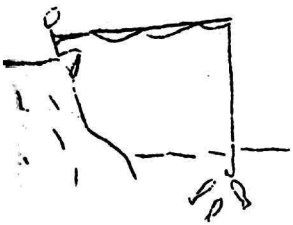




NATURE NOTES



From

CRATER LAKE

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DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
CRATER LAKE NATIONAL PARK,
OREGON

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This is one of a series of bulletins issued monthly during the summer season, by the staff of the Educational Division to give information on subjects of interest concerning the Natural History of Crater Lake, It is supplemental to the lectures and field trips conducted by the staff.

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Recently, Dr. John C. Merriam, President of the Carnegie Institute of Washington, Dr. H. C. Bryant, Assistant to the Director of National Parks, E. C. Solinsky, Superintendent of Crater Lake National Park, and the writer were exploring the western portion of the Rim with a view to selecting sites for the erection of observation stations. In a previous year Dr. Merriam had seen a ledge of well glaciated rock in the vicinity of the Devil's Backbone. Dr. Merriam pleased the members of the party very much by leading them to this interesting relic of the Great Ice Age.

The surface of the rock was clearly polished and striated by the great glacier that went down the slopes of the ancient Mount Mazama between what is now Llao Rock and Hillman Peak. This was probably the largest and longest glacier that Mt. Mazama ever had. Its path has been traces far down the Rogue River for many miles.

A deep layer of pumice and other explosive material covered all but a protruding ledge of what is probably an extensive glaciated surface. This shows that Mt. Mazama was not yet dead during the Pleistocene or Great Ice Age.

A fragment was found which could be moved by each of the party taking turns. This was later placed in the temporary museum. Its surface is beautifully polished by the ice sliding over it for many centuries. Running parallel there are several well defined grooves caused by rocks imbedded in the moving ice.

F. Lyle Wynd
Acting Park Naturalist.

BOBBY

For several reasons Bobby is a very busy creature these days. First of all, she has five little ones to care for, also her winter quarters have been disturbed and a new supply of winter provisions must be stored away.

Although she has been in the habit of coming to the Information Bureau for food, for several days after she first brought out her young, she pretended to be afraid and refused to be humored in any way. The reason for her pretended timidity was apparently to teach the baby squirrels the sense of fear. Even with the golden mantle squirrel, training is a factor in the process of self-preservation. Now that her babies are well along she is more friendly than ever. The young squirrels are shifting largely for themselves, although they have not begun to store food for the winter.

Norman Ashcraft
Ranger Naturalist.

THE PINK MONKEY FLOWER.

No flower of Crater Lake National Park elicits so many inquiries from observant tourists as the Pink Monkey Flower. It is one of the commonest flowers along the trail to the lake and along the streams of the Hudsonian Life Zone. Many times a day rangers and ranger naturalists alike are asked, "What is that bright pink flower about so high that blooms along the trail?" It is a pleasure to be able to say definitely

that it is the Pink Monkey Flower for there is no other pink flower "about so high" and "blooming along the trails and streamsides".

There are those who prefer to know the flowers by their technical names, and by those the Pink Monkey Flower is known as *Mimulus Lewisii*.

F. Lyle Wynd

WOLVES

From time to time reports have come to us of wolves being seen in various parts of the park. Owing to the vagueness of the descriptions of the animals seen, and the uncertainty of the authenticity of their source, little credence has been placed in these rumors.

About the middle of June a report of a wolf came to us which could not be doubted. Dr. Wiggam, Director of the Dudley Herbarium at Stanford University and Professor Poultney, Head of the Science Department at the Humboldt State Teacher's College were closing field work in a meadow just above Park Headquarters, when a large timber wolf walked leisurely along the edge of the meadow carrying a marmot in his mouth. The observers had ample time to observe the wolf's movement, and owing to their scientific training and experience, no doubt can be entertained but that the animal seen was really a wolf.

This may be regarded as the first authentic record of a wolf being seen in the park since the Educational Division began operation here in the season of 1926.

F. Lyle Wynd
Acting Park Naturalist

BUGS

Part II

The first effort in control with funds provided in 1926 was begun in May with the arrival of Mr. J. E. Patterson. A stand against the invasion was made on the southern front. Infested trees were felled and burned upon the snow. Tall stumps now standing give evidence of the difficulties encountered. The great masses of snow will not support a man's weight until, by alternate thawing, freezing, and packing, it becomes sufficiently solid. This is usually about May 15. Caterpillar tractors were used to gain access to infested areas from the roads, and here camps were established. The excessive cost under these conditions was not taken into consideration when appropriations were made; as a result the work was, and still is considerably hampered.

The first season's work seemed a complete failure, and seemed to establish the epidemic as beyond control, and to indicate that the people of Oregon and California must prepare to watch, helplessly, their forests disappear. Three successive years' work were so discouraging that in 1928 no appropriation was made for control work.

Nevertheless, in Crater Lake National Park a great deal of study and thinking and planning was done. Obviously a new method of attack must be developed. A group under the direction of Mr. J. E. Patterson, associate entomologist of the Bureau of Entomology, having suffered reverse, were not yet defected.

Several results of their tireless efforts developed. It was discovered that a beetle emerging from a certain species of tree, returned to that species to breed. Thus a beetle developing in the lodgepole pine returned to the lodgepole; if in a yellow pine, it returned to the yellow pine. As

ninety percent of the trees attacked were lodgepoles, effort could be expended upon areas where lodgepole was exclusive or at least predominant.

Another important discovery was the fact that larvae hatched in a thin-barked tree would die if the felled tree were exposed to a sun temperature of 85 degrees F. for a period of one hour. A longer period of time would be necessary if the temperature was lower, but allowing for this, the result would be the same. The lodgepole is a thin-barked tree.

Based upon these new discoveries a systematic, definite, and strenuous effort was again inaugurated to control and eradicate the infestation. When we consider the great areas of forest to be covered, the character of the terrain and the conditions in early season, the difficulties to be encountered may be appreciated. The results attained, however, have been encouraging. A few figures indicating these results will be added later. The method of operation will be first considered.

A preliminary survey is first made of an infested area. An expert entomologist is generally called upon to assist in this. From this study will be obtained the information regarding the number of men necessary to carry out the program, and the time necessary. Since the beetles begin to fly--to leave the trees--about July 1 and nothing can be accomplished for the season, thereafter, time is also of the substance of this project.

The work is divided into four parts: spotting, falling, rolling, and the keeping of records. The spotting crew is usually made up of two spotters and a compassman. The felling gang consists of three men in a crew, two fallers and a limber. The rolling crew calls for four heavy men, one axeman, and a checker. Records are kept by the spotting crew.

With the Spotting crew, the compassman is in charge and should be thoroughly familiar with both compass work and spotting. Also he should

have a general knowledge of the area to be covered, so as to take full advantage of the topography of the region. Base lines are established (since in this park no governmental land survey has been made) and these equally divide the area; they are generally run north and south or east and west to facilitate running lines with a compass. Spotters should be capable men, physically, with a thorough knowledge of the work. Previous experience with a falling crew is invaluable, since this gives experience in determining a good "bug" tree.

Strips are systematically run thru the area from the base line. The compassman stays in the middle of the strip, with spotter "A" on his left and "B" on his right. They stay abreast of each other. In an area where trees are scattered, an extra spotter may be assigned to the middle of the strip. Where infested trees are numerous, the extra spotter is not necessary. With two spotters in the crew the strip does not exceed three hundred feet.

When an infected tree or a group of trees is discovered, the spotter finding them calls "Bugs". The group stops. He then blazes on both sides of the tree and puts a number on the blazes. These numbers are in sequence, each spotter having a series, as from 1 to 100 or 1001 to 1100. When the series in his note book is used he obtains a new series from the compassman. When he has finished marking a group of trees, he calls the inclusive series in the group to the compassman, who then enters the group and the numbers upon his map.

The crew moves on to the outer limit of the area, then turns and runs another strip parallel to the first, and continuing this until the entire area is covered.

The Fallers should be experienced men, both in falling and limbing. Each crew is furnished with a map showing the location and the numbers of the trees. They pass thru the strips, cutting as they go. They fall the tree in as nearly a north-south line as possible, which allows the maximum effect of the suns' rays, this being the entire of the object of the treatment. Shade from other trees is, of course, considered. The tree is limbed as far as necessary to prevent shading. The stump is peeled. In case of the White Pine, the bark is too thick to permit the heat of the sun to penetrate; therefore the bark is peeled from these trees.

As each tree is felled, the number of the tree is written on the stump, and also on a pad which is turned in to the "spotters" in the evening.

The Rolling crew, of peavey men and axemen are taken from the falling crews, and the checker should be a spotter, or someone familiar with the region. The checker carries a map and leads the crew to the trees, each of which is rolled half over, thus exposing the remaining surface to the sun. This rolling is of course done after sufficient time has elapsed to allow for the destruction of beetle larvae on the surface originally exposed. The rolling must be done accurately to allow all surfaces to be finally exposed. The number of each tree rolled is recorded, and these numbers also turned in to the spotters each evening.

The records, as mentioned, are kept by the spotting crew. After each number in the original record, a check is placed when that number is turned in by the Fallers and later by the Rolling crew. This system checks up on trees missed.

A daily report is prepared as to total trees spotted, cut, and rolled, and these figures complete a final report. These final reports are useful in planning work for future years, in estimating future costs, and by comparison with previous years, in determining on the basis of percentages, the effectiveness of the work.

A system of tags has been suggested to avoid duplication of numbers, misreading of numbers or other normal errors. Each tag would have three stubs, one stub to be retained when the tree was spotted, one when felled, and one when rolled.

In conclusion a few facts will be given concerning the work actually done during the two years in which appropriations have been available.

VOLECANIC BOMBS OF MT. MAZAMA.

The name volcanic "bomb" is applied to fragments thrown out by an active volcano in a liquid or partially liquid state. Their form is wholly or partly determined during flight through the air, while in a liquid state.

Bombs naturally fall into two classes. Those which start as liquid masses, acquire some symmetrical form during flight and retain this form upon landing. These forms are very characteristic, usually symmetrical and unless broken after falling, show fracture surface.

A second class of these bombs starts as a solid angular fragment which has either been reheated in the volcano hearth until the surface has melted or has been dipped in molten lava in the course of its upward movement through the crater. Such a bomb may have any form, depending upon the shape of the original fragment, and the coating may have any thickness.

The bombs of either of the classes may be brecciated. The first type presumably by the quick cooling during flight which produces a solid shell around the liquid nucleus. The sudden contraction causes the solid surface to crack while the central liquid portion remains intact, giving an appearance of "brecciated".

A solid fragment which becomes molten on the surface because of the intense heat to which it is subjected.

The size of volcanic bombs (both classes) varies from 10 or 12 feet in diameter down to indefinitely small fragments. The very small ones are commonly called lapilli. Very large ones are rare, for the obvious reason that the large sizes do not fly and if they did the crust acquired in flight would not be strong enough to hold them together after landing. Most of the bombs found on Wizard Island are under two feet in diameter, while the largest ones found on Mt. Mazama are about four feet in diameter.

Clyde E. Gilbert,
Ranger Naturalist.

A Glaciated Surface

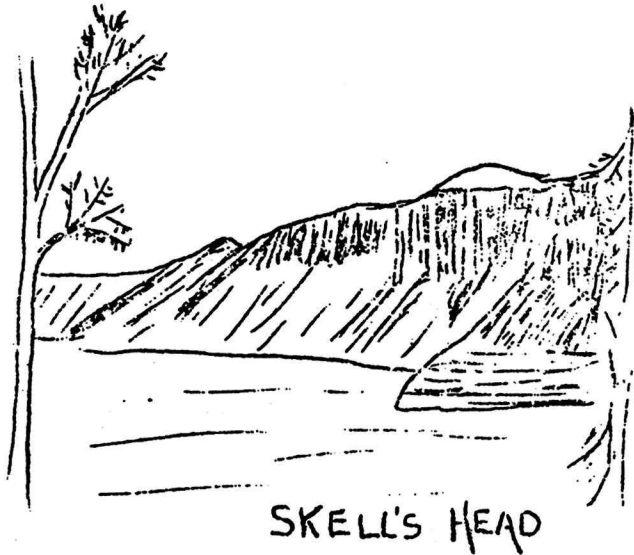
The greatest geological characteristics of the Crater Lake Area are those of tremendous volcanic activity and extended glaciation.

Characteristic glacial valleys and an intricate system of moraines may be found throughout the region, but only very rarely have glacial striae and polish been seen. This is due to the fact that during the last eruption of the old Mount Mazama a deep blanket of pumice and finely powdered material was explosively thrown out, covering what striae and rock-polish that may have been present.

ACCORDING TO INDIAN LEGEND

La-o was the chief spirit who occupied the mystic land of Gaywas, or Crater Lake. Under his control were many lesser spirits, who appeared to be able to change their forms at will. Many of them were monsters of various kinds. Among them the giant crawfish (or dragon) who could, if he chose, reach up his mighty arms even to the tops of the cliffs and drag down to the cold depths of Crater Lake, any too venturesome tourists of the Primal days.

The spirits of beings under the control of La-o assumed the form of many animals of the present day, when they chose to go abroad on the land, and this was no less true of the other fabulous inhabitants of Klamath land, who were



dominated by other chief spirits, and who occupied separate localities.

Skell was a mighty spirit whose realm was the Klamath Marsh region, his capital being near the Yamsay River on the eastern side of the marsh. He had many subjects who took the form of birds and beasts when abroad in the land, as the antelope, the bald eagle, the golden eagle and others, among which were the most sagacious and active creatures on earth.

Now a fierce war occurred between Skell and La-o and their followers, which raged for a long time. Finally, Skell was stricken down in his own land of Yamsay and his heart was torn from his body and carried in triumph

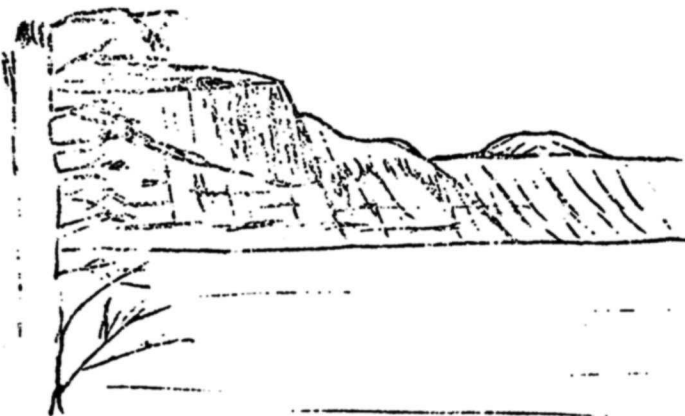
to La-o Yaina or La-o's mountain, the eastern escapement of which is the great rock rising above Crater Lake. A smooth field sloping to the north was a favorite playground for the fabled inhabitants of Gaywas and all the neighboring communities. Hither all the people were summoned for a great celebration of the fall of Skell. Even the followers of Skell were invited. In the course of the festival, the heart of Skell was tossed from hand to hand in a great game of ball.

The men of Skell knew that if the heart of Skell could be restored to his body he would live again, and with a secret understanding between them, they awaited their opportunity. Finally when it reached the hands of Antelope, he sped eastward swift as the wind. When nearly exhausted, he passed it to the Bald Eagle and he in turn to the Golden Eagle, and so on, and altho the men of La-o pursued with utmost speed, they failed to overtake the swift bearers of the precious heart. At last they heard the far away voice of the dove, another of Skell's people, and they then gave up the useless pursuit.

Skell's heart was returned to his body, he lived again and the war was resumed. La-o was himself overpowered and slain. His body was borne in triumph to the great rock, the cliff overlooking the lake near his own capital. A false message was conveyed to La-o's monsters in the lake that

Skell had been killed again.

The body was torn to pieces and hurled into the water. As each part of the body was thrown to the lake, the monsters of La-o devoured it. But when the head was thrown in, they



recognized it as that of their own god La-o, and refused to touch it. So it remains today as an island known to all as Wizard Island.

Arranged from Crater Lake Legends in
Steel Points, Vol. 1, No. 3 with permission

Two great cliffs facing each other across the Lake have been given the names Llao Rock, and Skell's Head by William G. Steel, "Father" of Crater Lake National Park.

E. U. H.