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WIZARD ISLAND, CRATER LAKE

OREGON OUT OF DOORS



CRATER LAKE

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OREGON OUT-OF-DOORS—CRATER LAKE

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CRATER LAKE AND MOUNT SCOTT

PERTINENT FACTS ABOUT CRATER LAKE NATIONAL PARKS

Park area—249 square miles, 159,360 acres.

Circumference of rim—20 miles.

Diameter of rim—5.7 miles average.

Diameter of lake—5.0 miles average.

Greatest known depth of lake—1,996 feet.

Greatest rim height above lake—1,979 feet (at
Glacier Peak).

Least rim height above lake—550 feet (at Kerr
Notch).

Average height of rim—Over 1,000 feet.

Earliest authentic reported discovery—1853.

Estimated height of original Mount Mazama—Over
15,000 feet.

Park created—May 22, 1902.

Road System

Construction of Rim road begun—1913.

Rim road opened to travel—1919 (grading com-
pleted 1920).

Cost of system to date—\$400,000.

Maximum grade—10% for short stretches only.

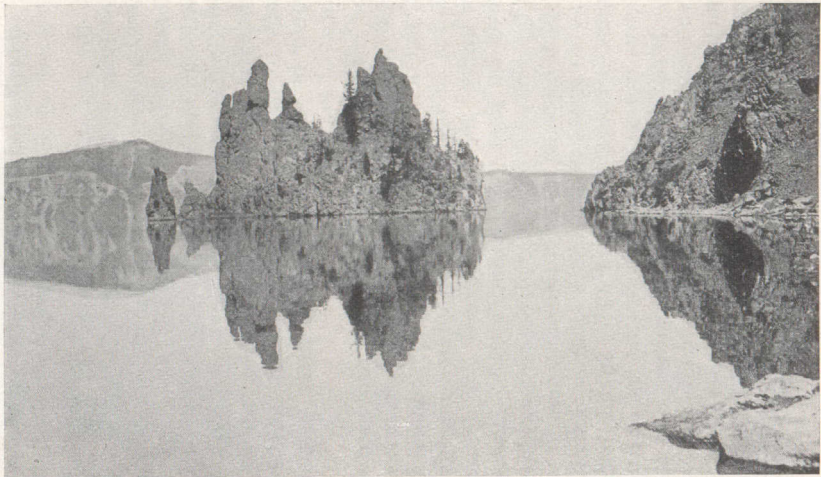
Length in miles—84 miles.

Elevation of Important Points

| | <i>Feet</i> |
|---------------------|-------------|
| Lake Surface | 6,177 |
| Glacier Peak | 8,156 |
| The Watchman | 8,025 |
| Llao Rock | 8,046 |
| Mount Scott | 8,938 |
| Union Peak | 7,698 |
| Garfield Peak | 8,060 |
| Wizard Island | 6,940 |
| Crater Peak | 7,265 |

Trails—Distances from the Lodge

| | <i>Miles</i> |
|-------------------------|--------------|
| Garfield Peak | 1.25 |
| Union Peak | 10.5 |
| Mount Scott | 22 |
| The Watchman | 5 |
| Glacier Peak | 6 |
| Llao Rock | 8 |
| Anna Springs | 5 |
| Garden of the Gods..... | 5 |
| Sand Pinnacles | 15.5 |
| Crater Peak | 9 |
| Eagle Cove | 1+ |
| Sun Notch | 7 |
| Devils Backbone | 6.5 |
| Wizard Island | 3.5 |
| Vidae Cliff | 3 |



Courtesy National Park Service, Department of the Interior
THE PHANTOM SHIP

THE NATIONAL PARK STATUS OF CRATER LAKE

By STEPHEN T. MATHER, Director
The National Park Service, Department
of the Interior

By the act of Congress approved May 22, 1902, Crater Lake and its immediately adjacent mountain lands were set apart from the public domain and dedicated forever as a National Park. It was the seventh national park to be established by the United States Government. The total area of the park is 249 square miles, or 159,360 acres, all of which belongs to the United States except 2,458.11 acres patented to various individuals prior to the establishment of the park.

The organic act of dedication provided for the general preservation of the natural features of the park, but left one opportunity for commercial exploitation of the area. It authorized mining operations under certain conditions. As mining was believed by park protectionists to be incompatible with the primary purposes of a national playground and great museum of scientific and scenic exhibits, and as no mineral deposits had been discovered in the park between 1903 and 1916, in the latter year a bill was enacted by Congress (the act of August 21, 1916,) prohibiting mining operations. In this protective measure other provisions were made for the complete control and protection of the park. Penalties were provided for violations of the Federal law and regulations governing the park, and authority

was granted for the establishment of a United States Commissioner's court for handling offenses of all kinds not within the class of felonies, which if committed within the park must always be tried in a United States District Court.

Another law, approved August 25, 1916, which we know as the National Park Service Act, provided machinery for the proper administration and protection of the park system in the shape of a small bureau in the Interior Department charged with the sole duty of protecting, promoting and developing these playgrounds in the public interest. Among other things this National Park Service Act contains the following:

"The Service thus established shall promote and regulate the use of the Federal areas known as National Parks, monuments, and reservations, hereinafter specified, by such means and measures as conform to the fundamental purpose of the said parks, monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

This declaration by Congress is the supreme law of the park system today, and every act of the Bureau of which I have the honor to be the head must be in complete accord with this mandate.

In order that the scope of authority of the National Park Service under this broad declaration by

Congress might be more definitely prescribed and particularized, there was drawn up and adopted under the direction of the late Secretary Lane a policy of park management and control, which is based on the law just discussed and on the following three principles:

First—That the national parks must be maintained in absolutely unimpaired form for the use of future generations as well as those of our own time;

Second—That they are set apart for the use, observation, health and pleasure of the people;

Third—That the national interest must dictate all decisions affecting public or private enterprise in the parks.

More detailed discussion of this matter of conservation policy may proceed with special reference to Crater Lake National Park.

First, let us take up the question of the use of the Park. Everybody may use it, but not for private exploitation. No class of people is excluded except known or suspected violators of the law or regulations. There is equal opportunity for all to come and enjoy the park in their own way. Facilities are provided for travelers who do not carry their own equipment, and, to make these available, franchises under authority of the National Park Service act are granted to a public utility, which is obligated to provide transportation, hotel, camp, and other service. The majority of visitors, however, bring their own camping equipment with them,

and for these people camp grounds with water supply, comfort stations and wood have been provided.

Automobiles are permitted on all roads, but a season permit to bring an automobile into the park costs \$2.50. This charge is made in accordance with the views of the Appropriations Committee of Congress that, where large expenditures of Federal money have been necessary in rebuilding and improving roads to make them suitable for automobile travel, the users of these roads should pay something toward their upkeep. Congress insists that developed parks should show a reasonable amount of revenue each year.

The policy governing the granting of franchises should be given special mention, as it may be misunderstood. Briefly, I may describe it as similar to the policy prevailing in most American cities in respect to telephone and street car privileges. A Government regulated and controlled utility is established; first, in order that there may be control of rates and service in the public interest, and, second, in order that protection may be given to investment in physical property, thus insuring adequate returns to the investor and making possible continual extension of facilities in order to meet increasing demands.

In Crater Lake Park, as the season is very short and as there are many other unusual hazards to face, we have taken the perfectly legal and logical position that the concern that will make an investment in hotel and camp accommodations (the most costly

to establish and the least productive of net profit), should have all other opportunities to serve the public in order that the hotel and camps may be supported by profits from more lucrative enterprises. This is the only fair and equitable policy to pursue under any circumstances, and it is the only way that tourist accommodations can be secured for a park like Crater Lake.

The pioneer in serving the public in Crater Lake Park was Alfred L. Parkhurst, of Portland, who organized the Crater Lake Company many years ago. Mr. Parkhurst bore the financial burden of the enterprise, which for several reasons was not a success, and with the recent vastly increased demand for transportation and other service of a high order, Mr. Parkhurst arranged for a transfer of his property to other hands. A new company, the Crater Lake National Park Company, with Mr. Eric V. Hauser of Portland as President, was organized in 1921 and successfully operated the Crater Lake property under the management of Mr. R. W. Price, giving excellent service. More than \$20,000 was invested in improvements by Mr. Hauser and his associates and more improvements will be made.

The Crater Lake franchise covers hotel, camp, transportation (by automobile, boat and horses), garage, supply store, and related and incidental service of all kinds. The only other outstanding privilege is held by Mr. Fred H. Kiser of Portland, who for many years has been engaged in making

artistic and exceedingly beautiful photographs of the park area. He is authorized to maintain a studio and art shop.

Summer homes and private buildings of any kind are not permitted in the park, because, under a different policy, all of the best camp locations and points of view would soon be occupied by private parties to the exclusion of the general public, and the purpose of the park would be largely defeated.

Timber may not be cut for any purpose except in landscape work, such as the making of vistas to open hidden scenes of beauty or to provide roads or trails. Permits are occasionally granted for the taking of logs for park buildings where no damage would result to the forest.

Great attention is given to the preservation of the native landscape. The Service maintains a landscape engineering division, which passes on construction projects of all kinds, giving consideration to the problem of harmonizing all contemplated improvements with the environment.

No grazing is allowed in Crater Lake National Park. There is authority for permitting cattle in remote sections of the park where such pasturage of livestock would not interfere with the use of the park by tourists. However, we have felt that in view of the fact that the whole area of the park was greatly overgrazed before it attained national park status, with resulting destruction of the flora of the region, this use of the park should not be permitted, at least not now. However, in recent years there

has been no demand for grazing privileges in the park.

The wild life of the park, while not comprehending as many varieties of animals and birds as some of the other parks, is an important factor and is carefully conserved. However, it is difficult to protect the game animals such as deer and bear, as they are driven from the park by storms and are killed by hunters in the lower altitudes. State game preserves outside the park would greatly aid the protection of the larger park animals, which are always so interesting to visitors.

Crater Lake National Park is administered and controlled by the National Park Service through its superintendent, who has permanent headquarters in the Federal Building at Medford and summer headquarters in the park. He is charged with the supervision of all activities of the Government and its utilities in the park; he maintains the roads and trails, and through a force of rangers protects the forests from fire, guards the wild life, controls traffic over the highways, etc. The superintendent is a man splendidly qualified by training and experience for the work entrusted to him. Of course, he is an official of the Interior Department and of **THIS SERVICE**. The United States Commissioner, who punishes violators of the law and regulations, reports to the Department of Justice.

While the National Park Service does all of its own general engineering work, the office of its Chief Civil Engineer being in Portland, Oregon,

it does not maintain a staff of scientific experts, such as sanitary engineers, entomologists, biologists, etc., but calls upon other Government bureaus for such technical assistance when needed. It co-operates closely with Oregon State officials, the United States Public Health Service, the Bureau of Fisheries, the Biological Survey, the Geological Survey, the Bureau of Entomology and the Forest Service. It also seeks, and has always obtained, the co-operation and advice of mountaineering organizations, such as the Mazamas, which are devoted to the preservation of our National Parks. For members of such mountaineering organizations and other clubs and individuals, who often like to get away from the roads, hotels, camps and other crowded places, it is the National Park Service policy to preserve, wholly undeveloped except by trails, considerable areas of each national park, and this policy applies to Crater Lake.

Appropriations for Crater Lake National Park are inadequate, although generally speaking the park has been more systematically developed by roads and trails than any other national park except Yellowstone. In 1912 Congress approved a road project calling for an expenditure of \$627,000, of which \$400,000 were to be used for the clearing, grading and draining of the new highway system and the remainder for the surfacing. Appropriations under this project were made each year until the outbreak of the world war when the park was put on a maintenance basis only. Since the war began

about \$25,000 per annum has been provided for the park, and estimates amounting to \$35,000 have been submitted for the next fiscal year and we expect nearly all of this amount to be appropriated.

Crater Lake is a member of the distinguished group of national parks that our Government has established; and, furthermore, it is a member of the "INCOMPARABLE CIRCLE" of parks in the Rockies, the Cascades and Sierra-Nevada, which sub-group alone contains the most distinctive, unique and beautiful natural wonders of the earth. Safe from exploitation and private commercial advantage, if present safeguarding laws, regulations and policies are maintained, this marvel of God's handiwork will forever remain inviolate, a source of pleasure, health, and inspiration to the peoples of the world who will behold it in the centuries to come.

The Rim road possesses some of the best points from which to get a general view of the Lake, the Park and its surroundings. The road system was planned and constructed under the direction of George E. Goodwin, now Chief Civil Engineer of the National Park Service.

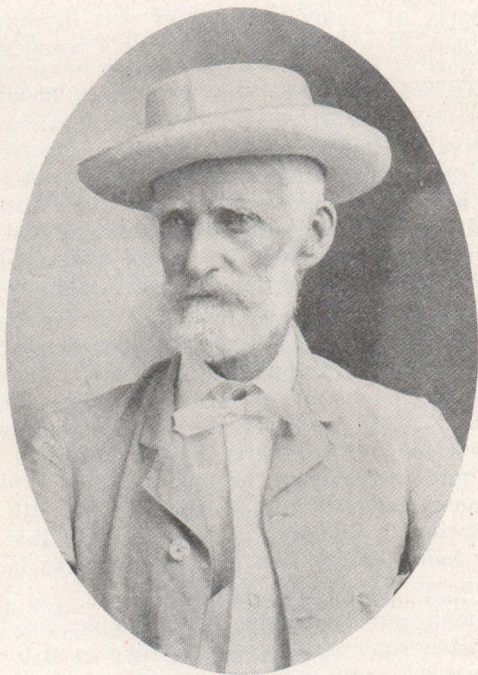
THE WHITE MAN'S HISTORY OF CRATER LAKE

RICHARD JOSEPH GRACE

A party of young prospectors was investigating the Rogue River Valley in Southern Oregon, in the early part of 1853. One of the leaders was John W. Hillman, who had been born in Albany, New York, on March 29, 1832. Though just of legal age, his initiative and native ability, together with his four years' experience in mining, caused him to be looked up to by men of more mature years. He had gone to California in the stampede of 1849 and had gradually worked North, and, becoming infatuated with the Southern Oregon country, had remained there.

In the valley one evening came eleven Californians, secretly, as they thought, and trying to act like anything but a prospecting party. They purchased provisions and on the second day slunk out of town. This being in the pre-Volsteadian era, however, one of the party having absorbed much red liquid refreshment, became attached to one of Hillman's friends of similar capacity, and with much exhortation to secrecy, confided in him that their leader had a description of the landmarks locating the famous "Lost Cabin Mine."

Hillman and his friends hurriedly got together a party of eleven men, the same number as in the California crew, and securing provisions, trailed the Southerners, intending, if their quest were successful, to stake out adjoining claims. The Californians were immediately aware of the party on their trail,



JOHN W. HILLMAN
DISCOVERER OF CRATER LAKE

and then began several days of back-trailing, camping in impossible places, creek bed walking and all kinds of dodges to throw their pursuers off the trail, but without results, for the Oregonians never lost them. Provisions ran low, and the parties broke up to hunt. While returning alone from a hunt, Hillman met a young man from the opposite camp, and informed him that he knew the object of their trip into the valley and made friends with him. This led to a parley between the opposing camps and to an amicable agreement to leave a small group from each side to continue the search. The men not selected for the exploring parties went back to the settlements, where eating, if it was not good was at least regular. Hillman led one of the two groups.

The landmarks were not to be found; in fact, they are yet to be found. Hillman was mounted on the best riding mule in Southern Oregon, the property of James Dobson, miner and packer of Jacksonville. On June 12, 1853, he was riding up a gently sloping mountain, when he suddenly became aware, by reason of the mule refusing to proceed, that the top of the mountain was gone and that he was staring down at an unbelievably blue sheet of water below him. Dumbfounded he sat there, and afterwards admitted that if he had been riding a blind mule he probably would have fallen into the lake he discovered. He always whimsically declared that the discovery of the lake was an accident anyway, as he was not looking for any lakes, and he might have added, "on mountain tops."

The party, after their first surprise, sat in awe for some time, and then wrote their names on a page from a memorandum book; this they placed in the end of a cleft stick, which they stuck in the ground. Hillman in his later years could not remember the names of the party that reached the lake. He mentioned Henry Klippel, J. L. Louden, Pat McManus and a man named Little, but as some of these had gone back with the main parties, he was sure of none of them.

They reached the rim at a point "just to the right of a small sloping butte or mountain, with a top slightly flattened, situated in the lake." This is Wizard Island. They then rode to the left around a butte (the Watchman) in their search for the outlet, which they were puzzled not to find. A vote by the party decided on Deep Blue Lake as the name of their discovery.

Hillman was without doubt the first white man to see the lake. The Indians generally would not admit its existence and avoided even talking about it, as they were of the opinion that it was the abode of the Llaos or devils. Hillman finally got an Indian to admit that he knew the lake was there, even though he had never gone near it. Hillman died at Hope Villa, Louisiana, March 19, 1915.

It is very significant of the march of progress that on August 4, 1920, Miss Hildegarde Hillman rode around the lake her grandfather had approached on mule back, on a good road and in a comfortable, motor-driven vehicle.

On August 4, 1869, a party from Jacksonville visited the lake and named it Crater Lake. I have to infer from correspondence in my possession that Hillman was included in this party. In 1872, a Lord Maxwell, of England, and a Mr. Bently, in company with Captain O. C. Applegate of Modoc War fame, explored the lake region and named several prominent points for the members of their party. Fortunately the names were not perpetuated. Mrs. F. F. Victor saw the lake in 1873 and briefly described it in "Atlantis Arisen."

J. S. Diller, the geologist, and Everett Hayden were at the lake in 1883 for the Geological Survey. They cut logs and tumbling them over the cliff, made a raft, paddled over to Wizard Island, and were the first human beings to set foot on its weird shores.

On August 16, 1885, Will Steel (William Gladstone Steel) started a work that inseparably connects his name with Crater Lake, a work to which he gave the best years of his life, and which this country and the State of Oregon can never adequately reward. Through his efforts the late Senator Dolph on January 18, 1886, introduced a bill in Congress to create Crater Lake National Park, and President Cleveland, on January 30, withdrew ten townships from entry or purchase and the preliminary skirmish of the battle was won. In the same year, the Geological Survey complied with Steel's request for a further survey, and it was made by such geniuses as J. S. Diller, for the geology, and Captain George W. Davis, for the topography. Captain Clarence E. Dutton

was the first man to intelligently describe the geology of the lake, he previously having had experience with volcanic geology in the Hawaiian Islands. Will Steel made the sounding apparatus and had charge of the soundings.

Thomas H. Tongue of Hillsboro entered Congress in the winter of 1901-2 and took up the fight for the Crater Lake National Park, vigorously assisted by Steel. Through their efforts Crater Lake National Park became a fact on May 22, 1902, when the bill was signed by President Roosevelt, seventeen years after its introduction in the Senate. The man who wrote that the mills of the gods were slow never heard of the Congress of these United States.

In August, 1896, the Mazamas, in the course of their campaign to assist Steel, visited Crater Lake. It was then realized that the remainder of the vast mountain that holds Crater Lake was nameless. With ceremonies that are described as "appropriate," Miss Fay Fuller, later Mrs. von Brieson of Staten Island, N. Y., named the caldera Mount Mazama in honor of the mountaineering club.

Crater Lake's history has stopped with its inclusion in the National Park system. The pioneer days are gone and with them Romance. The Park has been fortunate in its Superintendents and unfortunate in other respects, but with the improvements in accommodations and transportation it will be a more attractive Mecca for the ever increasing hegira of tourists, and we who love the mountains for their lonesome ruggedness, their brain-restoring peace and

their fountains of health and happiness, will also increasingly use these facilities, because they give us a more accessible base of operations and more leisure to explore places that are new.

MY FIRST THRILL ON THE BRINK OF CRATER LAKE

JUDGE C. B. WATSON

In October of the year 1873, at Fort Klamath, occurred the execution of Captain Jack, the Modoc chief, and three other persons connected with his activities, Black Jim, John Sconchin and Boston Charley.

I was present at the execution and, on the day following that event, in company with five others, started on my first trip to Crater Lake. We had secured directions from the officers at the Post, who had been there, and easily identified the place where they directed us to camp by the Rogue River, nearest to our destination. Here we camped for the night and early the next morning turned to the northeast, as we were directed, and commenced our climb of five miles over logs, through brush, heavy timber and occasional glades. There were no roads nor trails, and even the existence of the lake was a mooted question with many. Not many white people had seen it and their accounts were considered exaggerations. Some of our party wanted to turn back when fatigue commenced to tell and thirst to

annoy us. Nothing could be seen but the steep slope ahead and the tangled brush about us. We toiled on, however, and finally came into a glade from which we could see material changes in the topography. We were evidently nearing the summit and could see crags and peaks ahead and to the right and left. Scoria and pumice were scattered about and we became enthused with the thought that our destination was near, and we pushed on. All at once, we were aware that ahead of us was an opening, beyond which was the blue expanse of sky. A new impulse was given to tired limbs and, with a shout and a rush, we climbed the few remaining rods and stood, breathless and silent, on the brink of this wonderful caldera.

When we come upon things that are new or startling because of some unusual grandeur, or stature, we cudgel our brains for some gauge or standard by which to measure them. But here was something for which we had no standard, nor gauge. In such moments we can only silently drink it in. For the first time in my life I became aware of the meaning of the words, "awe-inspiring." First, there was a feeling of disappointment. It did not seem deep enough nor great enough in area! My picture had been drawn from what I thought were exaggerations and my inclination seemed to be to justify an effort to verify the truth of exaggeration. But as we stood silent, wrapped in a sentiment that was new, transformation seemed to take place; the distance to the water seemed to be silently increasing,

the walls seemed to be moving away, the pinnacles growing higher until the whole wonder expanded beyond the exaggerations that we thought had been imposed on us. We were consciously "coming into correspondence with our environment." It became evident that we were looking into a gigantic volcanic crater, one of the great wonders. Then imagination began to work and I tried to visualize it in action. I tried to think of it as a mountain peak greater than Shasta that stood out yonder on the southern horizon; tried to imagine it belching fire and smoke with torrents of lava.

No one now gets the thrills we got. When I stood there for the first time no pictures had been taken, no descriptions written; there were no roads, nor buildings, nor people outside of our own small crowd of adventurers. The superstitious Indians were afraid to talk about it, or visit it. It was surrounded with mystery and we called it "Lake Mystery." Its towering pinnacles had stood for ages silent sentinels guarding it from the approach of the natives, who needed nothing more than their superstitious fear to prevent any trespass. When I returned home I undertook to write a description of it, the first attempt at that ambitious task that was ever made; being young and still absorbed with my thrills, I exhausted my store of adjectives and then postponed its completion for another season.

The next year—1874—I visited the lake again with a small party. It was snowing when we reached

the brink. We could not see the water and the snow did not fall in the orderly way that it should; in fact, it did not fall at all, but was hurled at us from below as though afraid to get too high above the slope of the mountain.

I wanted to go down to the water, and there being no other member of the party so inclined, I went alone and made the descent just west of what we now know as Victor Rock. I do not know that any other person has ever since ventured down that way. I did not stay long and breathed more easily when I had joined my comrades at the top. The snow-squall had ceased, the clouds had sailed away and though the boughs and branches were clad in gowns of white, the sun beamed in rosy gladness, with a light that gave a new glory to the scene, and

Around this lonely Crater Lake
There lingered not a breeze to break
The mirror which its waters make.

My wife, her sister and mother were with me and, so far as I know, were the first women who ever stood upon the brink of Crater Lake, as I believe I am the only man who ever went alone to the water of this abyss in a snowstorm so long ago.

[The description of Crater Lake referred to by the writer in the above article may be found in the archives of the Oregon Historical Association in a bound volume of the *Resources of Oregon and Washington*, a magazine published in Portland by W. G. Steel and his brother David in 1882.]

COMMON WILD FLOWERS OF CRATER LAKE NATIONAL PARK

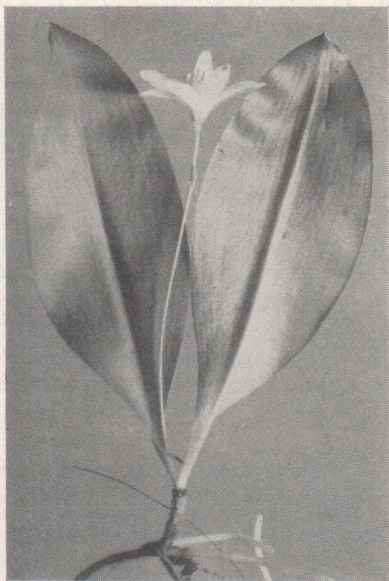
By ALBERT R. SWEETSER

Head of the Department of Botany and Bacteriology,
University of Oregon

IN 1896, when the Mazamas visited Crater Lake, they were accompanied by Dr. Coville and Mr. Leiberg of the U. S. Department of Agriculture at Washington, D. C., and by Mr. M. W. Gorman, Oregon's veteran field botanist. A large collection of botanical specimens was made from which Dr. Coville described the August flora of the Lake and this was published in the *Mazama Magazine*, Volume 1, No. 2.

Accordingly an extensive description of the flora has not been attempted, but simply some running popular notes are offered on those forms which are so evident as to attract the attention even of a non-botanist.

The usual roads by which one enters the Park are for the most part over volcanic soil, where the vegetation is limited, so that apparently the flora compares unfavorably with that of some of the other parks. But where the road crosses the brooks, or where one makes his way into the mountain meadows will be found a wondrous display of Nature's handiwork—a veritable Garden of the Gods.



Queen Cup.
Clintonia
uniflora.

THIS lily is known by its broad green leaves with a single vein. It has a single white flower erect at the end of a slender flower stalk. Its fruit is a bright blue berry.

*False Green Hellebore,
Indian Poke.*

Veratrum viride.

THIS plant is not related to the true Hellebore and how it obtained its name would be difficult to say. It is a tall, coarse plant with large elliptical leaves, marked with several prominent veins, occurring all along the stalk. It bears long clusters of numerous yellowish green flowers and is one of the most widely distributed plants in the Park. The scientific name means "black root." The plant was used as an emetic by the Indians and from it is obtained Veratrin, the heart and fever medicine.

Wild Onions.

Allium validum.

IN the wet meadows near the engineer's camp are found great quantities of this wild onion. The plant is large and tall, with broad leaves. The bulb is of considerable size and valuable for food. This and all the wild onions may be readily recognized by their positive onion-like odor.

Little Twisted Stalk.

Streptopus roseus.

THIS is a low, slightly branched plant, its leaves alternately arranged on the branches and marked with several prominent parallel veins. The color of the solitary flowers varies from rose to purple and each is borne opposite a leaf. The flower stalk is usually bent or twisted at about the middle, hence the name. It is found in the moist ground at the lower levels in the Park.



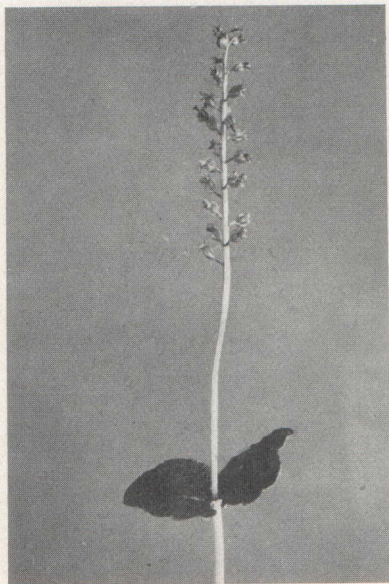
*False
Solomon's
Seal.*

*Vagnera
amplexi-
caulis.*

THIS plant resembles its relative of the lowlands, having leaves arranged on two sides of the stem and terminating with a cluster of small, white flowers, but is shorter and stockier, while its leaves are thicker and grasp the stem. This latter trait is implied in the specific name of amplexicaulis.

*Heart-leaved
Twayblade.*

*Listera
cordata.*



SUCH a delicate orchid as this loves to hide beneath the shade of the coniferous trees. It has two heart-shaped green leaves opposite each other on the stem, hence the name Twayblade. The yellowish green flowers are small and inconspicuous in a cluster at the end of the stem. It is found in many places in the Park and especially along the trail to the Lake.



*Mountain
Eriogonum.*

*Eriogonum
pyrolae-
folium.*

THIS little plant occurs very abundantly in the pumice soil, especially around the rim. It springs from a thick root-like stem, the leaves forming a more or less basal cluster. They are green above, densely white and woolly underneath. The flower stalks are leafless and bear umbel-like clusters of white, greenish-white or cream-colored flowers.

*Newberry's
Knotweed.*

*Polygonum
newberryi.*



ONE of the most abundant of the plants around the edge of the Crater is this one. -It always attracts attention because of its vigorous growth, but one searches in vain for its flowers, for they are inconspicuous and soon gone. Its roots are thick and push down into the soft ashes looking for water.



*Mountain
Sorrel.*

*Oxyria
digyna.*

A SMALL plant having heart-shaped, somewhat fleshy leaves, which are clustered much like Sorrel. Its flowers are greenish and inconspicuous. Its tiny fruit is red and much more likely to attract the attention than the flowers. It occurs on high, rocky places in the Park.

*Mountain
Pussy-paws.*

*Spraguea
multiceps.*



Western Columbine.

Aquilegia formosa.

THIS familiar plant with its red, five-spurred blossoms, occurs in various parts of the Park. The common name, Columbine, is from the Latin word "Columba," a dove, from the fancied resemblance to five little doves billing and cooing, beak to beak. At the bottom of each of these spurs is a little nectar, so that the flower is sometimes called Honeysuckle.

Western Monkshood.

Aconitum columbianum.

THIS is a tall, stout plant with terminal clusters of large, showy, irregular flowers. The sepals are colored and might be easily confused with the petals. The common name is from the fancied resemblance to the cowled monk. At first glance, the Monkshood might be mistaken for the Larkspur, but the latter has the upper sepal continued backward into a very definite spur, while the Aconitum has a very pronounced hood in place of the spur.

Gorman's Buttercup.

Ranunculus gormanii.

A DELICATE plant with creeping root and stem, and solitary yellow flowers growing from a basal cluster of leaves. Named for Mr. M. W. Gorman.

*Mountain
Anemone.*

*Pulsatilla
occidentalis.*



WHETHER in blossom or fruit, this plant always attracts attention. It grows amongst the rocks on the higher slopes of the Park. The flower is large and white, and the fruit, when ripe, resembles a pompom made up of long hairy tails attached to the seeds. As the fruit ripens, the stalk elongates and carries up the seeds, from which vantage point they can be more readily disseminated by the wind.



*Tolmie's
Saxifrage.*

*Saxifrage
tolmiei.*

THE Saxifrages are for the most part rock-loving plants. The name means "rock-breaking." There are several interesting species found in the Park, including the currants and gooseberries.

Tolmie's Saxifrage is especially abundant along the trail inside the crater. It has thick, small, shining leaves and sends up stems bearing from one to four small white flowers. It usually grows in masses forming thick mats.

Western Bleeding Heart.
Bikukulla formosa.

THIS familiar plant with its heart-shaped flowers and its much cut leaves needs no description. It occurs in many places throughout the Park.

Mealy Stonecrop.
Sedum spathulifolium.

GROWING on the rocks, its creeping stem sends roots here and there into crevices where some soil has gathered. Its leaves are thick and fleshy, often forming rosette-like clusters. Its flowers are pale yellow and its petals are distinct.

Oregon Navelwort.
Cotyledon oregonensis.

CLOSELY resembling the preceding plant and easily mistaken for it, it differs chiefly in the fact that its petals are more or less united.

The Lowly Lupine.
Lupinus minimus.

ONE of the most abundant of the plants of the pumice fields near the summit is this little Lupine, growing in thick tufts not over six inches high and bearing clusters of bright blue flowers, which cannot fail to attract the attention of all. Each leaf consists of from five to nine slender leaflets arranged finger-like on the leaf stalk. The whole plant is more or less hairy.



*Mountain
Spiraea.*

*Spiraea
densiflora.*

A LOW shrub bearing somewhat flat-topped clusters of purple flowers.

*Mountain
Holodiscus
discolor.*

Ocean Spray.

THIS is a low shrub somewhat resembling the Ocean Spray of the lowlands, except that its clusters are smaller. It delights to grow on the exposed rocks.

*Fan-leaved
Cinquefoil.*

*Potentilla
flabellifolia.*



THIS plant is easily recognized by its fan-shaped leaves. It has a yellow flower which might easily be mistaken for a buttercup, but an examination of the stamens will show that they are attached to the calyx, which is the characteristic that differentiates the Rose Family from the Buttercup Family, the latter having its stamens attached to the head of the flower stalk or receptacle. Quite common in moist soil.



*Mountain
Mats.*

*Lutkea
pectinata.*

A LOW, creeping shrub forming dense carpet-like mats. The leaves are twice or three times cleft into narrow divisions. The flowering branches bear clusters of small white flowers. Abundant along the trail to the Lake.

*Prince's Pine,
Pipsissewa.*

*Chimaphila
umbellata.*



I F one turns aside from the beaten trail and makes his way into the shady woods beneath the conifers, he is apt to find specimens of this beautiful plant. *Chimaphila* is from two Greek words meaning "loving the winter," and *umbellata* refers to the umbel-like clusters of its white, waxy flowers. Its few shining leaves are usually crowded at the bottom of the plant. These are evergreen, but this condition is shared with several other plants and so it is no more entitled to be called "wintergreen" than they are.



*Mottled
Wintergreen.*

*Pyrola
picta.*

INAPPROPRIATELY called Wintergreen, for it leads one to confuse this plant with the true Wintergreen, from which the extract is made. Its flowers are white and wax-like and resemble those of the Pipsissewa, but are arranged in a row along the flower stalk. The leaves are marked with white mottling and collected in a cluster at the base of the plant.

*One-sided
Wintergreen.*

*Pyrola
secunda.*



THIS delicate Wintergreen has its flowers arranged all on one side of the flower stalk and this explains its name. Both of these forms are found widely scattered throughout the Park.



*Stick
Candy.*

*Allotropa
virgata.*

FOLLOWING closely the receding snow-banks, one sometimes finds specimens of this peculiar and interesting plant. It has no green foliage and, in common with all such plants, must steal its food, as only such as have green leaves can prepare it for themselves. Its white, wax-like stalk is striped with red and bears a spike of numerous white flowers. This has been mistaken by some for the Snow Plant, but the latter is red throughout.

Pine Sap.

*Hypopitys
hypopitys.*



THIS is another plant having no green foliage, all that remains of the leaves being the white scales scattered along the stem. The whole plant is white or cream-colored and bears a cluster of several nodding flowers. At first sight, they are sometimes mistaken for Indian Pipes, but the latter have only a single flower on each stem.



*Mountain
Laurel.*

*Kalmia
glauca.*

THESE low shrubs are found in the wet meadows and bogs. The leaf arrangement is opposite. The leaves are dark green above and white beneath, and the edges are strongly inrolled. The purple flowers are shaped like deep saucers with ten little pockets. Each of these holds a stamen top or anther until released by an insect, the weight of whose body depresses the springy stamens, when they escape with a snap and dust the insect with pollen, thus causing cross-pollination.

*Yellow
Heather.*

*Phyllodoce
glanduliflora.*



FOR some reason, a more or less sentimental interest is aroused by the name Heather. It is employed to designate a variety of plants, but all of them belong to the Heath Family. On our Oregon mountains, we find the Yellow Heather and the Red Heather. Both have bell-like flowers of much the same appearance, but differing chiefly in color. They are found growing amongst the rocks at higher elevations and often in such quantities as to carpet all the mountain side.



*Scarlet
Gilia.*

*Gilia
aggregata.*

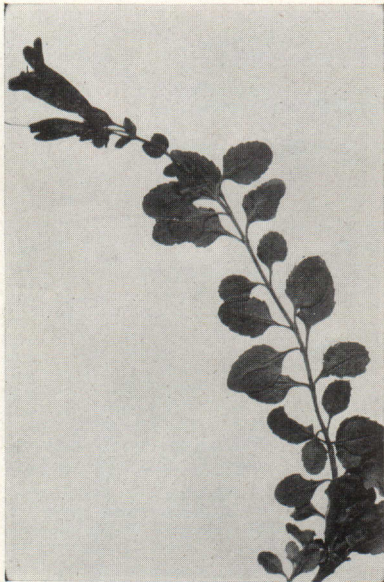
A TALL plant thickly covered with funnel-shaped scarlet flowers, which is found in the lower altitudes of the Park and is especially abundant along the roadside near the entrance.

*Mazama's
Collomia*

*Collomia
mazama.*



THIS is a new species thus far found only in the Park and named after the Mazamas by Dr. Coville. It is thickly tufted, usually not over eight inches high, and bears conspicuous blue flowers. It is abundant in slightly moist, open, grassy places, extending up to an elevation of six thousand feet.



*Matted
Beard-tongue*

*Pentstemon
menziesii.*

THE Beard-tongues occur in several forms throughout the Park. The Matted Beard-tongue is a low, shrubby plant bearing small leaves with saw-tooth margin. It has horizontal stems which root at the joints. The tubular flowers are rather large and irregular, more or less two-lipped and vary from blue to purple. Found on the rocks in the higher portions of the Park.

Red Monkey Flower.

Mimulus lewisii.

THESE beautiful flowers usually grow in large masses and form one of the most striking groups in the Park. At first glance, at a distance, they have the effect of beds of old-fashioned Petunias. They are especially abundant along the shores of the Lake. The flowers are distinctly two-lipped and vary in color from red to rose-purple. They were first gathered by Lewis of the Lewis and Clark Expedition and named for him by the botanist, Pursh.

Yellow Monkey Flowers.

Mimulus langsdorfii. Mimulus primuloides

THESE are commonly found in the moist meadows. Their flowers resemble the Red *Mimulus* in structure, but are smaller and yellow. The *primuloides* is a short, delicate form.

Indian Paint Brush.

Castilleja and Orthocarpus.

THESE interesting and striking plants with their crowded clusters of red and yellow flowers always attract the attention. Their classification is rather difficult, so, for our purpose, they may be all included under the common name of Indian Paint Brush.

Elephant's Head.

Pedicularis groenlandica.

IN the wet meadows, one often comes across great beds of these curious flowers. They grow from

twelve to eighteen inches high and have finely divided leaves. The flowers vary from rose to purple and are borne in long, spike-like clusters. Each flower is two-lipped, the upper portion being prolonged into a twisted tube-like structure appearing like the trunk of an elephant, while the lower lip looks like the ears, so that the whole appearance very much resembles the head of an elephant, hence the popular name.

Dandelion Family.
Compositae.

THIS is a large family and has a number of representatives in the Park. They are characterized by clusters of little flowers so crowded into a head as to appear like a single large flower. The margin of the head is often surrounded with a circle of petal-like flowers called the rays.

Asters.

THERE are several forms, which may be grouped together under the common name of Aster, although they belong to different genera.

Coville's Aster.
Eucephalus covillei.

THIS is one of the most common of the plants growing in the dusty cinder soil around the rim. Its stem is much branched, the leaves and branches slightly hairy, and the head surrounded by a few scattering deep violet rays.

Arnica.

THIS genus is represented by several species in the Park, but its classification is very difficult and is a matter of dispute even among botanists. They have yellow flowers and opposite leaves.

*Mountain
Valerian*

*Valeriana
sitchensis.*



THESE plants are widely distributed. They vary in height from one to five feet. Clusters of large, compound leaves without leaf stalks grow at the base of the plant and smaller ones on the stem. The small white flowers are collected in flat-topped clusters at the end of the stem. The root has a disagreeable odor, resembling that of the Valerian, which is used in medicine.



*Dwarf
Hulsea.*

*Hulsea
nana.*

AT first sight, this little plant might be mistaken for a Dandelion. It has a rosette of leaves with cut margin covered with a sticky substance, which causes some of the sand of the cinder cones on which they grow to adhere to them. From the center of the rosette, comes a single large yellow flower on a rather short stalk.

SOME NOTES ON THE GEOLOGY OF CRATER LAKE

By IRA A. WILLIAMS

Oregon Bureau of Mines and Geology

Lakes in the craters of extinct volcanoes are not rare. In fact, within the borders of the state of Oregon several are to be found. Some are large, some are small. Some occupy the entire pit of the original crater. In other instances, more than one occur within a former crater opening. All, however, by virtue of their location, are conveniently called *crater lakes*.

Lakes in craters may come about in a number of different ways. The simplest type of all is the lake that results from the accumulation of water in the hollow of the crater, whose walls and bottom are just as they were when the eruption of lava ceased, or before they have undergone much change. Such a lake is a single, continuous body of water, whose shore-line is determined by the crater walls, and its depth by the watertightness of the rocks and the quantity of water coming into it. To this type the name *crater lake* would most obviously be applied by everyone. And of this class of lakes it would seem at first sight that there could be no finer example than the subject of this booklet, Crater Lake in southern Oregon.

General Characteristics of Craters

But here we must proceed with caution, for craters themselves differ greatly. Ordinarily, we think of a crater as a depression in the top of a volcano, and

so call it both before and after the mountain has ceased its eruptive action. In general, that conception is quite correct. Volcanoes, however, may be mountains of some height and prominence, or little more than crevices from which lava issues quietly without building up a peak of commanding or even conspicuous size.

Crater openings vary correspondingly in dimensions. The diameter of some must be expressed in miles and their depth in thousands of feet. While at the other extreme, the smallest are little else than big blisters a few feet across. The size and depth of the crater depends upon the kind of eruption and the character of the rock coming from it. Violently eruptive craters as a rule build the higher, steep-sided mountains.

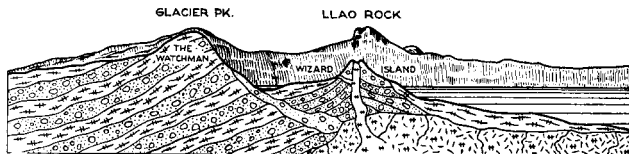
How Volcanoes Erupt

One more phase of the question should be mentioned before taking up the examination of Crater Lake itself. We do not know so very much about the deep-seated causes of volcanic eruption, but in the study of live volcanoes the general process is observed to be one of a successive, sometimes quiet, sometimes turbulent, rising and falling of the molten lava in the crater. When it rises high enough, the liquid lava overflows the rim and runs out upon the surrounding country. In the explosive type the outbursts are more sudden, and the products of eruption violently thrown out, sometimes to great distances from the crater.

We naturally think of the lava in a crater as connecting downward with a source of supply, a region of high temperature within the earth. The lava column is pushed upward by expansive forces from below during eruption, and it recedes or lowers in quiescent times. The distance the column may drop at any time, and therefore the depth of the crater pit, can not be predicted, nor can the height to which it will rise. As the active life of a volcano nears its close, the final or dying eruptive effort may leave the lava surface within the crater high or low. That is to say, its position may be such as to completely fill, and plug, the crater opening, or it may come to rest at any other level down to one of profound depth, and leave a hole of corresponding proportions. In the extreme case, withdrawal may proceed to such an extent as to undermine the structure of the mountain, and cause its partial or complete collapse.

A First Glimpse of Crater Lake

We come, then, to a study of our objective, Crater Lake, and begin to look about for suggestive evidence that will lead definitely towards one conclusion or another. All that has ever been written tells of volcanic rocks everywhere round about it. It is in an enormous pit, roughly circular in shape. We may at first think it unfortunate that this pit is partly filled with water. It is true that this does prevent our making a first-hand examination of its bottom. But above the water level are better than twenty-five miles of precipitous rock wall, in every



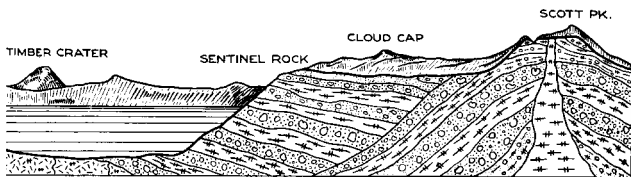
SECTION AND PERSPECTIVE OF CRATER LAKE AND

Attention is called to the arrangement of the rock layers that compose the rim of the Lake. The structure of Wizard Island is shown, a volcanic cone with small crater in its top and lava flows issuing from its base.

Mount Scott is an old volcano which was probably in eruption long before Mount Mazama reached its greatest height or activity.

face of which there are hundreds of feet of rock layers beautifully exposed for examination. We know the water's depth, and, although it admittedly obscures a view of the floor on which it rests, no one of calm mind would entertain the remotest idea of artificially changing its level or otherwise modifying its natural condition in any way whatsoever. And we shall see that this lake of azure is to be an important link in the chain of events which will reveal what has happened here in the past.

At first sight we are looking upon a great crater whose bottom is entirely covered with water. A high, continuous rock wall swings in a giant circle around the lake which it encloses; and outward from the crest of this wall the surface of the country drops away at once in all directions. From all



THE BASE OF MOUNT MAZAMA

appearances the conclusion is thus a safe and easy one to reach that this is an example of a typical crater lake of the simplest type, already described; water having simply settled into the extinct cold crater of a once active volcano whose bottom was sufficiently impervious to prevent its leaking away.

That its size is enormous must be granted. And its former occupancy by a lake of turbulent seething-hot lava, instead of water as we now see it, is truly almost impossible of conception. But, yes, as though to confirm this first impression, there is little Wizard Island, very obviously a small volcano by itself entirely surrounded by the water of the lake, with a crater in its top and lava-flows spreading out about its base. Evidently an after-effort of

the volcano, the diminutive mountain, thus built up within the larger crater, happened to raise its head to such a height that today it is the only portion of the old crater floor that we are permitted to examine.

The picture is an enticing one. And we might, with this first glance, depart, never again to look upon this, one of Nature's wonders, and carry away an enriching lifetime vision of magnitude and grandeur. And our interpretation of its origin would not in any vital way depart from the real truth, but would merely fall short of it.

Tour Over Famous "Rim Road"

Few, however, are so easily satisfied. This preliminary glimpse has but created a burning desire to learn more fully how Crater Lake came to be. To determine this, its surroundings must be examined, and it is indeed good fortune that a surfaced highway now encircles it, from many points of which the whole lake and its enclosing wall are in full view. Many intimate and detailed glimpses of particular features may also be had in a trip over this now famous "rim road." Then there is the lake itself, the thrilling pleasure and educational value of an excursion on which can not be excelled. These are the viewpoints from which it must be studied.

It is, then, as though in a hurried tour to selected points around the rim, interspersed with occasional closer views that can be had only from the water of the lake, that the reader is invited to participate. And the trip would best begin not at the

brink, but should include approach up the long slope of Mount Mazama by way of whichever of the two official portals entrance is made into Crater Lake National Park, the central and culminating attraction of which is Crater Lake.

Entering Roads to Crater Lake

From the southern gateway, the "Fort Klamath" road runs up Anna Creek, into whose canyon we catch at intervals most fascinating views, where its walls are studded with pinnacles and columns etched from the bouldery volcanic tuff. We pass over ridges of unmistakable glacial moraine before arriving at its head, where the clear, cold water of Anna Spring is the source of this stream. The Medford road enters the park at the west side and follows up Castle Creek, which has cut its gorge likewise deep into the partly compacted sediments that were long ago carried in great quantity down the mountainside. Both Anna Creek and Castle Creek occupy glacier-cut valleys, as do also Sun Creek and Sand Creek which drain away to the southeastward from the rim of Crater Lake.

Evidence of Glacial Action

It is very apparent that streams of moving glacial ice first dug deeply into the rocks the long trenches down which these streams of water now flow, and these trenches were later, as the ice melted away, choked with the floods of rock detritus into which the present-day channels have since been, and are now being, carved. Points and ridges of rock, and occasional prominent cliffs, appear along both roads

into the park and, more distant, forest-covered peaks, some of them craters, mark the sites of volcanic eruption in the past.

These glacier-cut gorges provide natural avenues of approach. We rise gradually to an altitude of 6,000 feet and, the two roads joining at Anna Spring, proceed up Munson valley, still within a glacier-made gorge, to the rim of Crater Lake at somewhat over 7,000 feet above the sea. Three miles below the rim is the Government headquarters of Crater Lake National Park. The last two miles of roadway is a series of zigzags largely over and amongst hills, hummocks and knobs of bouldery glacial drift, which can be seen on the inner face of the rim to be two to three hundred feet in thickness at this place.

For as much as the last three miles, also, we are traveling almost within the shadow of a great jagged rock wall at our right, the east wall of our glacial gorge, the sloping sky-line of which is well-named Castle Crest. The culminating summit of Castle Crest is Garfield peak, a point of commanding height at the very brink of the rim of Crater Lake. This wall is seen to be made of layer upon layer of solid lava, all inclined to the southward, away from the lake, their upward extension abruptly cut off at the rim, in which the broken edges of a thousand and more vertical feet of similar volcanic rocks may be seen above the water.

Arrival at Crater Lake Lodge

At the rim, we land first at Crater Lake Lodge, an

attractive building of rustic design made of the native glacial boulders and founded upon the same great glacial fill over which we have just been traveling. And here we are to gratify that longing which has become almost overwhelming in intensity as our nearness has increased, to see Crater Lake, of which we have heard so much. Few, at this moment, will possess the composure to await the searching out of a comfortable position on the veranda of this hostelry before giving attention to the panorama that is to open out before us. But, yielding to the primitive impulse, which is in entire keeping with our surroundings and in the very atmosphere of the place, we hurry with abandon to the edge.

That *abandon*, however, is not just the apt word is realized at once as we top the horizon of the short slope, up which we clamber, and the grand picture spreads out as though opportunely lifted into place by a cinematograph. For we look upon a spectacle which holds us spellbound for the moment, and rally only as the immensity of the thing dawns, and as what might seem at first a stage most sumptuously appointed for the opening performance slowly resolves itself into the wrecked setting of a tragedy long since enacted, the nature of which it is ours to discover.

General View of Crater Lake

From our station we may take in some of the details of this setting. We gaze upon a lake whose color is ultramarine blue with a fringe of turquoise.



Courtesy National Park Service, Department of the Interior
THE RIM OF MOUNT MAZAMA AND SAND PINNACLES

some of those features our distant glimpse of which has only whetted curiosity to the limit.

Sparrow Trail to Water's Edge

From Crater Lake Lodge a zigzag trail goes down to the water's edge. Skilfully carved in the face of the cliff, along it one may see below the gravelly glacial drift at the top, alternating layers, not all even or regular, it is true, of bouldery agglomerate, hard andesitic lava and scoriaceous beds, all told, a thousand feet in vertical thickness of rocks, every part of which is a direct product of volcanic action. At the water's edge is a great fringe of boulders which have come down from the crumbling cliffs above. In some places these litter the bottom for a short distance out, elsewhere soundings show profound depths almost immediately from the water line.

To Summit of Garfield Peak

From the Lodge, likewise, there is a well-made trail up Garfield peak, whose summit, in round numbers, is one thousand feet still higher above the lake. And in our climb to this elevated point we cross the edges of successive layers of the same types of volcanic rocks. Here, too, we can see definitely that these layers, instead of lying flat, are inclined, or dip, to the southward away from the rim of the lake, just as we have already seen at a distance from the highway below the rim. The slopes and summit of Garfield have been scored by the moving glaciers of the past.

Naturally we think next of seeking other viewpoints around the rim. The rim road affords innumerable opportunities to look down upon Crater Lake from every side and to study its surroundings. But we shall feel constrained to limit our examination to a few of the most instructive glimpses only, as we ride by automobile over this wonderful circuit of the lake.

For three miles from the Lodge along the west side of the lake, the road passes over a succession of glacial ridges, ribs of light gray lava, and beds of pumice to The Watchman. The Watchman is a dome-like peak made mostly of gray andesitic lava, the layers of which slope to the westward away from the rim. Swinging back of this peak at five miles we skirt the west base of Glacier Peak, another high but more rugged point of the rim. It rises 1,979 feet above the water and is the highest point upon the immediate rim of Crater Lake.

Wizard Island

A few steps up the slope from the highway between these two peaks affords a most satisfying view of Wizard Island. As we look down upon it from fifteen hundred feet above, we can see that it consists of a steep-sided little volcanic cone with a shallow crater in its top. About the base of this cone is an irregular-shaped area of broken lava surface. The cone is found on close inspection to be made of loose volcanic cinder or scoria, ash and some frothy lava; while the fringe about it is only

that portion that happens to be above water of flows of lava that long since broke out from its base.

We have, of course, no way of knowing how much of the floor of the lake is covered by the flows from Wizard Island crater. Nor do we know but that there may have been other vents of eruption which are now submerged beneath the waters of the lake. The impression which we will not fail to carry away, however, is that we have in Wizard Island a volcano of small size which resembles in every respect those of more mature proportions, and which is as perfect in form as if eruption had scarcely ceased. But no signs of heat remain.

The Watchman and Glacier Peak

In The Watchman and Glacier Peak, between which we now stand, we have examples of prominent elevations one or both of which may be partly or wholly due to the oozing out of molten lava upon the surface through breaks that connected with some deep source of supply. The clue that this is the case is the presence in the cliff beneath The Watchman of a dike or narrow band of hard lava that leads from far down directly upward into the massive ledges which make up the top of this mountain.

We hurry on. Between the six and seven-mile posts evidence of the work of the glaciers is seen frequently. Parallel and deeply scratched lines on the hard rock in places prove that the ice moved to the northwestward here, and in many other places about the lake where the direction can be measured

it is similarly always down the outer slope, away from the lake.

Devil's Backbone

At a point just beyond six miles, we pass the Devil's Backbone, which is a giant dike of dark-colored lava that stands out as a conspicuous rib in the face of the cliff. With a single offset, it extends vertically over thirteen hundred feet from the water to the crest of the rim. It is by far the largest dike in the entire rim (in all, eleven have been counted), and is a remnant of the filling of a crack or crevice up through which liquid lava moved from a reservoir of supply below, probably, in its day, to flow out upon the surface of the land.

Llao Rock

From various outlook points we have already been impressed by the imposing front of Llao Rock, back of which we pass between the seven and ten-mile posts. This part of the rim rises as a great dome, and its face, on the lake side, drops sheer for twelve hundred feet. It is the highest vertical precipice in the entire rim, its base still five hundred feet above the water. On the top of the solid lava of Llao Rock, which is called dacite, are thick layers of pumice and glacial detritus.

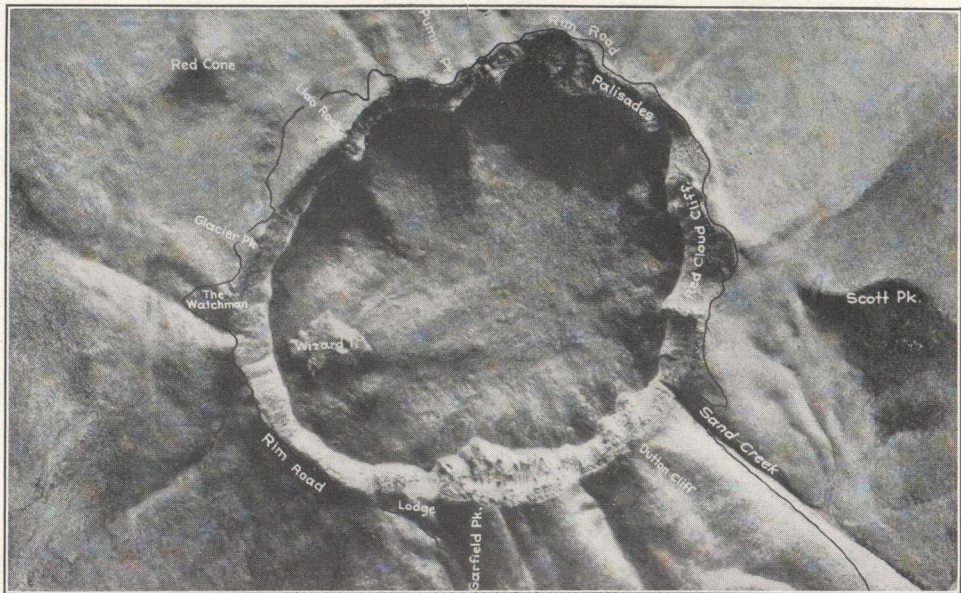
A front view of Llao Rock, such as can be had from the lake, or from Wizard Island, shows beautifully that this mass of lava occupies a notch, such as a former gulch or gorge in the older rocks below, being thickest in the center and thinning out to an

edge to both east and west. It is apparent, too, that the solid core of this upstanding hill is but what is left of a body of dacite that was immensely greater in size which has been abruptly broken off on the lake side.

A further most enlightening feature that must not be overlooked is the presence of one or more narrow dikes of light gray glassy dacite beneath Liao Rock, which make their way from below the water level for hundreds of feet meanderingly upward across the layers of darker rocks, to all appearances, into the very base of Liao Rock itself. These may be thought of as representing the feeder openings up through which some of the lava came. They are now, however, tightly sealed each by a ribbon-like band of the same lava which cooled and hardened in its channel when the lowering pressure from beneath permitted it to come to rest.

Origin of the Pumice

There is much pumice along our way, scattered loose upon the surface and appearing as layers in the upper parts of the lake rim. At Pumice Point, just beyond the eleven-mile post, so large a body of light gray pumice occurs in the rim that it can be seen from many points across the lake. The pumice about Crater Lake is a form of the dacitic lava, which is so full of openings, or cellular, that pieces of it will float on water. We may think of it perhaps as a frothy phase of the lava produced by the presence of gases which acted during its cooling in



MODEL OF THE RIM AND PIT OF CRATER LAKE. THE RIM ROAD—Adapted from photograph by U. S. Geological Survey.

a way similar to yeast in the rising loaf. Pumice occurs less often in continuous flows than as beds composed of loose pieces of varying size, which, it would seem, have been tossed out by volcanic eruption and were cooled and solidified in their fall to the earth again.

Rugged Crest Lava Flow

At Rugged Crest in the curve of Cleetwood Cove between twelve and thirteen miles on our way, we traverse a unique portion of the rim. Here, amongst great, promiscuously tumbled blocks of glassy lava we find our first suggestion of a flow whose direction of movement before it finally cooled was not alone down the outer slope away from the lake. On the other hand, a study of the "rugged crest" which here overlooks the lake, and of the lava-strewn inner slope which leads from this crest clear down to the water and even beneath it, seems quite convincing that the final movement in this body of lava was towards the lake, and that it probably extended far down into the pit, whether then partly filled with water or not, we do not know. It is to be seen that parts of this same mass of lava once flowed for a few miles to the northeastward down the slope outside of the present rim. It would seem, therefore, that for some reason a change of slope was brought about while this lava was issuing and a corresponding reversal of its direction of flow. Our curiosity over the explanation of this state of affairs must, as in the case of other anomalous fea-

tures of this wonderland, await, for the present, the completion of our trip around the lake.

Features of the Eastern Rim

From Rugged Crest we skirt the eastern rim and, besides many an exhilarating view of Crater Lake and of the country round about, we catch a passing glimpse here and there of other distinctive features of the inner slope. At The Wineglass we may see that the distinguishing outlines which have given this name are due to the lighter-colored slide material that is scattered down the front of the cliff from the outcropping edge of a thick flow of tuffaceous dacite that extends for some distance along the rim.

In Red Cloud Cliff we have a most imposing and precipitous front over sixteen hundred feet in height, made up of the usual series of hard and scoriaceous andesitic lava and bouldery agglomerate below, with heavy beds of tuffaceous dacite toward the top. The edges of the latter are in places etched by weathering into groups of outstanding reddish crags and pinnacles. It is this that has given the cliff its name. Cloud Cap, rising to eight thousand and seventy feet, and one-half mile back from the brink, is the culminating summit which possibly marks the place whence some of these dacitic lavas issued.

Scott Peak

From any one of many slightly points in this part of the rim drive our gaze cannot but wander from the lake and its immediate environs toward the splendid cone of Scott Peak, its top a little over two miles due east of the twenty-mile sign. This moun-

tain rises almost three thousand feet above the water of Crater Lake. It is, in truth, an old crater, a large portion of the rim of which has been torn away. From our position we look through the gap thus made against the far wall of the former crater from which came the volcanic products of which it is composed. Though pumice-strewn, the country hereabouts has been covered by the glaciers and the present eroded form of the crater of Scott Peak is to all appearances partly due to the former active work of moving ice.

Kerr Notch

As we descend into Kerr Notch our roadway passes across the outcropping edges of successive beds of andesitic lava, each dipping as has been its habit everywhere, away from the lake. Kerr Valley is the extension of the U-shaped valley of Sand Creek up the slope to where it is cut off at the precipitous rim of Crater Lake. The bottom of Kerr Notch is the lowest point in the entire rim, measuring, where the road goes, six hundred feet above the water. He who fails to hesitate here for more than a passing glimpse misses one of the most instructive, withal entrancing, views to be had on the entire rim road.

Dutton Cliff and Phantom Ship

On the far side of Kerr Notch is a great bare cliff, the confining wall of the stream of ice that scoured out this deep trough. Toward the lake this wall blends into and becomes the upper part of Dutton Cliff, whose mile-long crumbling jagged front rises

to a culminating height just short of two thousand feet above the water of the lake. This elevation, within one short mile of the lowest point, is next to the highest point upon the rim, and the face of Dutton Cliff is the most stupendously imposing escarpment in the entire rim of Crater Lake. At its foot, Phantom Ship, an island group of pinnacles of lava and hard volcanic breccia combined, stands just barely separated from a jutting rocky point of similar make-up in the base of the main cliff. And within the shadow of Dutton Cliff, too, is Danger Bay, most appropriately named, as every one will testify who, while floating upon its tranquil waters, has witnessed the almost constant bombardment of boulders of all sizes that come pelting down into the lake from every portion of the crumbling cliffs above.

Features of the Southern Rim

Beyond Dutton Cliff and yet farther round the south side of the lake, Sun Notch is the cross-section of another glacier-cut channel which, like Kerr Valley, where we now are, appears to have been sheared directly off and its head portions carried away. Still beyond, if we were to follow the rim, we would cross Vidae Ridge and before long rise upon the slopes of Garfield Peak, beneath which, on the lake front, are Eagle Crags, another most precipitous and rugged portion of the rim. From Garfield Peak, it will be recalled, we look down upon our starting point, Crater Lake Lodge, and the winding course of the highway at the base of Castle Crest.

From Kerr Notch the rim road drops down the valley of Sand Creek for three miles, and for the next eight miles to where it joins the main highway at the National Park headquarters in Munson Valley, it is not within sight of the lake, but skirts about the outer slopes of Dutton Ridge and Vidae Ridge, crossing Sun Meadows at the head of Sun Creek, and makes a circuitous way across morainal deposits and outcropping ledges of andesitic lava.

The Lake Itself

With our hurried circuit of Crater Lake completed and the knowledge gained thereby freshly in mind, there remains yet one other phase of this place of mystery about which we must certainly inquire. It is the lake itself. Soundings show its greatest depth to be just short of two thousand feet. With the exception of the neighborhood of Wizard Island, its bottom everywhere drops to profound depths almost immediately from the shore line. In a place or two it shallows notably, which shows that its floor is not an even one. This lake has no streams flowing into it and no visible outlet.

Measurement for the past several years would seem to indicate that the water in it has probably reached a level beyond which it will not permanently go so long as present climatic conditions prevail. There is a seasonal rise and fall of about four feet, but no indication that the water has ever stood for any time either higher or lower than at present.

Could we conceive, therefore, of this pit of Crater Lake as it was before being filled with water, or as

it would be were the lake removed, it would be a great tapering hole, from the tip of its rim to the apex of its floor, in round numbers four thousand vertical feet; a vast bowl with as much of depth below the present level of the water as its walls now rise above it. The steep slopes of its sloughing sides would continue much the same below as in the cliffs above the level of the lake. And at rare intervals upon its boulder-strewn floor we might expect to see small craters,—craterlets, shall we call them—only one of which, Wizard Island, built itself to such a height that in the rise of water it was not entirely submerged.

Summary of Observations on Rim Road Tour

We have now surveyed our picture at sufficiently close range to gain some very definite impressions of details of it that were not evident at first sight. We call it Crater Lake, and have thought of it as a most charming body of water set within the hollow of the crater of a former volcano. Its great size is the first item to arouse suspicion that the situation may possibly not be so simple as the mere occupancy by a lake of water of the opening from which the lavas of an active volcano were expelled. No known crater in the world is so large.

And so we must undertake to reconcile with our first impressions the detailed observations we have made. The big facts that stand out as the result of our trip around the rim are, to be listed in numerical order: First, practically the entire height of the

rim everywhere consists of beds of volcanic rocks, layer upon layer, lava flow upon lava flow, all radially inclined away from the lake. Second, at the top in many parts of the rim are bodies of bouldery glacial drift, and the whole country round about has been scoured down and littered with rock detritus by the glaciers, streams and sheets of moving ice of great thickness. Third, Kerr Notch and Sun Notch are deep, rounded, glacier-formed gaps in the crest of the rim made, without question, during the cutting of former ice-filled valleys upon a mountainside. Fourth, in the top portion of the rock wall surrounding the lake, appear the broken-off edges of occasional individual flows, Llao Rock, the Wineglass, and Cloud Cap, of a lava called dacite, as distinguished from the andesites below, that have passed varying distances down the outside slopes away from the lake. Fifth, a single example in the case of Rugged Crest, where a dacite flow similar in other respects to those just mentioned, reversed its direction of movement and some of the still liquid lava dribbled down the inner face of the rim and into the pit of Crater Lake to an unknown distance beyond the present water level. Sixth, on the rim everywhere, and upon the surrounding country, pumice is scattered, in beds in places many feet thick, and at times interbedded with the glacial deposits and later lava flows. Seventh, the Devils Backbone, and, when carefully counted, at least ten other dikes cutting across the layers in different parts of the rim and representing channels up through which

molten lava formerly coursed. Eighth, Scott Peak, the relic of an ancient crater of commanding height, which is but one of a number of outlying crater peaks arrayed upon the outer slopes of Mount Mazama. Ninth, Wizard Island, a small volcanic cone of perfect shape, and its supporting lava flows, within the pit instead of outside of it, rising as an island above the lake level. And, tenth, we have found that the water in Crater Lake probably fills almost as much of the volume of this great bowl as that of the open space bounded by the rim above it, and that the lake has neither surface inlet nor outlet.

Inferences from Rim Road Observations

The foregoing observations, if we will explain them, reveal the needed clues as to why this thing can not be simply the hole of a great crater partly filled with water. There is no escape from the conclusion that the layers of volcanic rock which compose the rim formerly extended upward and into the space now occupied by the great pit of Crater Lake. Most suggestive of all, perhaps, is the presence of the heaps of rock materials deposited by the glaciers, and of the glacial valleys leading down the outer slopes. At present there is no height of land on which the glaciers that did this work could have originated. The markings made by the ice upon the rocks and the position of the moraines about the lake all indicate a glacial movement which had its



Courtesy National Park Service, Department of the Interior
MOUNT MAZAMA RESTORED AS IT MIGHT APPEAR FROM SOUTHWEST

origin in some higher lands over the present site of the lake.

Mount Mazama

These and other facts leave no question that a lofty mountain formerly stood where Crater Lake now is. Estimates have been made that this mountain was a more massive one than Mount Hood, and that it must have been at least a Mount Shasta in altitude and proportions. It stood in its prime as the peer in the entire line of peaks that mark the summit of the Cascade Range in Oregon. Upon its higher slopes snow and ice accumulated and glaciers formed which reached far down, cutting their characteristic U-shaped gorges into soft and solid rock alike and depositing their load of rock debris upon the country round about.

This splendid mountain doubtless had a crater in its top and was built up by long-continued eruption of sometimes liquid lavas, sometimes fragmental products. We see the broken edges of these beds of rock in the wall about the lake today. That our mountain must have stood here well along into the glacial period, if not until its close, is evidenced by the widespread work of glaciers about its outer slopes. This means up to a date not so very long before the beginning of human history upon the earth.

Disappearance of Mount Mazama

This lofty volcanic mountain is no longer here. The place where once its massive conical shape rose,

probably as high as fourteen thousand feet above the sea, is now occupied by a pit, a sunken place four thousand feet in depth. Geologists have called such a depression a caldera. We conceive of two possible ways by either one of which this mountain, which is appropriately named Mount Mazama, could have been destroyed. Explosive forces may have blown it outward; it may have fallen in.

Had the superstructure of Mount Mazama been shattered and thrown out, the rocks of which it was made would be found in great quantity upon the outer slopes of its rim today and scattered about the immediately surrounding country. Nothing of this kind is found around Crater Lake. On the other hand, and as has been already pointed out, every portion of the rim from bottom to top is composed of rock layers, which it is evident formerly extended into and were part of a mountain that stood where Crater Lake now is. We have seen that the very topmost, which are in plain view everywhere, are pumice and glacial deposits entirely.

The collapse of this mountain is, then, the remaining alternative. Even such an occurrence is extremely difficult to conceive of, but it seems to be the only plausible explanation, and the one which is in harmony with the observed facts already listed. The dropping in of this mountain requires the preformation of a great opening within its base, so large that the rocky framework above could no longer maintain its mountain load across the hole. It was a process of undermining, the removal of the

foundation, even perhaps the very core itself, until the structure fell.

What was the cause of the great gap beneath Mount Mazama into which it was engulfed? Here we must draw upon our knowledge of the process of eruption of lava from active volcanoes. On account of conditions deep within the earth the column of liquid lava which supplies the crater of an active volcano sometimes lowers to great depth. Such withdrawal may be thought of as due to the loss from the underlying reservoir of supply by the lava breaking out at lower levels, possibly through fault cracks or in river canyons that have been deeply gashed into the rocks of nearby regions. In the case of Mount Mazama, this hole was not only large enough to contain the whole prodigious volume of the mountain which dropped into it, but to leave afterwards an enormous pit, a caldera, four thousand feet in depth and at its top, five to six miles across.

It is of course likely that the disappearance of Mount Mazama was not an event of extreme suddenness. Its complete destruction may have been the result of a progressive sinking throughout a series of years, or hundreds of years, during which the already cold, hard rocks of its upper parts were slowly absorbed, melted into the seething magma below. And yet there are some indications that what took place was more rapid than this. The extreme steepness of the inner slopes of the rim, with vertical cliffs in places hundreds of feet in height,

is suggestive at least of something fairly cataclysmic in its action rather than slowly progressive. And particularly does the reverse movement of the dacite flow of Rugged Crest on the northeast rim suggest a sudden breaking away at this point rather than a process leisurely carried out. Here, it would appear, a flow of new lava was making its way down the mountain side. That this stream would turn backward toward its source, the ascending mountain side down which it had just come must have so quickly sunk away that some parts of the cooling mass were yet sufficiently liquid to flow freely. For it now forms a thick scraggy facing or veneer upon a section of the lake's enclosing wall which is in unmistakable contrast to the andesitic layers down over which it apparently poured in considerable volume.

How Crater Lake Was Formed

We have left thus a wreck of a mountain. Not only was its foundation center taken away, but the structure itself drawn in and recommitted to the depths whence it came. But the sheared off edges of its supporting walls remain to mark its former breadth and composition. It might be thought that nature has made an attempt, and then abandoned it in sheer despair, to repair the loss in the building of the cone of Wizard Island, and possibly others of its kind now hidden from our view. But it can not be so. Rather has she followed out in all detail a preconceived plan by which, since constant change is the very essence of her working, she has pur-

posely replaced this master mountain of our imagining with a lake of water; a lake so novel in its setting that it can be brought only with difficulty out of the realm of imagination and into that of reality.

A further question or two we would naturally ask about this lake. What is the source of its waters? Will it sooner or later fill to the brim this bowl whose full depth it now but half occupies? The bottom of this bowl must be, to a large degree, impervious in order that water would accumulate in it at the start, and it is due to this ability to hold water that the lake level has risen to its present position. Both rain and snow-fall are heavy in the region and those who have studied the situation most carefully are of the opinion that the natural drainage into the lake would fully account for its water supply. Many small springs issue at different levels in the rim, and some of these flow into the lake throughout the year. It is an entirely logical thought that similar springs may come out also below the water level and contribute appreciably to the supply.

Of a total precipitation of sixty to seventy inches, forty to fifty inches return to the atmosphere by evaporation from the lake surface each year. The excess finds its way into the more open-textured beds surrounding the lake, and some of this water appears possibly as springs at lower levels round the outer slopes of the mountain. Anna Spring at the head of Anna Creek, and many others that issue to the south and east of Crater Lake particularly,

along the border of the Klamath Marsh country, may have their source in Crater Lake.

Life History of Mount Mazama

Now that we have seen in a series of more or less systematic observations a few of the outstanding features of Crater Lake, we may profitably conclude with a brief resumé in the form of a sketch of the life history of the lake before us.

As to the sub-structure, i. e., the deep foundation of the range on which Mount Mazama stands, we know that it consists of sedimentary rock of the Cretaceous or of a later age. Volcanoes were first active here in Tertiary times and heavy flows of Miocene basalt doubtless underlie the later lavas of the summit of the Cascade Range. As to just the exact date when the building of Mount Mazama began, we know that ever since Miocene days the crest of the Range has been marked by a series of active craters. Since what remains of this mountain points in every respect to its having rivaled in size the most massive peaks of today, it seems logical to think of it as being correspondingly deep-rooted and of early birth.

It rose, as did many others the remains of which we find today, by the eruption of untold volumes of andesitic lavas and of showers of boulders, ash and cinders, which spread far out about its base and mingled with the products from neighboring vents of eruption. That the bulk of its structure was of andesitic rocks we are certain from the fact that the rim of Crater Lake is composed mostly of them. As its elevation increased, eruption would more and

more often break out through weak places in its base and form adjoining lava ridges, and lesser or adnate cones were built up about the main crater. The dikes we now observe on the inner slopes of Crater Lake's rim are the proof today of these happenings of the past.

The Glacial Period

And then, after this mountain had attained maturity if not full stature and proportions, a time of extreme cold came on, the Glacial Period, during which snow accumulated and great bodies of ice formed on the higher slopes and glaciers moved down its sides and spread far out about its base. Though eruption continued, these streams of ice persistently dug their way into the very vitals of our mountain and carried down and deposited their loads of rock debris upon the adjacent country.

There came a time, when for reasons not now known, the kind of lava coming from this volcano was entirely changed. Flows of glassy dacite instead of andesite coursed down the depressions in its sides and, as time wore on, frothy phases of this same dacitic lava were sent out as thin viscous flows or as showers of pumice fragments. Of the glassy flows, Llaó Rock, Rugged Crest, the Wineglass and Cloudcap have already been mentioned. That both the glaciers and eruption were vigorously active at the same time is to be kept in mind, for we find now in different places layers of pumice, or the tuffaceous dacite, interbedded with the glacial drift.

Pumice Eruptions

It would seem that as a grand finale to its active life Mount Mazama, the original, belched forth with explosive violence enormous quantities of pumice. So forceful was this final effort that the entire region nearby was buried beneath a deep pumice mantle, and for many miles in all directions pumice settled upon every feature of the land. Still the glaciers were busily gouging into Mount Mazama. It may be that by now the frigid intensity of the glacial climate had relaxed somewhat, so that there were left but radiating tongues of ice in the principal valleys. From them swollen and overloaded streams of turbid waters would distribute their burdens down the deserted parts of their ice-moulded valleys, and the deposits thus formed we have revealed to us in the sharp canyons of Sand, Sun, Anna and Castle Creeks. In any event, it would appear that some little time elapsed, following the pumice deluge, and before the demolition of our mountain, during which glaciation continued, though with diminishing vigor, and much of morainal material was deposited.

The Fall of Mount Mazama

Suddenly, with no warning, all was changed. Mount Mazama disappeared; we have already decided, dropped from sight. What may have been going on below in preparation anticipatory of this catastrophe no one will ever tell. The remnants of already dwindled glaciers were left upon the outside of the rim of a vast hole, to waste away for

want of further sustenance. Their supply cut off, stream channels were deserted. Lava flows but barely cold were severed midway, and one of these, so apparently unpresaged was the onslaught, yet hot and fluid in its deeper parts, surged back as though to join once more the parent source from which it came.

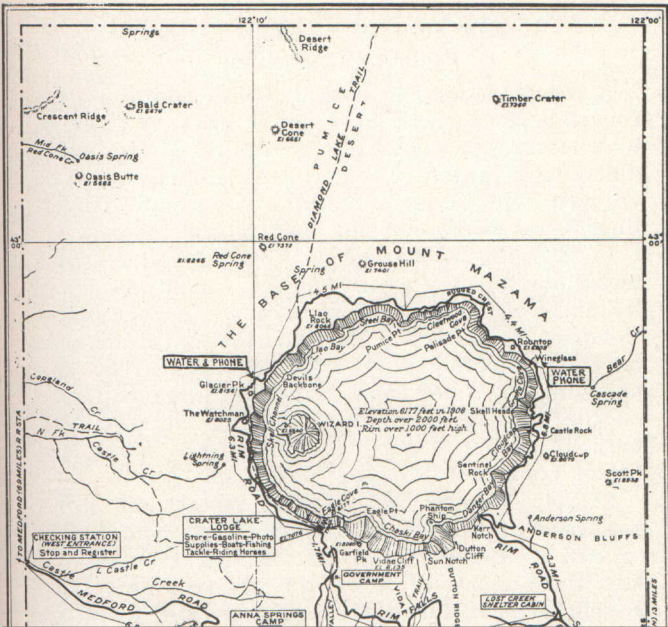
Growth of Wizard Island

How long it was, again we do not know, before Wizard Island grew. One would think that the engorgement of so vast a mountain with its load of glacial ice and snow would materially affect the temperature of the pit into which it sank. At once the hole was formed, water of course began to find its way into it. There would be some question as to whether the heat following the collapse was sufficient to prevent the accumulation of water in it. Readings at different depths do not indicate higher than normal temperatures in the lake at the present time. It seems most likely that the hole began to fill almost immediately after the fall of the mountain. This would mean that the growth of Wizard Island and the filling of the lake proceeded simultaneously. There are reasons for believing that eruption from the crater on Wizard Island continued after the lake had reached its present level. And a most interesting final fact relating to this wonderful little island is that it is made entirely of andesite, a turning back once more, if we think of its coming as a most recent event in the history of Mount Mazama, to the type of building material by outpourings of which the parent mountain first grew up.

A Normal Feature of Cascades Summit

As to Crater Lake, then the impression should be carried away that it represents a most thrilling and geologically modern episode in the history of the Cascade Range in Oregon. Instead of rising now to peerless height upon the summit of this range, Mount Mazama has surrendered its preeminence in this respect to others of its own kind and similar ancestry. Though just as truly to be listed with Mount Hood and Mount Jefferson, Thielsen, The Sisters, and Mount McLoughlin, as one of Oregon's most distinguished mountains, its distinction now rests upon quite different grounds than when in its prime it lifted a snowy summit into the clouds. We must look upon the fall of Mount Mazama as no accidental happening, but rather as an incident in the course of natural events. And the coming of the lake of water, the filling half-full of this caldera pit by moisture from the skies, is naught mysterious, unless the making of all lakes is so. The hole whose enormous volume now marks the place where once the towering mountain stood, with a floor whose carpet is an expanse of water 2000 feet in depth, and the novelty of its immaculate setting upon the very crest of a mountain range, these it is that make Mount Mazama, and will do so henceforth, the superlatively unapproachable example of its kind in the whole known world.

The distance to the Lake from Medford is 81 miles and from Klamath Falls 62 miles.



WILD LIFE IN CRATER LAKE PARK

By ALEX SPARROW

Supt. of Crater Lake National Park.

Of the animals in Crater Lake Park the bear are the best known, owing to their friendly disposition, which is encouraged by permitting them to feed on the garbage near the camps. In only one instance has a bear had courage enough to be troublesome, and he was killed because he had broken into several buildings at Government Camp when food on the dump was scarce; but there is not a case on record of campers being disturbed by them. Only the brown and black bears have been seen in the park, and they are becoming more numerous.

Deer are not so fortunate as the bear—with their period of hibernation and relatively shorter time to dodge hunters' bullets—as the antlered tribe are driven by deep snow to lower levels outside the park and become easy prey for hunters. With the legitimate sportsman, who observes the law and believes in playing fair with a wild animal, no one will find fault, but the would-be sport, who would dog a deer at any time and kill them during the protected season or in deep snow, should be dealt with in no uncertain manner. Only two species of deer have been seen in the park. What is known as the black-tail are quite numerous and some of them are becoming very tame. Several instances have been reported of mule deer having been seen in the vicinity of Cloud Cap and Mount Scott. Most of the

THE FISH OF CRATER LAKE

By BENJ. C. SHELDON

It is unnecessary to state that the conditions surrounding the formation of Crater Lake, as given us by scientists, preclude the possibility of fish being native to its water. The excellent fishing now to be enjoyed is the result of faithful planting of "fingerlings" year after year and their natural increase.

In 1888, Will G. Steele, the "Vicar of Crater Lake," undertook to carry some trout fry, caught in a small tributary of the Rogue River a short distance below Prospect, to the lake. He made the entire distance on foot. Starting with a tin pail well filled and changing the water frequently at the streams passed on the trip, he found, on reaching the lake, that only 37 of the fingerlings were alive. Thus was Crater Lake first "stocked" with fish.

Largely through Mr. Steele's persistence other plantings of the fry of rainbow trout and black-spotted trout were made in subsequent years. Of late, from 25,000 to 30,000 fry per year have been added to the natural increase of former plantings until the lake is thoroughly stocked with these two popular varieties of game fish. These fry have been obtained from the hatchery at Trail on Rogue River, operated by the U. S. Bureau of Fisheries, and from the Klamath hatchery of the Oregon Game Commission.

During the early years of attempting to stock the lake with fish, there was considerable doubt as to

whether they would prove able to propagate and multiply in the unusually cold waters of the lake. This query has been settled in a most decided affirmative. In the relatively shallow waters off Wineglass, naturally hatched fry in large quantities may be seen during the spring months.

Early in the season, fish may be caught from the shore, but during most of the period of tourist visitations, good catches require casting or trolling over the deeper waters from a boat. An ample supply of suitable tackle and boats is maintained by the management of the Crater Lake Lodge.

The expert fly casters, accustomed to the vagaries of the western trout, prefer to match their skill against the denizens of Crater Lake with the fly. But to the average visitor, trolling with a spoon or spinner will be found more satisfactory.

The rules of the National Park Service fix the fishing season at the lake from July 1st to September 30th. Five fish per day per person is the legal limit allowed. This may seem small to the easterner accustomed to trout averaging from six to ten inches in length, but after he has pulled in five rainbow, weighing from two to five pounds each and frequently measuring 30 inches, he will feel that he had had "a day of real sport."

During the 1921 season 2,617 visitors registered in Crater Lake National Park.

deer winter along the Umpqua River, where they furnish meat for poachers during the winter months.

An occasional cougar has been seen; but constant warfare is waged against these marauders. Dogs must be used to hunt them, as it would be an accident to find one in any other way. Any dog that will follow a cougar's trail will tree him.

Coyotes are often heard but seldom seen. It would be hard to estimate the destruction of birds and small mammals traceable to these cowardly pests, and every effort is being made to exterminate them by fair means or foul.

Red foxes are quite numerous, as indicated by their tracks; but owing to their sly habits are seldom seen. What is commonly known as a cross fox has been seen occasionally near the lake, and in 1920 a trapper caught two just east of the park.

Marmots are seen in great numbers in most of the big rock slides, where they find shelter from hawks that constantly war upon them.

A few colonies of conies are to be found among the rock slides; one pair made their home near the ranger cabin at Anna Spring and the ranger put more reliance in their characteristic "eh, eh," before an approaching storm than he did in the barometer. It has been reported that conies have been seen on Wizard Island. How they got there is a mystery.

We have several species of squirrels and chipmunks. Probably the best known is the golden chipmunk, many of which have become tame enough to eat peanuts and other edibles from the hands of

visitors. The Oregon chipmunk, pine and ground squirrels are also plentiful, but only an occasional gray squirrel is seen. The Chipmunk hibernates during the winter. They have been found curled up like a ball and apparently dead, but soon revive when warmed. Squirrels may be seen any nice day in winter if the sun is warm enough to suit them.

Martin and mink are quite numerous, especially the latter. They are found along the streams south and west of the lake. The efforts of trappers to encroach upon the park is a good barometer of the prices paid for the pelts of these little creatures.

Porcupines are plentiful, and as most people observe the unwritten law protecting them, they are seldom molested. Stock, especially cattle, are curious creatures and when investigating a porcupine they occasionally get too close and a swat of his tail may leave hundreds of quills in the bovine's face. Sometimes this prevents the animal from feeding until the quills are extracted, an operation which is performed with difficulty; so we may forgive the stockman for showing no mercy in his dealings with a porcupine.

The cottontail and snowshoe rabbits are the only species known to inhabit this district. The cottontails are very numerous along the west boundary, and no doubt furnish the food which enables coyotes and foxes to remain in this locality during the winter.

There are several varieties of rats, mice and gophers in the park; but as the writer lays no claim

to a knowledge of biology, no attempt has been made to classify them. However, the pack, trade, or wood rat deserves special mention, because they seem to be established here in all their glory, where they take possession of a warehouse and trade spikes, nails, insulators, knives, forks, spoons, etc., during the long winter months without molestation. It is interesting to note the heaps of things they pile up during these months; anything bright, like a watch, or jewelry of any kind, soon disappears where a pack rat ranges.

The park is probably too high, or the summer too short for some members of the bird family, but we have a few. The Bluejay, Clark crow, Oregon jay or camp robber are probably the best known, because of their friendliness and tendency to forage. Their raucous cawing and chattering is almost continuous in the vicinity of camps.

The red-tailed hawk is an all summer visitor, and he makes life uncertain for chipmunks, squirrels and marmots. Individuals of this tribe have been known to kill and carry off marmots more than twice their own weight. A small species, presumed to be the sharp-shinned hawk, is found here in limited numbers.

Bald and golden eagles have been seen soaring high above the lake and seemingly disdain to light on any but the highest peaks.

At least two species of owls are found here; the small hoot owl, and horned owl, whose "Hoo-hoo-who-ho" is often heard at night.

What is commonly known as blue grouse is the only species known to inhabit the park, and there are only a few of them.

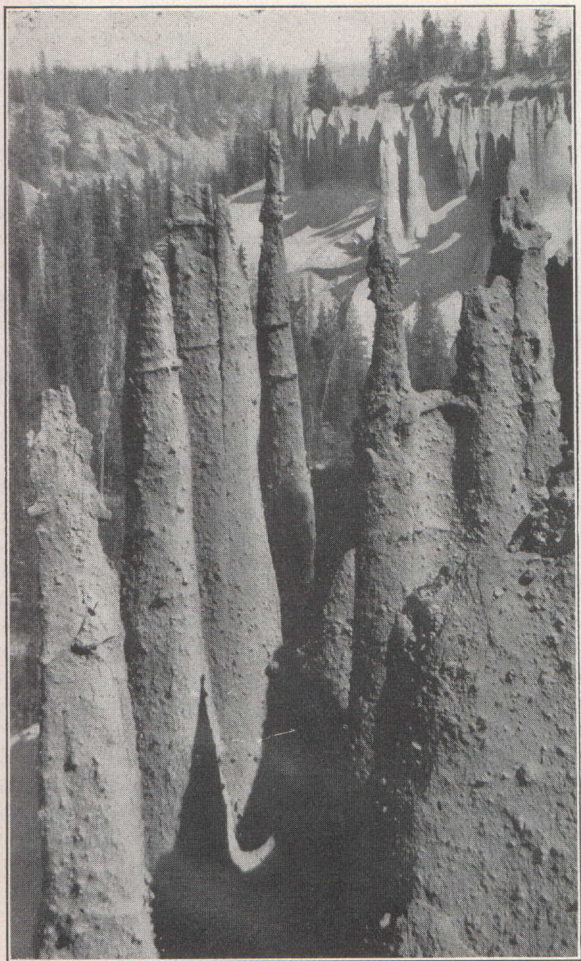
The buzzard, or turkey vulture, does not seem to be a regular inhabitant of this locality; but during the summer of 1921 one alighted near Government Camp and sedately walked off into the timber. His reason for landing in close proximity to where camp activities were going on could not be determined.

Robins, thrushes and at least two species of woodpecker are plentiful. Nuthatches, wrens, finches, warblers, swallows, humming birds, sparrows, and, along the openings at the lower levels, meadow larks may be found. Along the water courses and the lake shore, the water ouzel is seen and a few gulls and ducks visit the lake in summer. A few ducks have nested and reared their young along the shore of the lake.

It is not known that snakes of any variety have been seen in the park; this is probably due to the high elevation and short summer.

WIZARD ISLAND

There is a good trail from the hotel to the lake and a trail to the top of Wizard Island, whose cone is 763 feet above the water. The depth of its crater is 100 feet and the crater's diameter is 500 feet. It is approximately 1.5 miles from the Lodge by trail and then two miles by boat.



Courtesy Southern Pacific Lines
PINNACLES, SAND CREEK CANYON

WILLIAM GLADSTONE STEEL

By COLISTA M. DOWLING

One might say that William Gladstone Steel discovered Crater Lake to Oregon and the world. While he was a young lad living in the east he heard somewhat of the marvelous lake situated in the heart of an extinct crater.

It appealed most vividly to his imagination and his one great desire was to behold it with his own eyes. He came west to Oregon, but the lake was as visionary as ever; no one he met seemed to know its location.

The story of its discovery is rather amusing. Somewhere in southern Oregon was a gold mine claim called the Lost Cabin mine. A party of California prospectors, eleven in number, came up to re-locate it. Drink revealed their secret mission, and an equal number of Oregon men formed a band to trail them. The Californians soon discovered that they were being followed and after much maneuvering to escape their pursuers, gave up. The two parties then joined and continued their quest together, and, because John W. Hillman was riding the best mule in Southern Oregon, he came first upon the lake. "If the mule had not stopped at the brink he would have ridden right down to destruction," says Joaquin Miller. This happened in June, 1853. Mr. Hillman called it Deep Blue Lake. It was also called "Hole-in-the-Ground" and "Mysterious Lake."

After years, seven, in fact, of search and inquiry Steel at last stood upon the brink of this stupendous phenomenon. More than satisfied with its marvelous beauty, its defense and protection became an obsession with him. He began a movement in 1885 to make it a national reserve. At this time very few people anywhere, even in Oregon, had heard of Crater Lake. A letter appearing in the *Oregonian* by J. M. Breck, Jr., one of Steel's party, attracted wide attention. Mr. Steel published letters concerning it in many periodicals. He sent out one thousand circular letters describing the lake, together with letters to the editors, making a plea for the park. These were published in nearly all the large dailies of the United States. Letters were sent to all the editors and postmasters in Oregon asking for signatures to this petition. Copies of 112-page book, entitled "The Mountains of Oregon," were sent to the President, cabinet members, Congress and the newspapers. Mr. Steel himself appeared before President Cleveland, with the petition; in fact, everything was done to call attention to the lake.

On January 30, 1886, the President issued a proclamation withdrawing from the market the ten townships surrounding and including the lake. The request for a United States Geological Survey was asked and granted during the same year. Captain Clarence E. Dutton, accompanied by Captain George E. Davis, conducted the expedition. Steel was invited to join and was in charge of the boat building,

which was done in Portland. The party sounded and surveyed the lake, finding that the bottom presented almost a level plain.

Senator Dolph, on June 18th of this year, introduced a bill in the Senate making Crater Lake National Park, but opposition was so great, he feared that Congress would not pass the bill, so favored giving the land to Oregon in trust for a park. Mr. Steel objected, feeling that the state would not maintain it. The result was little or no progress for years.

Very few would have had enough love and determination to carry them through long years of discouragement and failure. Steel did. His perseverance was monumental.

When Senator Thomas H. Tongue entered Congress he energetically took up the project, but little was really accomplished until 1901. The bill making it a National Park was passed by Congress, May 22, 1902, just seventeen years after Steel took upon himself the beneficent project for which Oregon and the whole world should feel exceedingly grateful. It is difficult to estimate the energy, time and money expended by this benefactor. He has set an example in social service that should and will be appreciated more as time passes.

Superintendents of Crater Lake National Park and date of appointment:

| | |
|--------------------|------|
| W. F. Arrant | 1902 |
| W. G. Steel | 1913 |
| Alex Sparrow | 1917 |

PLACE NAMES OF CRATER LAKE NATIONAL PARK

By WILLIAM GLADSTONE STEEL

Anderson Spring—Named by Capt. O. C. Applegate in 1888, for Frank M. Anderson.

Annie Creek—So named in 1865 for Miss Annie Gaines, who, with Mrs. O. T. Brown, were the first women to reach the water of Crater Lake, Miss Gaines reaching it first.

Applegate Peak—Elevation 7,115 feet. Above the water, 1,938 feet. Named for Capt. O. C. Applegate, of Klamath Falls.

Bald Crater—Elevation 6,474 feet. It is an extinct crater with no timber on top.

Butterfly Slide—Discovered and named by Mrs. Sumpter de Leon Lowry, of Tampa, Florida, August 10, 1916, and so named for the reason that the reflection, added to the slide in front of Dutton Cliff, makes the form of an immense butterfly.

Castle Creek—Originally known as Crack Creek, because of the depth of the canyon and steepness of the sides. Called Castle Creek because of the sharp pinnacles, or spires, within the canyon.

Chaski Bay—A Klamath Indian name for one of their sub-gods. Named by Will G. Steel.

Cleetwood Canyon—The Cleetwood, the boat used to sound the lake, was launched down this canyon, which was so named by Will G. Steel in 1886.

Cleetwood Cove—A name dreamed by Will G. Steel, then given to the boat with which the lake was sounded. The cove was named for the boat.

Cloud Cap—Elevation 8,070 feet. Above the lake, 1,893 feet. So named by J. S. Diller, because of its high dome.

Copeland Creek—Named for Hiram Copeland of Fort Klamath.

Crater Lake—Discovered by John W. Hillman and a party of prospectors, June 12, 1853, and named Deep Blue Lake. Discovered again October 21, 1862, by Chauncy Nye, J. W. Sessions, H. Abbott, J. Brandlin and James Leyman, and named Blue Lake. It was again discovered in July, 1865, by two hunters from Fort Klamath and named Lake Majesty, a name which was retained until a party of visitors from Jacksonville in August, 1869, named it Crater Lake. Depth, 1,996 feet.

Crater Peak—Elevation 7,265 feet. So named by the U. S. Geological Survey, because of its little extinct crater.

Dead Indian Road—About 1854, a few settlers of the Rogue River Valley went to the mountain valleys now called Dead Indian, and in one of them found two or three deserted wigwams, in one of which were the bodies of two Indians, supposed to have been Rogue Rivers. There was bad blood between the tribes and this was accepted as mute evidence that hunting parties had met.

Desert Cone—Elevation 6,651 feet. So named because of the appearance of the immediate vicinity.

Dutton Cliff—Elevation 8,150 feet. Above the water, 1,973 feet. Named by Will G. Steel in August,

1886, for Capt. Clarence E. Dutton, then in charge of the surveying party.

Dyar Rock—Named by Capt. Oliver C. Applegate in 1872 for Leroy S. Dyar, of Ontario, California, then Indian Agent on the Klamath reservation and later a member of the Modoc Peace Commission. He was the only commissioner who escaped uninjured, when attacked by Capt. Jack and other Modoc Indians in the Lava Beds, April 11, 1873, at which time Gen. E. R. S. Canby and Dr. E. Thomas were killed and Chairman A. B. Meacham was wounded and left for dead.

Garfield Peak—Named by Will G. Steel for James R. Garfield, then Secretary of the Interior, July 15, 1907. Mr. Garfield was the first cabinet officer to visit Crater Lake.

Goodbye Bridge—So named by U. S. Marshal Leslie M. Scott, July 22, 1913, because it was the last piece of work in the park by W. F. Arant, the retiring superintendent. The creek was named for the bridge.

Grouse Hill—Elevation 7,401 feet. So named by the U. S. Geological Survey, because of the abundance of grouse there.

Hillman Peak—First known as Maxwell Peak, for Sir William F. Maxwell, of Edinburgh, Scotland, who explored the Crater Lake region in early days. Then called Glacier Peak. Later named for John W. Hillman, who discovered Crater Lake June 12, 1853.

Kerr Notch—(Pronounced Car.) Named for Mark

B. Kerr, Chief Engineer when Crater Lake was surveyed and sounded in 1886.

Llao Rock—Elevation 8,046 feet. Above the lake, 1,869 feet. Named by Will G. Steel, August 15, 1885, for the Indian deity, supposed to be the especial guardian of the lake.

Mount McLoughlin—Elevation 9,760 feet. Named by Donald McKay in 1832, for Dr. John McLoughlin, then Factor of the Hudson Bay Company at Fort Vancouver, commonly referred to as the Father of Oregon. So designated by resolution of the Oregon Legislature in 1905, by the Oregon Geographic Board and the U. S. Geographic Board. Same as Mount Jackson of 1846. At one time known locally as Snowy Butte.

Maklaks Pass—From the Klamath word Muck-lux, signifying Person, or People.

Mount Mazama—On August 21, 1896, Miss Fay Fuller, then of Tacoma, christened the mountain at a meeting of the club on the rim of the lake, naming it for the Mazamas.

Mount Thielsen—Elevation 9,250 feet. So named by John A. Hurlburt in 1872, for Hans Thielsen of Portland.

Munson Point—Named for Dr. Munson, Physician at Klamath Agency, who died on this point in 1872 from over-exertion in scaling a precipitous mountainside. His companions were Sir William F. Maxwell, of Edinburgh, Scotland, and a Mr. Bently of Toledo, Ohio. The name was given at the time by Capt. O. C. Applegate, who was one

- of the Agency party to remove the body.
- Pole Bridge Creek*—So named in 1865, when it was hastily bridged by soldiers, with lodge pole pine.
- Red Cone*—Elevation 7,372 feet. So named because of its color when seen at a little distance.
- Rock of Ages*—Named by Will G. Steel October 12, 1918, when passing over the Rim Road for the first time, accompanied by his daughter Jean and Mr. and Mrs. Schenck.
- Sand Creek*—Named thus because of its dangerous quicksands.
- Mount Scott*—Klamath name Muckwulx, meaning a place where chiefs sleep. Named for Capt. Levi Scott, a member of the Oregon Constitutional convention. He was with Jesse and Lindsay Applegate and twelve others in the initial exploration of Southern Oregon in 1846. Elevation 8,938 feet. Above the lake, 2,761 feet.
- Skells Head*—Named by Will G. Steel in 1908 for the Indian deity of the plains.
- Steel Bay*—Named by J. S. Diller for Will G. Steel.
- Timber Crater*—Elevation 7,360 feet. So named by topographic engineers of the U. S. Geological Survey, because it is an extinct crater and has timber on its sides.
- The Watchman*—This name given for the reason that when the lake was being sounded a party of engineers was stationed on the summit to receive signals and record the location of soundings. They were watching for signals.
- Union Peak*—Party naming it consisted of Chauncey

Nye, H. Abbott, S. Smith, J. Brandlin, James Leyman and J. W. Sessions, October 21, 1862. Elevation 7,698 feet.

Victor Rock—Named for Mrs. Frances Fuller Victor, the historian, who visited Crater Lake in 1872.

Waupeg Camp—In the summer of 1865 members of Company I, 1st Oregon Infantry, then engaged in the construction of a road connecting Jacksonville with Fort Klamath, named this place. A corruption of the word Wopp (invented by the cook). A member of the company found a large pumice stone of egg-shape, then trimmed it until it was a good representation. While the men were off during the day, the cook put a hole through it lengthwise, then climbed a tall lodge pole pine, cut off the slender top and inserted the remainder through the egg. He then trimmed off the limbs as he descended, leaving a tall pole with an egg on top. When the men returned to camp they were informed that an immense bird called the Wopp, had flown over and stopped long enough to deposit the egg.

Wheeler Creek—Named for James H. Wheeler of Fort Klamath.

Wine Glass—So named by J. S. Diller, because of its shape at a distance.

Witches Cauldron—Named by Will G. Steel, August 17, 1885.

Wizard Island—763 feet high. So named by Will G. Steel, August 17, 1885, because of its weird appearance.

THE KLAMATH LEGEND OF LLAO

O. C. APPLGATE

In *Steel Points* for January, 1907

According to the mythology of the Klamath and Modoc Indians, the chief spirit who occupied the mystic land of Gaywas, or Crater Lake, was La-o. Under his control were many lesser spirits, who appeared to be able to change their forms at will. Many of these 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 tourist of the primal days.

The spirits or beings who were under the control of La-o assumed the forms of many animals of the present day, when they chose to go abroad on dry 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; all these forms, however, were largely or solely subject to the will of Komoo'kumps, the great spirit.

Now, on the north side of Mount Jackson, or La-o Yaina (La-o's Mountain), the eastern escarpment of which is known as Llao Rock, is a smooth field, sloping a little toward the north, which was a common playground for the fabled inhabitants of Gaywas and neighboring communities.

Skell was a mighty spirit, whose realm was the Klamath Marsh country, his capital being near the Yamsay River, on the eastern side of the marsh. He had many subjects who took the forms of birds and beasts when abroad on the land, as the antelope, the bald eagle, the bliwas or golden eagle, among them many of the most sagacious and active of all the beings then upon the earth.

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 was carried in triumph to La-o Yaina. Then a great gala day was declared and even the followers of Skell were allowed to take part in the games on Mt. Jackson, and the heart of Skell was tossed from hand to hand in the great ball game in which all participated.

If the heart of Skell could be borne away so that it could be restored to his body, he would live again, and so with a secret understanding among themselves the followers of Skell watched for the opportunity to bear it away. Eventually, when it reached the hands of Antelope, he sped away to the eastward like the wind. When nearly exhausted, he passed it to Eagle, and he in his turn to Bliwas, and so on, and, although La-o's followers pursued with their 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 then they gave up the useless pursuit.

Skell's heart was restored and he lived again, but the war was not over and finally La-o himself was overpowered and slain and his bleeding body was born to the La-o Yaina, on the verge of the great cliff, and a false message was conveyed to La-o's monsters in the lake, that Skell had been killed, instead of La-o, and when a quarter of the body was thrown over, La-o's monsters devoured it, thinking it a part of the body of Skell. Each quarter was thrown over in turn, with the same results, but when the head was thrown into the lake, the monsters recognized it as the head of their master and would not touch it, and so it remains today, an island in the lake, to all people now known as Wizard Island.

LEGEND OF THE LLAOS

By WILLIAM GLADSTONE STEEL

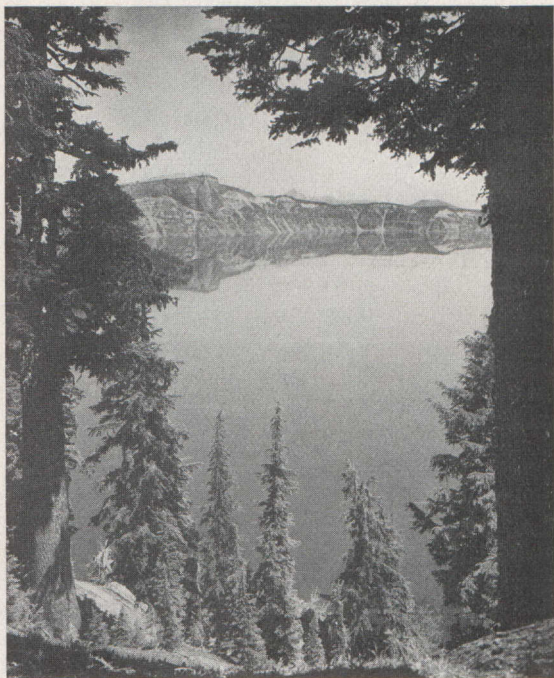
[While at Fort Klamath, in 1885, the writer obtained from Allen David, then chief of the Klamath Indians, the following tradition. When telling the story, David placed his partly closed hands before him to describe the rock on which the Indian's throat was cut by Llaos. Next day Llaos Rock was named, and needs but to be seen, with this explanation, to understand the reason why.]

“A long time ago, long before white men appeared in this region to vex and drive the proud native out, a band of Klamaths, while out hunting, came suddenly upon the lake and were startled by its remarkable walls and awed by its majestic proportions.

With spirits subdued and trembling with fear, they silently approached and gazed upon its face; something within told them that the Great Spirit dwelt there, and they dared not remain, but passed silently down the side of the mountain and camped far away. By some unaccountable influence, however, one brave was induced to return. He went up to the very brink of the precipice and started his campfire. Here he laid down to rest; here he slept till morn—slept till the sun was high in air; then arose and joined his tribe far down the mountain. At night he came again; again he slept till morn. Each visit bore a charm that drew him back again. Each night found him sleeping above the rocks; each night strange voices arose from the waters; mysterious noises filled the air. At last, after a great many moons, he climbed down to the lake and there bathed and spent the night. Often he climbed down in like manner, and frequently saw wonderful animals, similar in all respects to a Klamath Indian, except that they seemed to exist entirely in the water. He suddenly became hardier and stronger than any Indian of his tribe because of his many visits to the mysterious waters. Others then began to seek its influence. Old warriors sent their sons for strength and courage to meet the conflicts awaiting them. First they slept on the rocks above, then ventured to the water's edge, but last of all they plunged beneath the flood and the coveted strength was theirs.

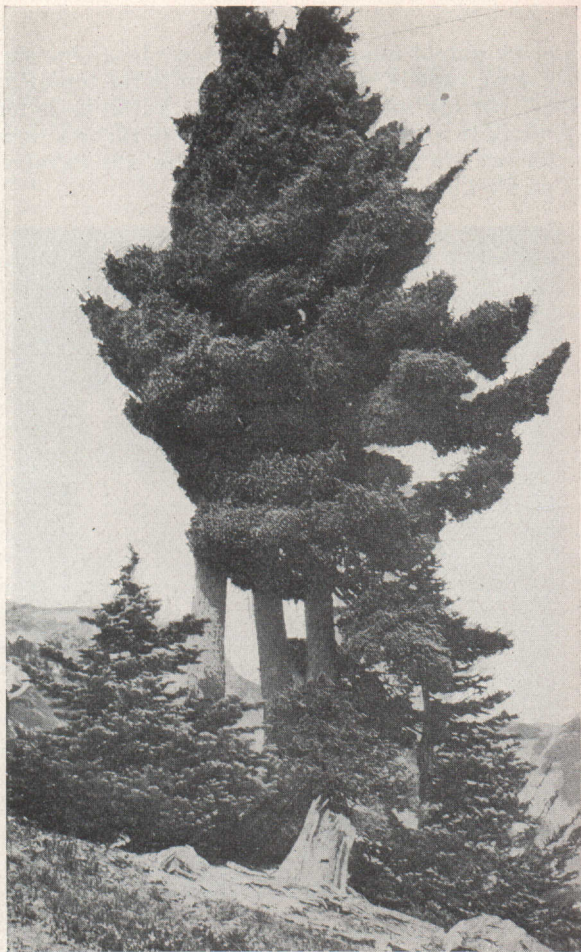
“On one occasion the brave who first visited the lake killed a monster, or fish, and was at once set

upon by untold numbers of excited Llaos (for such they were called), who carried him to the top of the cliffs, cut his throat with a stone knife, then tore his body in small pieces, which were thrown down to the waters far beneath, where he was devoured by angry Llaos."



Courtesy Southern Pacific Lines

LLAO ROCK, CRATER LAKE



Courtesy National Park Service, Department of the Interior
MOUNTAIN HEMLOCK

CONIFEROUS TREES OF CRATER LAKE PARK

Western Red Cedar

Tapering tree; cinnamon-brown bark; small cones with broad scales; found on the west slope of the divide.

Incense Cedar

A large tree with light brown fibrous bark; a massed conical crown; found, though in small numbers, in forests of pine and fir near the southern boundary of the park.

Englemann Spruce

A small tree growing in moist places; found in Annie Creek Canyon and along other streams.

Western Hemlock

Smooth, round, red-brown trunk; with small cones and delicate foliage; found in some of the canyons and on the shaded slopes.

Mountain Hemlock

A short, thick tree, twisted and bent, carrying a great many cones, which are about 2 inches long; foliage is feathery and bark is brown and deeply furrowed; great numbers grow between Annie Spring and the lake. It is also found on the high slopes along with the Alpine fir and White-bark pine.

Alpine Fir

A small tree with a spire-shaped crown; a bark that is white, hard, thin and smooth. It grows in the higher parts of the park, thriving best where snows and winds are most hostile, and is found even on the inner rocky crater walls.

Silver Fir

Its bark is smooth and gray, not broken or ridged except in the largest specimens. The Crater Lake region is the extreme southern limit of this tree's range.

Shasta Red Fir

Has a large, round, red-brown trunk; has 5-inch cones with short yellow bracts between its scales; is found at an altitude of 6,000 feet to 8,000 feet among other species of trees. On the Rogue River side it grows as low as 4,000 feet.

White Fir

The cones grow in thick clusters upright at top of tree or branch tips; the bark is gray and furrowed and crown cone-shaped. It grows close to the sugar pine, mainly along the southern side of the park; is found only as high as 6,000 feet, in any place.

Douglas Fir

Its needles grow close on all sides of the twigs; the color of its corky bark is dark to light brown and is rough and ridge-like. Its distinctive feature is the large number of pendent, pointed cones with thin, crinkled scales and long three-pointed bracts projecting over each. It is found in the yellow pine forests and extending to an altitude of 6,000 feet or more.

Yellow Pine

This three-needle pine is one of the most striking trees in the park. The bark is marked in irregular

patches of a soft reddish brown color, enabling one to identify it easily.

Sugar Pine

The bark is darker than that of the yellow pine, is thick and deeply furrowed. Its huge cones and fine needle clusters help in its identification. It grows at slightly higher altitudes than the yellow pine but, like it, is found mainly in the extreme southern part or outside, particularly on the road from Medford.

Lodgepole Pine

This is very abundant both among other larger trees and alone in forests. It is the only Pacific coast pine with needles in clusters of two. The cones are small and prickly, the bark checkered and reddish-brown. It forms a good setting for the pinnacles and spires of Annie Creek Canyon; many grow right on the rim of the crater.

White-bark Pine

On the highest timbered points of the rim with the Alpine fir and Mountain hemlock is found this tree. Bark is white; it has five needles in a cluster; its cones are small; it is found on Wizard Island.

Western White Pine

This is also a five-needle pine and grows in the higher altitudes; the bark of its round trunk is brown and blocked and its pendent cones grow at the ends of the limbs.

Other common trees of the Crater Lake region are the Willow, Alder, Black Cottonwood, Dogwood and Oregon Yew.



Courtesy Southern Pacific Lines

CRATER LAKE LODGE

THE LADY OF THE WOODS

By ANNE SHANNON MONROE

We came upon her in the deep woods not a quarter of a mile from Government Camp, near the rim of Crater Lake,—this lovely “lady of the woods,”—carved life size on a great boulder, apparently the work of a gifted sculptor, for the lines of the figure were as nearly perfect as one could imagine their being made in the coarse, unwieldy medium. This was in August, 1921, during the annual Mazama encampment. On a slightly sloping piece of ground under great fir trees, aloof from trails or roads or any reason for travel, the statue instantly arrested thought. How came it there? Who did it? Why, in the lost depths of the woods? We examined every inch of its surface, but could find no tell-tale marks,—nothing save an arrow carved low on the base. And yet it had a message: it seemed to speak to us; to make the quiet of the woods still more quiet. Following publicity given it, later, in the *Oregonian*, together with a reproduced pencil sketch, the “mysterious sculptor” was finally unearthed. The following extract from a letter written by Dr. Earl R. Bush, of the U. S. Public Health Service, to the writer, is self explanatory: “. It pleases me that you are one of the MAZAMAS, of whom I have heard so much. Since you were the first one to discuss the merits of the statue it seems no more than right that you should likewise solve the mystery by receiving an official account of the

details surroundings its accomplishment.
The statue as it is today was conceived and executed
between October 4 and October 19, 1917. It took as
many hours of labor each day as my right arm would
tolerate. Unfortunately I was compelled to leave it
uncompleted as a longer stay in the
mountains would have been hazardous.
This statue represents my offering to the forest, my
interpretation of its awful stillness and repose, its
beauty, fascination, and *unseen life*. A deep love of
this virgin wilderness has fastened itself upon me
and remains today. It seemed that I must leave
something behind if it arouses thought
in those who see it, I shall be amply repaid. I shall
be satisfied to leave my feeble attempt at sculptural
expression alone and unmarked, for those who may
happen to see it and who may find food for thought
along the lines it arouses in them individually. It
would be sacrilege to assign a title and decorate it
with a brass plate."