and Taylor Streets. Luncheon 75¢.

MEETING ANNOUNCEMENTS

Thursday Nov. 13 — "The Mighty Columbia," by Tom Stockdale, Vantage, Washington. Mr. Stockdale made a boat trip up the Columbia, and he will show slides of many little-known scenes of the upper river.

Thursday Nov. 27 — Thanksgiving Day. No lecture.

FIELD TRIP ANNOUNCEMENT

Sunday Nov. 16 — Portland's Foundations: Leave S.W. Front Avenue and Yamhill Street at 2:00 p.m. - rain or shine. For the benefit of late-comers, the caravan will go out West Burnside to Skyline Road, along Skyline Road to Cornell Road, back to town on the Cornell Road, cross the Broadway Bridge and go north on N. Greely Street to the Swan Island approach, east on Fremont to Rocky Butte, and then to Mt. Tabor and disband.

Bring your copy of Treasher's Geology of the Portland Area or U.S.G.S. quadrangle for Portland. The purpose of the trip will be to compare the various types of rock formations which make up the Portland area.

* * * * * *

It was regrettable that the road conditions in the mountains forced the cancellation of the field trip to the McKenzie River district. The Leo Simons and Orrin E. Stanley could not resist the call of the McKenzie, however. Mr. Stanley has written a review of his trip which will appear in next month's issue.

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CHANGE OF ADDRESS

Mr. and Mrs. A. W. Hancock	2720 S.E. 84th Avenue, Portland 16, Oregon
Mrs. Amza Barr	4830 S.E. 62nd Avenue, Portland 6, Oregon, TA 2459
Mr. and Mrs. A. O. Cole	3622 N. Montana Avenue, Portland 12, Oreg., MU 0919
Mrs. L. E. West	" " " " " " " " "

CHANGE OF TELEPHONE

May R. Dale — Home telephone LA 2953 or EA 2938

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HOW'D MY PICTURE TURN OUT?

By popular request, members are urged to bring to any meeting photographs taken on field trips. Be they geological features or the features of your fellow members, they'll recall the trip to those who were there and give the rest a taste of what they missed.

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MARK TWAIN, GEOLOGIST

by

Carl P. Richards

One would not turn naturally to the writings of Mark Twain in the expectation of finding a dissertation in the realm of geological science, yet it is to be noted that he has made one or two excursions into that field. One of them deals with the subject of meanders. The student of geology does not get very far into his studies of watercourses before he is confronted with the bewilderment of those fascinating twists and loops, and no text book worth its salt would dare to discuss such things without citing the supreme example of all meandering streams, the Mississippi River.

If anyone ever was well acquainted with "The Father of Waters," it was Samuel L. Clemens in his younger days, when, as a boat pilot, he made the run from Cairo to New Orleans and back some scores of times. In low water, in flood, in calm, in storm; by day and by night, he navigated that ever changing stream and came to know it as only the professional river-man can.

In his book "Life on the Mississippi," first published just over seventy years ago, Mark Twain recounts some of the incidents and experiences during his career as a river pilot. Along with those accounts he records various statistics concerning the river which are very informative and interesting. He goes into considerable detail to show how the stream, during flood periods, has short-circuited some of the loops in its course, thereby shortening the distance which boats have to travel.

He tells of a "neck" opposite Port Hudson, Louisiana, which was only half a mile across; one could walk across it in fifteen minutes, but the journey around the bend by boat was one of thirty-five miles. In the year 1722, he states, the river broke through that neck, deserting its old channel, shortening itself by the distance around the loop. He lists a series of such occurrences and then adds up the mileage involved, showing that a certain length of the river which used to be 158 miles, is now only 70 miles; a reduction of 83 miles in 176 years. Another section was shortened by 77 miles. During his own time on the river, he recalls, cut-offs accounted for 67 miles. Then he sums up and, in his inimitable style, draws the conclusion as follows:

> "Therefore the Mississippi between Cairo and New Orleans was 1215 miles long 176 years ago. It was 1180 after the cut-off of 1722. It was 1040 after the American Bend cut-off. It has lost 67 miles since. Consequently, its length is now only 973 miles.
>
> "Now, if I wanted to be one of those ponderous scientific people, and 'let on' to prove what had occurred in the remote past by what had occurred in a given time in the recent past, or what will occur in the far future by what has occurred in late years, what an opportunity is here! Geology never had such a chance, nor such exact data to argue from! Nor 'development of species,' either! Glacial epochs are great things, but they are vague.--vague.. Please observe:-
>
> "In the space of 176 years the lower Mississippi has shortened itself 242 miles. That is an average of a trifle over one mile and a third a year. Therefore any calm person, who is not blind or idiotic, can see that in the Old Oölitic Silurian Period, just a

million years ago next November, the Lower Mississippi River was upward of one million three hundred thousand miles long, and stuck out over the Gulf of Mexico like a fishing rod. And by the same token any person can see that 742 years from now the Lower Mississippi will be only a mile and three quarters long, and Cairo and New Orleans will have joined their streets together, and be plodding comfortably along under a single mayor and a mutual board of aldermen. There is something fascinating about science; one gets such wholesale returns of conjecture out of such a trifling investment of fact."

Perhaps authors of textbooks on geology have overlooked an important reference in failing to cite Mark Twain's works as "collateral reading."

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HIGHLIGHTS OF MR. KRAFT'S TALK, SEPTEMBER 25, 1947

by

Orrin E. Stanley

Royalties on Mr. J. L. Kraft's book - "Adventure in Jade" - were assigned to build youth camps at Green Lake, Wisconsin. He does not know where he can build them all, as his royalties already amount to more than $100,000.

In 1933 he started the Kraft merit award for service beyond ordinary requirements among his employees. The award was a jade ring. By 1937 the supply of jade was running out. There is no jade found in China, contrary to popular belief, and "the book" said that jade could not be found in America on account of geological formations.

Oscar Smith of Portland wrote Mr. Kraft that he had slices of domestic jade which he would sell at 75 cents a slice. Kraft bought some and found it satisfactory, then asked Smith where it had come from; he replied that he had bought it from an Indian driving an old car with a California license.

"I told you it was jade to get you interested," he said, "but it wasn't jade, was it?"

"Yes, it was," Kraft replied.

"Heck!" said Smith. "Then I sold it to you too cheap, didn't I?"

Kraft asked Smith to send a man to locate the jade deposit. He got a man who then went to Happy Camp in Northwestern California and had the Indian show him where the jade was found. Kraft bought the claim for $500.00, giving the former owners the right to continue mining gold along the river. He found that the claim had been originally known as the "Chan Jade Claim." There were four tunnels, badly caved in, into the jade deposit, which is about ten miles up a trail from Happy Camp and then about two and a half miles farther with no trail.

There was a boulder of jade about eight feet in diameter in the stream bed, which was so transparent that sunlight could be seen through it when standing on the opposite side of the rock at sunset. The State of California wanted to move the boulder to San Francisco and Mr. Kraft gave his consent. The State engineers succeeded in hoisting it out of the canyon, but not in hauling it away. "And," said Mr. Kraft, "it's there yet and you may have it if you will take it away."

Jade is also found in Wyoming, says Mr. Kraft, scattered over a humdred miles of plains, but there must be a ledge, as yet undiscovered, from which these scattered fragments have come. Williamson of San Luis Obispo found pebbles beautiful beyond any that ever came out of China. Mr. Kraft thinks that the largest mass of jade is in Alaska. Slim Williams, who drove a dog team from Alaska to the World's Fair in Chicago and who slept with his dogs and smelled like the dogs, saw some rocks that Mr. Kraft had in a box and asked what kind they were. Kraft told him they were jade.

"The heck you say," said Slim. "I know where there's a mountain of that."

Mr. Kraft asked him what he would take to bring out a sample and he said that he had nearly lost his life in there and wouldn't go back for any money. He showed Mr. Kraft the location, north of the Arctic Circle, on an old Canadian school geography that Mr. Kraft had studied as a boy, plainly marked "Jade Mountain." Williams tried for several years to get someone to bring out samples of jade from Jade Mountain and finally, about three years ago, Jim Robinson brought a 90-pound chunk to Chicago. Robinson said there is nothing but jade in the mountain.

In a discussion of the origin of jade and what it is, Mr. Kraft said that jade is normally white but is colored by other minerals with which it has come into contact and may be almost any color.

There are three true materials which are jade: jadeite, nephrite, and coloromite, and two pseudo jades - californite and vulcanite, but Mr. Kraft said,"What's the difference? They are all about the same hardness and toughness and all are beautiful." Californite is slightly harder and less tough. Small pieces which are cut out of the center of slices across the middle of a block of jade are the best gem material.

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LUNCHEON NOTES - SEPTEMBER 25

JADE -- lovely, lustrous gems, of seemingly every hue and shade -- was the feature of today's luncheon, due to the presence of Mr. J. L. Kraft, the guest of Dr. Courtland L. Booth. In addition to talking most interestingly on the subject of jade, Mr. Kraft showed many specimens of his cut and polished gems, many set as brooches and pendants and all attractively mounted on pale yellow cloth frames. Much of Mr. Kraft's talk may be found in his book, "Adventure in Jade." The book may be purchased through our service chairman, Mr. Leslie Bartow. Other guests were Mr. Lawrence I. Nicholson, formerly of Bismarck, North Dakota, introduced by Dr. Jones; Mr. Paul Rhemus, the new superintendent of the Portland Public Schools, and member ex-officio of the Museum Foundation Board, and Mr. H. J. Detloff, Secretary of the Machinists Local 63, also a member of the Museum board, both presented by Mrs. Viola Oberson. Mrs. Lucile Freeman was the guest of Dr. Ward A. Anderson. Specimens shown were a piece of granite from Hongkong, China, brought by Grace M. Poppleton, and lava rock from the young volcano known as the Crater in Jordan Valley, Oregon, exhibited by Mr. Libbey. The September issue of Life magazine containing comprehensive pictures of the geology of the Grand Canyon with its various stages of fauna and flora was shown by Bruce Schminky; a copy of the Desert Magazine for October was brought by Dr. Booth who called attention to an interesting article therein on Topaz Mountain in Utah. He also informed the group that Dr. Francis Jones, the brother of our president, is the president of the East Bay Mineral Society in Oakland, California. One of Mr. Stanley's snapshots was displayed, this being a picture of Dr. Jones, John Robinson, and Leo Simon, taken on the recent Hood Canal trip.

Ada Henley

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VULTURE

by

A. D. Vance

The vulture launched himself from a lava ledge high on the side of McCullough's Peak, and with powerful sweeps of his great wings, he rose along a gradually widening spiral into the sky. When his climb had carried him a mile above the crag he had recently abandoned, his wings apparently ceased to move and he drifted slowly along on the patrol his kind had maintained from time immemorial.

Despised by all mankind because of the duties assigned to him by a meticulous Providence, he was feared by many as a harbinger of impending disaster. His head and neck bare of feathers and his great curved beak thrust greedily forward, he could not but fill a close observer with loathing. Sailing gracefully on wide stretched wings high above the earth, he was a thing of beauty.

Seventy miles to the southeast, Cloud Peak raised its snowy head midway in -s the crescent of the Big Horn range to a level with the soaring bird. Ninety miles to the south the Owl Creek mountains hemmed his vision. The Shoshone and Absaroka ranges to the west and the Pryor mountains to the north completed his horizon.

Green alfalfa fields stretching away from the Big Horn river ended abruptly at irrigation ditches winding along the foot of badland slopes.

With the grandeur of the encircling mountains or the green beauty of the river valley, the vulture was not concerned. Directly beneath him lay five hundred square miles of jumbled ridges, buttes, arroyos, and beds of long dead lakes. -- Buttes, built up layer by layer, with yellow, pink, and maroon, capped with gray -- all colors were there in profusion, except green. Only along the arroyos the pale green of an occasional greasewood, or the silver green of scattered sage joined with the ever present dusty cactus in a daring invasion of the sun-baked desolation.

It was in this arid waste that the vulture's services were most often needed. As he swept his searching eyes over the expanse of dead earth, his glance fell on an object far off to the southeast which moved slowly along the edge of an arroyo -- moved jerkily, weaving from side to side, it stopped, then moved ahead again.

The vulture slid down through the air and came to rest on a gray-topped knoll fifty years ahead of the advancing figure.

A man, his torn clothing gray with alkali, was coming slowly forward. His feet, dragging over the earth, raised small puffs of dust at each step. That this thing which could not walk straight, but must weave and stumble from side to side as it advanced, was a man meant nothing to the vulture. That his progress was slow and only half controlled meant a great deal. The bird knew that this animal's endurance had nearly reached its limit.

Where a short spur, jutting out from the low ridge he had been paralleling, cast a narrow shadow, the man dropped down with his back against a sand rock.

Little wind devils, kicking up the dust, traveled a short distance and then subsided, leaving the light alkaline cloud suspended. The superheated air near the ground, in its struggle to break through to cooler altitudes, became visible to the eye and rolled and billowed down the winding arroyo until the barren hills seemed to rise and fall as though the earth itself were gasping for breath.

The vulture left his knoll and dropped on spread wings to the level of the one he watched. With an awkward waddle he advanced to within a few feet of the reclining man.

Death could no longer be dreaded by the man, but the repulsive bird -- standing so near, filled his disordered mind with fear. The significance of the desert harpy's presence seemed slowly to penetrate the man's brain. His dull eyes opened wide and a look of horror spread over his face.

Slowly the man rose to his knees. His hand closed over a stone, and with a painful effort he threw it at the watching bird. Puzzled by the unexpected move, the vulture hopped to one side and retreated a few steps. This activity on the part of the man did not worry the bird. His brain functioned only to direct his movements toward food and away from danger, and an instinct built by countless generations told him that the animal before him could not last much longer.

With a dry sob the man began to crawl toward the bird. Slowly the distance between the two lessened. When the vulture started to walk away, the man hurled another stone. It fell near the bird, and with a short labored run the vulture flapped into the air and winged himself to a point on the badland spur above his intended prey.

Not more than fifty feet now separated the two. For the vulture the distance had been covered in seconds. To the man it meant a half hour of agony. Painfully he started to climb upward, every movement requiring forced effort. That picture -- painted by fear -- a fear that the bird might begin his gruesome feast before life had entirely gone, urged him onward. Blood oozed from the man's cracked lips, and eagerly he ran his swollen tongue over the salty moisture.

The vulture, from his point of vantage, idly surveyed the man's slow progress. Once the waiting bird turned to pick at a bit of gravel on the ground beside him. His appetite was demanding that it be appeased, but his victim's scant strength was fading rapidly, and he was prepared to wait.

With a superhuman effort the man pulled his weakened frame to the top of the spur, but the cautious vulture had retreated a few feet toward the main ridge. The spur top was less steep, and the man continued his hopeless pursuit on hands and knees. Desperately he threw another stone which bounded harmlessly along the spur, and then, deflected by a slight obstruction, struck the vulture lightly as he moved to evade it. It did not hurt him, but a fight was never necessary between the vulture and his victims, and his wings carried him to a safer point on the main ridge a short distance from its junction with the spur on which the man now lay panting.

To be forced to retreat from an animal as near death as this one, was a new experience to the bird. He could not know that this creature, again slowly approaching him, was moved by a will power and imagination which could lash his muscles into action, even when his body wilted with exhaustion.

As the vulture watched, the man reached the ridge on which the bird stood. The man did not turn toward the waiting bird. At the foot of the slope an irrigation ditch wound along the edge of the badland ridge. Across the ditch, green alfalfa fields stretched away over a gentle slope to a line of cottonwood trees which marked the bank of the Big Horn river. As if electrified the man lunged down toward the canal. Half sliding, half falling, he reached the foot of the slope and lay gasping only a few feet from the silently flowing water.

The vulture sailed down to stand beside the man. The man rose to his hands and knees and started crawling toward the stream. With a last supreme effort the few remaining feet were covered and the man rolled into the water. He plunged his face into its coolness, choked and coughed, then drank from his cupped hands as his skin soaked up more of the needed moisture.

For a while he sat in the stream, splashing water into his mouth and over his face. Then he waded across the ditch to sit on the far bank and look back at the badlands, as he drank again and again, raising the water in quick, scooping handfuls.

The vulture lost interest in the man. He did not know what had caused the change, but he did know that it was useless for him to remain. Spreading his broad wings he mounted into the air.

The man watched the flight until the vulture was only a speck in the sky. Then the graceful bird dipped into a glide toward McCullough's Peak, and there, on a high lava ledge, the vulture -- returning from one duty assigned to him by a meticulous Providence -- came to rest.

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LUNCHEON NOTES - THURSDAY, OCTOBER 2, 1947

Twenty-three members met at luncheon today. Our President, Dr. Arthur Jones, read a letter of September 19 from Dr. J. C. Stevens, President, Oregon Museum Foundation, reminding the society of the Audubon Screen Tour lectures jointly sponsored by the Oregon Audubon Society and the Oregon Museum Foundation. Admission will be by membership to the Oregon Museum Foundation. The lectures will be at Benson High School, beginning October 3.

After meeting Miss Margaret Hughes and seeing her collection of Early American glass which she has donated to the Oregon Museum Foundation, Mr. and Mrs. Jewell F. Stevens of Chicago, Illinois, who are themselves collectors of early American glass, graciously augmented the collection with a fine goblet of ancient lineage and, because of their interest in the Oregon Museum movement, took out a membership in the Foundation. Mr. and Mrs. Stevens were the guests of Dr. and Mrs. Arthur Jones and through their host and hostess had met Dr. J. C. Stevens.

Dr. Booth gave an interesting account of his trip with Mr. Kraft and others to Happy Camp Mine which is one of the oldest mining camps in California. The mine claim is about 8 miles up a deep canyon of Indian Creek. There's lots of tall timber there - red wood, fir, cedar, madrone, and myrtle. The jade comes in big boulders with native soil and rocks. All the luncheon guests were made very happy by Dr. Booth's generous handing-out of jade specimens. Dr. Booth circulated specimens of rhodonite and diorite from the Happy Camp site. Mr. Hancock went to the head of the class again with his fine fossils of hickory nuts, acorn, fern, cedar, and snails. Along with these was a fine specimen of amber calcite found in the same rock as the fossils. Mr. Hancock, in keeping with his customary benevolence, revealed the source of the fossils - 75 miles from Clarno up the John Day River, near Mile Post 118.

May R. Dale

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BOULDERS OF JADE

by

Dr. Courtland L. Booth

J. L. Kraft of Chicago, chairman of the board of Kraft Foods Company, is noted for his enthusiastic interest in the collecting of minerals, particularly jade, having recently published a book, "Adventure in Jade." Mr. Kraft has a jade mountain near Happy Camp in California and took the occasion of a recent business trip to Portland to visit it. He invited Oscar Smith of the Smith Agate Company and the writer to accompany him. Mrs. Dorothy Simme, daughter of H. E. Leash, business associate of Mr. Kraft, and her friend, Miss Shirley McClure also joined the party, making the trip in their own car.

The Kraft party left Portland early September 27, in ideal Indian summer weather, with Joe Dubic, a Kraft employee, at the wheel. The route took us south through the Willamette Valley and over the Siskiyous on highway 99 West to within nine miles of Yreka, California, where we turned off on highway 96 going west down the Klamath River. This is a fair highway, somewhat curvey, one-way in places, but fairly well inhabited along the 65 miles to Happy Camp. The stream bed has been thoroughly dredged for gold. It is reported that $1000 an acre is being offered for the bottom lands.

Happy Camp is one of the oldest mining towns in northern California. It is a little town cozily situated at the junction of Indian Creek and the Klamath River. It has several eating places and a motel, run by Mr. and Mrs. L.H. High; several garages, stores, telephone exchange and a large log high school surrounded by well-kept grounds. This is said to be the only log high school in California and possibly in the United States.

We arrived rather late in the evening and were met by Mr. and Mrs. R.T. Fero, friends of Mr. Kraft, who had secured reservations for us at the High Motel. Mr. Fero is an authority on the early history and legends of the Happy Camp region. We were fairly well "jaded" by the trip and went to bed shortly after 9 o'clock, but Mr. Kraft stayed up until after midnight talking with a group of Indians who had another jade prospect to offer. Formerly there were a good many Chinese and Indians working in the placer mines in this district but the Chinese disappeared and the Indians so intermarried that they have lost the characteristics of their race and are very comely.

In the morning the party, with the Feros, Mrs. Simme, and Miss McClure started up Indian Creek. The creek comes in from the northwest through steep canyons, timbered heavily with firs and redwoods above and madrones and oaks on the lower slopes. About eight miles from Happy Camp is the fork of the road which leads to the Grants Pass highway; one and a quarter miles more brought us to the ranch home of Mr. and Mrs. John L. Kniffen. John looks after Mr. Kraft's mine and has a claim adjoining. He has a very nice house and buildings with a fine garden, alfalfa plots, and fruit. Mr. Kniffen retired from business in San Francisco 17 years ago and came here to regain his health. Now at 74 he is as hairy and husky a specimen as one could want to be and carries out a hundred pounds of jade on his back with ease.

At the Kniffen place we left our cars and went through the barred gate a little over another mile up the creek on a broad trail, carpeted with fir needles, to the mine. It was an easy trail except where a slide had occurred 200 yards wide. On the way up along the slide we passed an out-cropping dyke of black material, possibly basaltic. We also passed the 80-ton white jade boulder in the creek bed, which had been moved down stream by high water recently.

Mr. Kraft has aroused such interest in jade that Mr. Partridge, a photographer from Life magazine, arrived at the same time we did and busied himself taking pictures of Mr. Kraft licking specimens and cracking jade boulders. Watch for future issues of Life and American Weekly. The photographer insisted that Mr. Kraft lick a massive boulder but Mr. Kraft successfully resisted him, saying it was not "kosher" to do it that way.

There is quite a tunnel in the side of the mountain into which we did not go because it is said not to be quite safe and there might be rattlesnakes in it. However, there were enough specimens scattered about, and we all got busy hammering out specimens to carry down. Oscar Smith was particularly enthusiastic over a pay streak of green he found. The jade is an outcrop along the side of the mountain, occurring in huge boulders and seams. Native serpentine is in abundance and intermingled with clay deposits. The jade material occurs in a great variety of forms and colors from the pure nephrite jade down to the califonite and serpentine and from the black chloro-melanite through mottled pink and spinach green to nearly pure white, like glacial ice which it strongly resembles.

At Eagle Creek on the way to the mine are the workings of a copper mine now discontinued, a postwar casualty. There is said to have been malachite there sprinkled through with particles of gold. The jade also is said to be speckled with gold but we did not see any. Panning the creek appeared likely to be more lucrative. Also on Eagle Creek is a claim of fair rhodonite. Indian Creek is a babbling, rapid, good-sized stream which can usually be forded in the dry season, and in its bed can be found fine quality of unshattered jade. It is also a good fishing stream, as Mr. Kniffen proved by a fine big smoked trout he brought out for us to sample. The mine has been known and worked for a good many years. The jade is a fine quality, especially the translucent variety of which Mr. Kniffen is a very good judge.

After spending a little time at the mine we started back down the trail carrying all the jade we could. The girls brought down enough to keep them cutting and polishing for many a night. On returning to Portland we came back over the forest road leading to highway 199, striking it 20 miles below the junction of the Oregon Caves road. Happy Camp has an elevation of about 1000 feet and this road led to an elevation of nearly 5000 feet in a succession of hairpin curves and steep grades. The view along the road is magnificent. Slender, graceful trees 250 to 300 feet high lined the narrow road. On the Oregon side of the mountain there is considerable road work being done. It is not an all-weather road as the rains are apt to make it impassable. We enjoyed the trip over it but agreed that it would have been much easier to have gone out the way we went in.

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LUNCHEON NOTES - THURSDAY, OCTOBER 9, 1947

President Arthur C. Jones, ably supported by Mrs. Jones, presided at the Thursday luncheon meeting October 9, 1947, at which twenty members enjoyed the specimens of baked ham and baked potato exhibited by the Chamber of Commerce. Other exhibitors were Margaret Hughes, who brought four specimens for identification. They were a piece of granite, a small piece of brown quartz, and a specimen of calcite. The fourth piece was still un-named at adjournment. .... Tom Matthews called attention to a magazine article about the flotation of galena. A 300-diameter photomicrograph of bubbles lifting galena crystals to the surface of the liquid was printed in colors. ....L. W. Bartow brought a fossil Anadara which he had been told, by the person giving it to him, had been found in eastern

Oregon; but Mr. Vance is the authority for the statement that the Anadara is found in Oregon only in the Miocene on the coast. F. W. Libbey passed around a typed description with attached photographs of the lava field northeast of Jordan Valley from which specimens were shown to the group on September 25. ....Dr. Courtland L. Booth told of interesting pictures which had been shown to the Agate and Mineral Society recently. Many of us miss some very high class entertainment by not being divisible. ....H. Mildred Stockwell relayed late weather-bureau predictions for the coming weekend. She should not be held responsible in case of unpredicted developments. ....Miriam Shepard made a strong plea for more articles for the News Letter, and President Jones added that since some of our members have but a sketchy knowledge of geology, the articles need not be heavily scientific. ....Orrin E. Stanley reported as committee on meeting place that the second meeting in October will be at 714 S.W. 11th Ave. on Friday the 24th, and all later meetings will be in Library Hall on the second and fourth Thursdays of each month until further notice. .... Dr. W. C. Adams said that he had looked over many of the lantern slides left to the Oregon Museum Foundation by the late Rodney Glisan and that they are wonderful photography. Many of the slides are hand colored. ....Mrs. Arthur Jones told about inquiring from the attendant at an exhibit of relief maps of various regions if such a map of the "Craters of the Moon" (in Idaho) were in the collection. She was informed that all astronomical data would be found in the planetarium.

Orrin E. Stanley

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LUNCHEON NOTES - THURSDAY, OCTOBER 16, 1947

The President, Dr. Jones, called the meeting to order with 21 members present, and presented as his guest, Mr. S. V. Bonnevie of Seattle. ....Orrin E. Stanley passed around his pictures from various trips for all to see and make comments. .... SAMPLES: Al Vance passed around a specimen of coral from Newport; Miss Henley passed around a rock from "The Egg and I," which was an egg-shaped piece of brown jasper; Mr. Stanley passed around a lava specimen from Belknap Springs, since he was one of the few who made that trip; and Miss Hughes passed around rocks for identification. ....Mr. Bates presented the club with a 20-year old book on the McKenzie River country. ....Mr. Libbey announced that Dr. Packard would speak at the October 23rd evening meeting. ....Lon Hancock alibied for himself and Dr. Hodge relative to the camel versus cow jawbone. Blame was placed on an over-ambitious reporter from the Oregonian, since the story was not to be made definite until further checking had been done. ....Leo Simon told about the McKenzie River - Belknap trip which turned out well for the few that went, while most stayed home on account of the announced cancellation.

T. C. Matthews

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NEWS-LETTERS AVAILABLE

Raymond L. Baldwin, business manager, can supply a limited number of bound volumes of the News-Letter at a price of $2.60, of which 60¢ is to cover the cost of binding.

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GEOLOGICAL SOCIETY NEWS LETTER

Volume 13, No. 12 December 1947

SOCIETY ACTIVITIES

LECTURES: On the second and fourth THURSDAYS of each month in Public Library Hall, S. W. 10th Avenue and Yamhill Street. Watch the Oregonian and Oregon Journal for further announcements.

TRIPS: Watch for announcement of at least one trip each month. If you know of or can lead a trip yourself, call Norris B. Stone, BR 2683 or OS 6531. There will be no trip in December.

LUNCHEONS: Every Thursday noon at the Chamber of Commerce, 824 S. W. 5th Avenue between Yamhill and Taylor Streets. Luncheon 75¢.

MEETING ANNOUNCEMENTS

Thursday Dec. 11 — "A Geologic History of the Cascade Mountains in Oregon," by Dr. Edwin T. Hodge, professor of geology, Oregon State College. For many years Dr. Hodge has studied the many striking geological features of the Cascade Range, and it is unnecessary to point out to G.S.O.C. members that talks by Dr. Hodge are always full of interest.

Thursday Dec. 25 — Christmas Day. No lecture.

Thursday Jan. 8 — "Founders of Geology," by Dr. Warren D. Smith, formerly head of the Department of Geology and Geography, University of Oregon. Dr. Smith will trace the growth of geological learning beginning with the ancients and touching upon concepts in the middle ages. He will trace the very considerable growth of the science by the Germans and the English, and contributions by early American geologists will be mentioned. Emphasis will be given to the principal steps in the progressive growth of our geological knowledge.

FIELD TRIP ANNOUNCEMENTS

The holiday season has cancelled out plans for any field trip in December, according to Norris B. Stone, trip chairman. Another Portland Foundations trip is on the fire in order to finish the survey started on H. Bruce Schminky's tour in November.

Another mid-winter, all-weather plan is that for a Basement Trip such as the group enjoyed some time ago. Early in the new year a grand tour will be made to view the geological collections of some of the members.

NEW MEMBERS

Mr. and Mrs. A. O. Cole,	3622 N. Montana Ave., Portland 12, Oregon,	MU 0919
Mrs. L. E. West,	3622 N. Montana Ave., Portland 12, Oregon,	MU 0919
Ruth Leona Paine,	3917 N. E. 9th Ave., Portland 12, Oregon,	TU 3970

CHANGE OF ADDRESS

Miss Ethel L. Thompson, Route 1, Box 306, Oswego, Oregon

MEMBER ILL

Sympathy is extended to H. Bruce Schminky, who has been ill at home. We understand his leadership of the Portland Foundations field trip was not the cause.

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THE McKENZIE RIVER ONE-MAN TRIP

by

Orrin E. Stanley

Without giving consideration to the reasons (if any) for ignoring official orders cancelling the McKenzie River Field Trip scheduled for October 11th and 12th, we shall see what happened to the person who had a lot of scenery pretty much to himself.

Leaving home at 9 o'clock Saturday morning with (in the order of their importance) cameras, sleeping bag, and food stowed in the car, I made a brief stop at Willamette Falls and another at Dutch Vista Farm which has, for years, been to me a big question mark as seen from the highway. The closer inspection was rather disillusioning, but my curiosity was satisfied, and that was something accomplished.

Stopped for gas and air at Salem and found a slow leak around a valve stem making the purchase of an inner tube necessary. Was surprised to see my son drive up behind me while waiting for service. This seems to show that it is well to be on one's good behaviour, even away from home.

Salem seems to be short of garages, for the streets were packed with so many parked cars that I had a long walk from where I could park to the restaurant, but the meal was worth it.

Bought some fruit at Albany and stopped in Eugene to check up on road conditions. Being a 23-year member of the Oregon State Motor Association I went to its office but, of course, found no one at the desk. I crossed the hotel lobby to the coffee shop but equally, of course, it was closed for the three-hour afternoon siesta. One might as well have been in Mexico. I got the road information I wanted at a service station and the coffee at a little restaurant that had to remain open or close "for keeps." Attractive glimpses of the river through the trees slowed progress eastward so that it was 5:30 when I reached Belknap Springs.

Mr. Bigelow, the proprietor of the Belknap Hot Springs resort, received the news that I was the only member of the expedition with some disappointment, as he had remained at home to prepare for the expected guests instead of going to the football game as he had wanted to do; but as a reward of merit for coming he refunded half a dollar of my deposit on the price of a cabin for a night. The cabin, number eleven, had an empty wood box, but there was a large pile of sawed wood nearby which I attacked in the failing light with a "scout" ax. Before I had enough wood split for a one-night stay the ax zipped through one stick and slipped from my hand, missing my foot by mere millimeters. It is things like that which make these solo flights into the wilderness so exciting.

In spite of the soggy fuel I had supper ready and eaten in a surprisingly short time. I put some wood in the oven to dry out for the morning fire. I do not enjoy building a fire in a cold house when I am half asleep and less than half dressed. I may be peculiar that way. The morning fire started without trouble and I got into bed again to wait for the singing of the teakettle. Apparently it was not in good voice, for when I next awoke the house was cold again and the fire burned out. There was no more dry wood, so, with the paring knife I whittled shavings, and in spite of their dampness got another fire going. In a surprisingly short time the top of the stove was hot enough for making toast.

After breakfast I spent a little time photographing scenes around camp and sniffing the sulphur fumes from the hot springs across the river from the inn, then started north along the upper and steeper reaches of the McKenzie. This was a slow trip, largely on account of the footage of film that had to be shot and a lava flow that required some inspection. This flow had stopped just before it reached the place where the highway was to be located (or else the engineers had considerately staked the road to miss the lava which would be miserable stuff to cut through). Very little vegetation is seen on this expanse of black, jagged rock.

Not having a guide, and in spite of having studied the maps quite closely, I missed the lower falls completely, but stopped at the middle, or Koosah, falls long enough to eat the tomato salad sandwiches that I had taken time to prepare before leaving camp. The Koosah is a well-behaved waterfall, being spread out nicely and falling freely from the lip to the pool below, stirring up a lovely rainbow in the process. Sahalie Falls is squeezed laterally at the top so that the stream looks more as though it were being poured from a giant teakettle. It is probably the more impressive of the two.

Clear Lake, a little farther north, was a rather lonesome place with dozens of empty tables scattered through the grove and only four or five people standing on the little dock trying to identify the mountains that showed their tops above the trees of the farther shore. The tips of two of the Three Sisters were so proud of their new covering of snow that they had evidently stretched their necks to the utmost to be seen above the green wall of trees.

At Fish Lake I left my car near the road and walked toward the lake in search of pictorial material, but must have been pretty well "fed up" on scenery, for the only interesting thing I noticed was a sign over an open door: "Keep out! Women's Hours 2:00 to 4:00."

The South Santiam Highway was reached at three o'clock, and it was with some relief that I turned westward on it after chugging through pot-holes filled with muddy water for 23 miles from the McKenzie highway.

A few miles west of the junction I stopped for a while to help about forty other red-hatted men and boys with a wrecker pull a very badly crumpled automobile up a 75-foot fill.

There are some pretty spots along this road which call for a return engagement at an early date. The South Santiam River, however, does not seem to measure up to the McKenzie for mile after mile of beauty. In places almost the entire width of the river had bunches of brush sticking up through the water.

A few odd rock formations called for immediate attention, so the return trip was not entirely without its photographic record.

To all who were not able to make this trip I extend my sympathy.

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OREGON ACADEMY OF SCIENCE MEETING

Saturday Jan. 17: The sixth annual meeting of the Oregon Academy of Science will be held at Salem, with Willamette University as host. Sections are organized in Biology, Chemistry, Geology and Geography, and Mathematics. A series of scientific lectures to be given in Portland this winter is being arranged by a committee under Dr. Thornton T. Munger.

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THOUGHTS ON A STUMP

By
F. E. Stanley
(brother of Orrin E. Stanley)
Seattle, Washington

I have found another stump and am mining firewood. That keeps me out of mischief, provides the exercise that I feel is necessary, and sharpens my appetite. I mention the stump, not as an excuse for passing up Joan's turkey, for that stump is well-fastened down and if it were not, no one but myself would disturb it.

The way those roots twist and interlock is marvellous. Apparently the growing root is governed by circumstances over which it has no control, just like human beings, and it does the best it can do with the soil and weather it encounters. They have no fixed pattern. Competition is unrestrained. Trees operate under a free economy. The roots feel only the urge to build a tree. The tap roots go down to get the deep moisture and what goes with it. The long roots near the surface brace the tree against the winds and gather what they can before the dry season begins.

The trunk and limbs do the best they can with what the roots and leaves can provide. No union shop. No feather-bedding. No specified working conditions or limited work week. Perfect co-operation between the units below the ground and those above.

I have great respect for a tree, even an alder, and I pat him on the back and say, "You have more sense than a human being." Why a leaning sapling reinforces its trunk to take up the added stresses, the movement of the sap, and the miracle of the seed along with a few other phenomena connected with the growth of a tree are beyond my comprehension. Digging out a tree stump is a form of nature study that is not as popular as golf but it strengthens the abdominal muscles fully as well.

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LUNCHEON NOTES - THURSDAY, OCTOBER 30, 1947

Specimens were already circulating among 27 members and guests gathered for the poultryless luncheon when President Arthur Jones arrived. Miriam Shepard showed snapshots taken in Lake County, not far from the scene of the tragic air-crash death, October 29, of Governor Snell; Robert S. Farrell, Secretary of State; and Marshall Cornett, President of the Senate. Arthur Jones exhibited a quartz phantom crystal with divergent banding, a gift of Francis Jones. Jack Stevens recounted highlights of his recent trip to Florida, including a visit to the "Taj Mahal" of America (Bok Tower, coquina stone with marble facing); he passed around a specimen of coquina (leaving us to presume that the guard stopped him before he could acquire a piece of the marble facing); also a schistose granite from Stone Mountain, Georgia, (Confederacy monument); and a fine white water-laid pumice from near Summer Lake, Oregon. From Ada Henley: fragmental marine fossils from Newport and a complete Anadara devincta Conrad (ADV). From Dr. Booth: a jar of fine white sand supposed to be incinerated ss. from Meteor Crater, Arizona. From Mrs. Ted Gordon: the prize specimen of all - a slab, not fossil wood, showing growth by rings - possibly a stalactite, and containing cubes of quartz! On this one the mineral "experts" displayed their usual caution, while the rest of us, having no reputations to be jeopardized, speculated freely and learnedly of pseudomorphic replacement. Guests were Mrs. P.W.Geiser of Salem, presented by Mrs. Gordon, and Mr. Vic Moen, guest of Norris Stone. A fair mixture of didactic discussion and piffling persiflage brought the meeting to a close, and we rushed back to tell the boss why we were late again.

K.N.Phillips

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