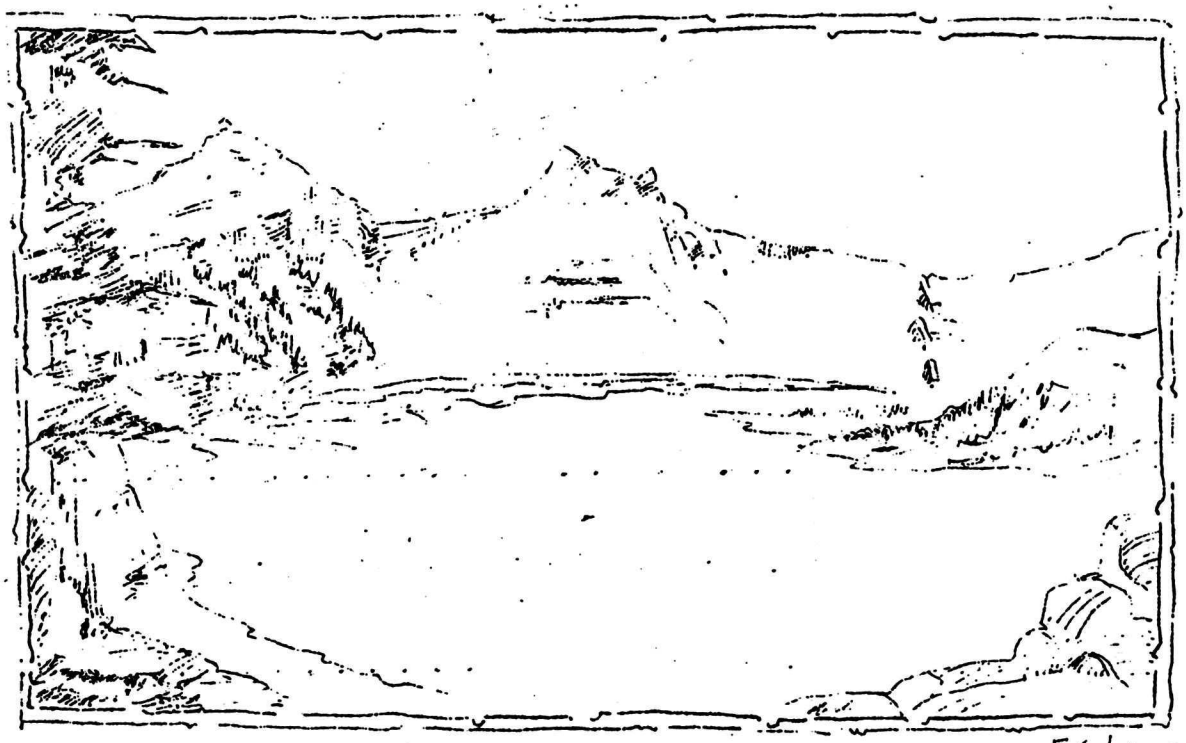
NATURE NOTES
From
CRATER LAKE NATL. PARK



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Cover Design - Wizard Island and the Lake as seen from Crater Wall Trail.
- Francis G. Lang, Landscape Architect.

A PREFATORY NOTE

An effort has been made to give unity to this issue of Nature Notes by a consideration of the different elements involved in the appreciation, information, and enjoyment to be derived from a small section of Crater Lake National Park. Since the Naturalist Division maintains, among other guided trips, a scheduled Ranger-Naturalist conducted hike and boat trip to Wizard Island, the area was selected for consideration in this issue. Because of its unique situation, its interesting biotic features, and its meaningful esthetic values, Wizard Island was chosen. The reader will find that the articles herein contained represent the meaning or significance of Wizard Island as taken from the notes of the geologist, the ornithologist, the botanist, and the artist.

The National Parks were established for the use and enjoyment of the people. It is hoped that this material will contribute to that ideal by motivating the use of this Park and contributing to the understanding of it. To summarize briefly, this issue represents a research problem in appreciation.

The Editors

THE GEOLOGY OF WIZARD ISLAND

Hugh H. Waesche

The visitor to Crater Lake who wishes to make the trip to Wizard Island must first descend a trail which goes down from the rim of the lake by a gradual grade and numerous switchbacks. This trail is 1.6 miles long. It is an easy descent and the casual observer cannot refrain from looking at the rocks along the way. The close view of these though, would mean little to the untrained person. There is exhibited at various elevations and in no regular succession a series of rocks which in some places are much jointed lava flows and in other places masses of heterogeneous, fragmental materials. They are colored red, brown, yellow, and gray, and the lavas are known as andesites. The fragmental material is known as agglomerate. The rim of Crater Lake at the trail is 900 feet above the water.

On entering the boat, the first inclination is to look into the water to see if it is as blue as when seen from the Rim. Toward the center as viewed horizontally, the Lake is as blue as ever. Under the boat, it is somewhat startling to find that the water is quite clear, but that objects beneath its surface are surrounded by a halo of rainbow colors. It is likewise startling to see that the shore slopes off precipitously into the Lake. Indeed, the slope seems to be as steep below the water as on the walls of the Lake. Within a few feet of the shore the water becomes too deep to observe the rocks below, but whenever seen they appear to be boulders of various sizes and shapes, apparently derived as talus from the slopes of the Rim above. At best there are only a few beaches around the Lake. At the boat landing there is a pseudo-beach which is really a detrital fan of coarse talus about one-hundred to one hundred and fifty feet in width. The trail descends through a steep weathered valley to the water's edge. The beach talus accumulation is derived from materials which have rolled down this valley.

As one looks back up the steep wall down which he has come and then follows it around the complete circle of the Lake, he begins to realize with some feeling of awe that he is doing something different, something that is not the usual thing. He is down inside of a volcano where its actual structure may be seen. Any direction one looks, layers of lava and agglomerate greet the eye, piled layer on layer, to the very top of the Rim. To the left of the boat as it moves toward Wizard Island and about halfway up the Rim may be seen one outstanding layer running all the way from the trail to The Watchman. Usually the layers are warped downward as though they had filled in pre-existing valley floors and in nearly all cases they have a tabular appearance, often curved, caused by cooling during flowage or by jointing from later pressures. As the boat continues, new views appear which had been hidden by promontories.

Not only is the observer seeing the cross-section of a once quite active volcano, but he is likewise in the heart of what was formerly a majestic mountain peak, Mt. Mazama, which towered above the surrounding country. It must have been 14,000 or more feet in height and may have rivaled Mt. Shasta, Mt. Rainier and other Cascade peaks in grandeur.

The angle of slope of the lava beds away from the lake rim, the glacial valleys, and the lava filled valleys, all indicate the existence of such a peak. What a sight it must have been until finally it was destroyed, preparing the way for the present scenery. But how was it destroyed? There are several ways this might have happened. The two most accepted theories are explosion and subsidence. Numerous volcanoes are known to have exploded, blowing large portions of their cones into the air leaving craters where a mountain had been. It is possible that Mt. Mazama may have done this, but many geologists refute this because they cannot find enough fragmental material in the surrounding country, which would result from such an explosion, to account for it. Many geologists think that such was the case; others prefer to think that the mountain caved in upon a receding mass of lava in its vent. Others think that possibly the process of destruction was similar to the enlarging of craters now going on in the Hawaian Islands today by a process of undermining. In the latter case the molten lava in the conduit rises and falls and in so doing corrodes the walls of the crater as well as fracturing them, thus gradually enlarging the crater by encroachment. However Crater Lake may have been formed, the problem is complex. Evidences are confused and meagre so that a true understanding is difficult. In any case, a former mountain did exist, and it was subsequently destroyed, and the yawning crater some five miles across has been filled by the rains and snows of countless years to reach the conditions now seen.

Returning to present observations, near Discovery Point there appears a new type of rock. This is a narrow dark rock which cuts at an angle across the lava layers. This is an andesite dike and is made up of material similar to that of the lavas, but it is much younger and is of different origin. The lavas flowed down the slopes of the old volcano, Mt. Mazama, but the dike in a molten condition was forced into a zone of weakness in the Crater wall in a nearly vertical position. As the molten rock welled up in the vent of the volcano, the pressure became very great below, and this pressure exhibited itself in dike formation. It may be noticed that the lava flows have their jointing in a vertical direction; those of the dike are horizontal, giving the appearance of piled cord wood. A very prominent dike known as the Devil's Backbone may be seen standing out from the Rim beyond Wizard Island and toward Llao Rock.

At almost every point around the Lake may be seen steep slopes of loose material which seems to have slid down from the Rim. These are known as talus slopes and are the result of weathering of the lavas, causing slide material to accumulate at the greatest angle of repose. The action of the rain and air on the materials composing the talus has caused their iron content to reach several stages of oxidation. In other words, the rocks have rusted and the tints of yellow, red, brown, and gray tell a story of varying oxygen content. A very striking example of this is seen in the wide talus slope beneath the pinnacles of The Watchman and Hillman Peak, southwest of Wizard Island. These peaks are themselves the result of the erosional activities of weathering. In connection with weathering activities it will be observed that the plant life along the Rim both aids and prevents erosion. Erosion is speeded up by growing plants which send their roots into the joints of the lava beds and break them off by the pressure exerted. The life processes cause plants to generate certain acids which help break down the rocks by chemical action. On the other hand, the matted nature of some of the plant life, as well as the binding action of the root systems, helps prevent disintegration of the rim slopes.

By this time the boat will have reached Wizard Island itself. Here one is greeted by a new bit of scenery. At the boat landing the visitor is confronted by a black, broken, and irregular mass of rock. This is an andesite lava which has flowed out of the volcanic cone which is Wizard Island. It apparently did not come from the summit of the cone, but came out of its side at or near the level of the lake. It is possible that the Lake was present at that time and the lava may have flowed into the water, but the absence of vertical pillow structure would seem to indicate that the Lake had not yet formed. At any rate it cooled rapidly. It is evident that the cooling was much more rapid on the surface, since it seems that the jumbled mass over which the Island explorer must climb is the broken surface of a flow which continued to move after its surface had frozen enough to be fractured by sub-surface movement. The flow was quite irregular as to directional movement because the shore of the island is irregular, forming numerous bays and inlets. The lava is often of a vesicular or perous nature. It is also quite hilly and rugged.

Close examination of the broken lavas show them to have a dense texture and a nearly black color. Scattered through the black mass may be seen light colored, lath shaped crystals. These crystals are feldspars, one of a group of major igneous rock-forming minerals. Such a texture, in a rock where larger minerals (phenocrysts) are found in a dense or glassy groundmass, is called porphyritic. This type of texture is further evidence that the lava cooled rather rapidly. A rock which has cooled very slowly is made up completely of crystallized minerals; one which has cooled very quickly is glassy, containing no definitely recognizable minerals. Rocks are colored by their chemical constituents which are directly related to their mineral compositions. Minerals like the feldspars, containing sodium, potassium, aluminum, silicon and oxygen, are light colored and where predominant, produce light colored rocks. On the other hand, the ferromaghesian minerals such as biotite, hornblende, and pyroxene, high in iron, calcium and magnesium, are dark colored and tend to make rocks black. Where these two extremes are about equal, the rock is intermediate in color and composition. The rocks on Wizard Island and in the walls of Crater Lake belong to such an intermediate group.

The trail up the slope of the miniature volcano leads across this flow which is around the entire southwestern edge of the island. As the "explorer" continues upward along the trail, the character of the rocks changes to loose ash, pumice and scoria. These vary in color through shades of black to bright red. Such an accumulation indicates that the cone of Wizard Island was the site of explosive activity where the material was blown into the air and settled around the vent to build up the cone. Walking here becomes somewhat difficult. The angle of slope of the cone is as much as thirty five degrees. It is therefore typical of the usual cinder cone.

The steep slope of Wizard Island does not stop at the water's edge. It must be remembered that the island has been built up from the floor of the lake which is 2000 feet at its greatest depth. This means that Wizard Island is itself quite a substantial volcano over 2700 feet high. It is a monument to the last volcanic activity of this immediate vicinity. Here is a case of a volcano within a volcano. There are two other smaller cones now submerged in the lake which were probably contemporaneous with the Wizard Island cone. They are east of the larger vent and were discovered when the Lake was sounded in 1886.

As one nears the summit of Wizard Island there may be seen on the Rim to the west the dark-mass of Llao Rock capped by a light yellowish material. The base of the rock cannot be seen but it is of interest because it is a different type of lava from the others so far noticed. It is younger and is the type called a dacite; that is, it contains a little more silica than the others. The base of Llao Rock is curved or U shaped where it comes in contact with the lighter colored and older lavas. The logical thought is that the dacite is occupying an old valley which at one time extended up Mazama's high slopes. This seems to be true, and what is more, the U shape indicates that it was a glacial valley. Mt. Mazama built up a cone by successive outpourings of lava and explosions of ash and fragmental materials. Later, the cone accumulated snow and ice on its slopes and glacial valleys were formed. And, finally, one of these was filled by the lava which now forms Llao Rock. A glance to the east shows that glacial valleys were formed in other places too. The U shape of Sun Notch and Kerr Notch are particularly significant in this respect; and they are younger than the valley of Llao Rock. No lava flows over occupied their floors. On top of Llao Rock and other points around the Rim may be noticed a bright yellowish material which resembles a field of ripe wheat. This material is in reality a light rock of frothy appearance known as pumice. It was formed when molten lava containing a high percent of gas solidified while these gases were escaping, leaving it full of holes or air spaces.

On reaching the summit of Wizard Island a perfect crater is found. The crater is about five hundred feet in diameter and about one hundred feet in depth. The rim of the crater at some points is brilliant red, showing a high degree of oxidation. Most of the cinders, ash, and lava have a fused appearance, indicating the high temperatures which must have existed when eruption was in progress.

By the use of a little imagination, one can here picture volcanic activity at its best. It is not hard to picture the crater emitting steam and hot gases and boiling sullenly with miniature explosions, while red hot molten lava restlessly moved about within it. Another striking thought is a realization that it could not have been so many years ago that such a scene would have been a reality. Certainly it could not have been many thousand years, and if the story told by the age of the trees on the island means anything, it was not many hundreds of years ago. The most recent estimate concerning the last activity of the Wizard Island cone, by tree ring count, is about 800 years. More than that could not be safely said, but certainly the lava and ash is as fresh as if put there yesterday and erosion shows practically no effects as yet. The general shape is that of a young volcano showing no dissection. It is in miniature an example of old Mt. Mazama which must have been of the same semi-explosive type. The absence of any signs of glaciation would tend to date Wizard Island as later than the last glacial period. At any rate, it is a very interesting thought to consider as the return down the slope is made and so back across the now serene lake, once the scene of so many active and violent forces of nature.

THE BIRDS OF WIZARD ISLAND

Berry Campbell

On Wizard Island are found the birds of the mainland with a few exceptions. In general, the forest-inhabiting species are found there as on the Rim, while those which feed in the meadows are scarce or absent. As one walks through the trees on the trail to the crater, Purple Finches are conspicuous, and their incomparable song livens the woods. The Golden-crowned Kinglet attracts the curious with a song which sounds like tiny bells high in the trees tops. These greenish midgets are not easily seen, for they spend their hours well up among the boughs, gleaning tiny insects from the needles. Occasionally they may be seen hovering up to the tip of a branch after the manner of a hummingbird. Keeping them company are the Audubon Warblers, whose merry "tsip" rings out as they fly through the forest - their yellow spots resembling patches of sunlight. If you are fortunate, you may see a family of them tramping through the woods. The juveniles noisily follow the adults who fill them with insect food. Red-Breasted Nuthatches climb up and down the trunk, vacuum-cleaning the crevices. Their nasal call may be heard at all times. With unexcelled industry, these fellows groom a large tree in very few minutes. Often associated with the Nuthatches are the Chickadees, with their cheery song - "chick-a-dee-dee."

Although flycatchers abound, one seldom sees them. The clear call of the Olive-Sides, "Pet-peeves-you?", follows one all the way up the cinder cone trail. Though it is not so noticeable, the "pee-ist" of the Western Flycatcher will be noted by the trained observer. The ease with which these birds catch insects in mid-air has led them to devote their whole time to the business, and their name is well earned. The Mountain Bluebird has followed their example and several may be seen at the top of the cone darting out from some vantage point at a helpless insect. Frequently heard in the deeper woods is the Hermit Thrush. Though a simple song of but three or four flute-like notes, the richness and the indescribable beauty of the sound make it a song unexcelled. Patient search will reveal that speckled-breasted virtuoso on a log or in some low tree.

Because of the dearth of meadows or grassy spots of any kind, Juncos and Robins are rare, although a few pair of each species breed on the island and in the afternoon their songs are sometimes heard. Chipping Sparrows, also ground-feeders, are absent or rare. The lack of soil, however, rather favors the Rufous Hummingbird, for its favorite flower, the Rock Mimulus, thrives in the loose lava slides. Often this nectar-feeding bird is the first bird seen on the island trip.

The bare rocky shores do not attract many waders - the only one which at all common is the Spotted Sandpiper. The whistling "peetweet" of this bird may be heard up and down the shoreline, and towards Skoll Channel the species is quite abundant. As a person walks along the waters edge, these birds will often fly out over the water to land behind him, realizing better than their relatives the futility of running ahead of a man in an exploratory mood. Of the larger birds, Red-Tailed Hawks, Bald-Eagles, and Ravens have been seen while a few ducks frequent the bays and inlets.

THE FLORA OF WIZARD ISLAND

Elmer I. Applegate

All of the plants on Wizard Island are common on the adjacent mainland, the nearest approach being on the west at Skell Channel, a distance of only 350 yards. This is really a very short barrier for the transportation of seeds and spores. Many of these could have been floated across the narrow channel in the fresh water without injury, or even across other and much longer passages; or plants themselves, cast into the water by slides and other means, could have been included. Seeds provided with special means for flying could very easily have been carried by winds; while yet others were doubtless conveyed by birds, driftwood, and other means. Without doubt many seeds and plants reaching the island were unable to establish themselves because of the adverse conditions there. Many, especially shallow rooted forms, could not have maintained themselves after germination, especially during the earlier stages of rock disintegration and soil formation. In this connection it is interesting to note that a very considerable number of plants of common occurrence within that part of the Crater wall nearest to the island have not as yet made their way across the narrow water barrier. It would seem likely that most of these will in time reach the island and become established.

Approximately two-thirds of the species on the island are trees, shrubs, and perennials. The remainder is made up largely of biennials, with only a few more shallow rooted forms growing in situations having less unfavorable soil and moisture conditions. Nearly all of the 60 odd species are provided with highly developed root systems. These serve the double purpose of safe anchorage in the commonly loose, sliding material in which they grow, and of making provision for reaching moisture. At the same time they act as excellent soil binders, helping to make more suitable conditions for the introduction of other species as time goes on.

The zonal distribution is essentially Hudsonian, more than half of the species being truly characteristic of that zone, while most of the others are usually found within it.

Of the six trees (all conifers), The Western Hemlock (Tsuga mertensiana (Bong.) Sargent) predominates on the lower half of the island while the timberline White Bark Pine (Pinus albicaulis Engelm.) has the same predominance at the summit of the cone, where it characteristically encircles the crested rim of the Wizard crater. Within the crater, and especially at its bottom, where soil and moisture conditions are the most favorable for their growth and maintenance, are to be found some of the more shallow rooted forms, such as grasses, sedges, rushes and Tolmie's Saxifrage (Saxifraga Tolmiei T. & G).

While a considerable proportion of the species are more or less generally distributed, certain ones occur in greater abundance either on the exposed, steeper slopes toward the summit, or within the less precipitous areas about the base. It would seem that the distribution is not so much due to altitude as to such local factors as slope, exposure, soil, and moisture.

Among the plants peculiar to or in greatest abundance in the lower areas might be mentioned: Western Hemlock (Tsuga mertensiana (Bong.) Sargent),

Shasta Fir (Abies magnifica shastensis Lemmon), Lodge-pole Pine (Pinus contorta murrayana (Bal f.) Engelm.), Western White Pine (Pinus monticola Dougl.), Alpine Fir (Abies lasiocarpa (Hook.) Nutt.), - all conifers, named in order of frequent cy - Lace Fern, (Cryptogramme acrostichoides R. Br.), Bleeding Heart (Dicentra formosa Andr.), Mountain Ash (Sorbus sitchensis Roem.), Red-fruited Elder (Sambucus racemosa callicarpa (Greene) Jepson), Crater Lake Currant (Ribes erythrocarpum Coville), White-veined Wintergreen (Pyrola picta Smith), One-sided Wintergreen (Pyrola secunda L), Stick Candy (Allotropa virgata T. & G. G.), Chamisso's Arnica (Arnica chamissonis Less.), Hart-leaved Arnica (Arnica cordifolia Hook.) Parrot Peak (Pendicularis racemosa Dougl.), Fire weed (Epilobium angustifolium L.).

Included in the upper areas named the more common are: White Bark Pine (Pinus Albicaulis Engel.), Mountain Ocean Spray (Holodiscus discolor glabrascens Greenman), Wooly-leaved Eriogonum (Eriogonum pyrolaefolium coryphaeum T. & G.), Western Wind Flower (Anemone occidentalis Wats.), Martendale's Cogswellia (Cogswellia martendalei Coult. & Rose), Crater Lake Sandwort (Arenaria pumicola Coville), Applegate's Paint Brush (Castilleja applegatei Fernald), Spider-web Paint Brush (Castilleja pilosa arachnoideus Greenman), Mountain Daisy (Hulsia nana Greene), Silver Plant (Raillardella argentea Greene), Brewer's Sedge (Carex Breweri Boott.), Parry's Rush (Juncus parryi Engelm.), Tolmie's Saxifrage (Saxifraga tolmiei T. & G.), and Lace Fern (Cheilanthes gracillima Eaton).

It is interesting to note that the following plants occur within the wall of the Crater adjacent to Wizard Island. The plants do not occur on the Island so apparently the seeds of these have not been able to negotiate the 350 yard water barrier, or else have found the soil conditions unfavorable for establish ment.

Dwarf Maple (Acer glabrum Torr.), Millfoil (Achillea millifolium lanulosa Piper), Thin-leaved Alder (Alnus tenuifolia Nutt.), Service Berry (Amelanchier florida Lindl.), Long-leaved Arnica (Arnica longifolia D. C. Eaton), Squaw Carpet (Ceanothus prostratus Benth.), Live-for-ever, (Cotyledon oregonensis Wats.), Scarlet Bugler (Gilia aggregata Willd.), Dwarf Juniper (Juniperus sibirica Burgsd.), Stickseed (Lappula diffusa (Lehm) Greene), Brewer's Mitre-wort (Mitella breweri Gray), (Parrya menziesii (Hook.) Greene) Heather, (Phyllodoce empetriformis (Smith) D. Don), Jacob's Ladder, (Polemonium humile Roem & Schultz), Shasta Smartweed (Polygonum shastense Brewer), Sticky Currant (Ribes cisecssimum Pursh.), Creeping Raspberry, (Rubus lasiococcus Dougl.), Eastwood's Willow (Salix eastwoodiae Cockerell), Mountain Ash (Sorbus sitchensis Roem), Solomon's Seal (Smilacena amplexicaulis Nutt.), Greene False Hellebore (Veratrum viride ait), Mountain Violet (Viola purpurea Kell.)

THE POETRY OF WIZARD ISLAND

Ernest G. Moll

Over the rim and down inside the wall of a volcano! That, as we begin the trip to Wizard Island, is the thought that runs most strongly in our minds. Our trail winds over slopes of fragmental material, here and there rounding the base of lava flows. Little by little we grow interested in the structure of this broken mountain over a cross section of which we are passing. To observe how the mountain built itself up by successive outpouring of lava and deposits of ash and rock fragments; we grow increasingly conscious of the tremendous forces of nature which could produce such a result as this, and of the countless years consumed in the process.

A trickle of pebbles from the slope above us makes us aware that at least some of the forces of which we have been thinking are still active. All about us weathering and erosion are at work cutting into the exposed crater wall, crumbling rocks, wearing the slopes away into precipitous valleys, pushing the rim steadily back.

But there is another side to the picture. Our path is shaded by trees, hemlocks and Shasta red firs, growing tall and graceful. Bent at their bases by the weight of sliding snow, scarred by falling stones, they drive their roots to a firm anchorage among the rocks and hold the mountain back. Everywhere are flowers, from the delicate pyrola to the gay mimulus, netting the volcanic ash with roots remarkably tough, covering with their leaves and blossoms the scars of other days.

We walk briskly, for the trail is wide and the morning air fresh and exhilarating. Below us lies the Lake, more intensely blue as we approach it than it seemed from the Rim above. Through the green of hemlock branches we have glimpse after glimpse of that blue water, smooth and glittering with sunlight.

The boat is waiting for us, and in the few minutes required by the boatman to start his engine, we lean over the side and look into the depths below. Hazy distances are there, mysterious shadows. They fascinate us and frighten us. Down there are the caves of Llao, the great rock terraces and caverns where man has never been.

In a minute we are moving, gliding swiftly out from the crater wall into the wide, still Lake. A rainbow flashes in the light spray; the wake streams out in two long rolling waves. We sit quietly or move slowly about, watching the distant cliffs and the sparkling water, thinking no thoughts, knowing only that what we now see we shall never forget. And in a breath - it is really nine minutes by the clock - the engine ceases to throb, and the passage is over.

We land on Wizard Island. A moment ago, we were gazing at the polished surface of the Lake and watching the curving roll of the waves set up by the movement of the boat. That surface was inviting to the touch, soft and marvelously smooth. Some of us leaned over the boat's side to dip our fingers in the water. And then we experienced what Browning had in mind when he wrote of the "cool silver shock of a plunge in the pool's living water".

Now we stand on lava. In great sharp-edged blocks it lies all about us, its lower edges washed by the waters of the lake, its upper reaches hidden from view by groves of stately trees. This world is newto us, and strange. From a water-world of silvery distances and blue depths we have stepped into a world of fire. At first glance it is a world of desolation, of rocks, dull gray and black, piled in long broken ridges, bewildering to the eye. We touch the rocks. They are hard and sharp and harsh. This, we feel, is death - the work of forces that lived only in their own might, caring nothing for the milder and weaker forms of life. And those forces now, as far as we have knowledge of them, are dead or locked in sleep. Dante dreamed it long ago- today we stand surrounded by its shadows, this world of lost souls, and death, and sleep.

Then a shaft of sunlight strikes a rock beside us. We notice the glitter of feldspars, crystals that grew even as the lava cooled and the fire died out of it. On the same gray surface are strains of a subdued red, color born of iron-bearing minerals as through the centuries they have been gradually broken down by oxidation. On the rock we detect lines of weathering, patterns cut by wind and rain and frost. Slowly it comes to us that this is life, not death - life in terms of pattern, and texture, and color, and then we move to the other side of the rock. A lichen clings there, gold-green, delicate in form as a butterfly's wing, yet of a strength sufficient to wrest its living from the sheer rock. And below the lichen, lifting its fronds from a dark crevice, we find a lace-fern. Life is here, then, as it is everywhere, transforming substances, running its course of infinite change, building its forms of beauty.

We move slowly on up the trail. Above our heads rise hemlocks, their gracefully drooping branches swayed gently by a breeze. Here and there grow western white pines, light green beside the darker color of the hemlocks. We notice their long slender cones hanging in clusters from the higher branches Some old cones lie in the path near our feet. They are light and open in comparison with the stubby, almost closed cones of the whitebark pine which we observed on a few trees beside the lake trail. Someone exclaims over the pattern made by the frond-like boughs of a Shasta Red fir against the blue of the sky. A bird sings, and a coney slips quietly over some rocks just ahead. Life is here in abundance, and shelter and peace. We glance again at the lava to remind ourselves that we are standing on the slopes of a fire-mountain.

Now we are on the cone itself. There are fewer trees. Under our feet is the crunch of cinders. To our right and above us the cinders rise in a long even slope to a line of trees clearly silhouetted against the sky. There, we know, is the rim of the crater, and the trees are the storm-loving white pines. On the Crater wall opposite us rise the pinnacles of The Watchman and Hillman Peak, in the morning light warm with reds and browns above talus slopes flowingly graceful in form and gray in color. Cameras are produced, for most of us wish to carry away apermanent record of these tree-framed views.

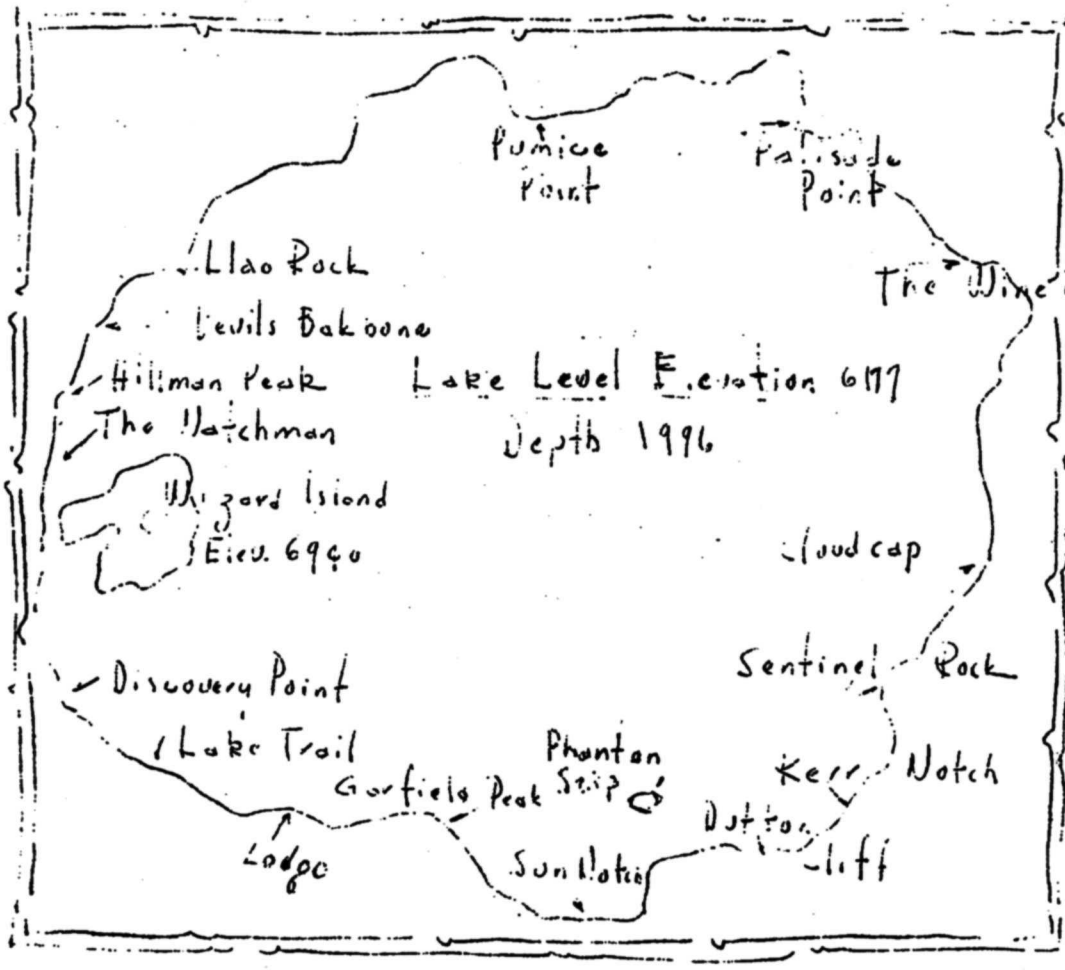
Today the colors in Skell Channel are particularly brilliant, the characteristic blues of the deep water shading, where the channel changes into shallows, into turquoise, and purples tinged with bronze. The colors of this area are like those of an opal alive with change and fire.

As we swing around the cone, climbing steadily higher, the Lake opens before us in a gradually widening sweep. Llao in its glacial valley is close

in on our left, and from there our eyes follow the Rim line past Pumice Point, the Pallisades, Cloudcap, Sentinel, and on to Dutton and Garfield. Some of the cliffs are brilliantly lighted, others are veiled in shadow. Everywhere the lake is blue and silent and mysterious. Here and there wind squalls turn the blue suddenly to silver. "Llao's Fingers" the Indian called the running streaks of white, and we, feeling as they did the mystery of the great deep water in its mountain walls, move on in silence.

Just before it reaches the top of Wizard our trail winds over beds of burnt red and black rock so eloquent of fire that we almost fear to cross them. If, in the tranquil beauty of a moment before we had forgotten that we stood on the slopes of a volcano, these broken cinders are enough to call our thoughts sharply back to that fact, and then in another moment the crater itself opens at our feet! After lunch, we shall explore it - for its sides slope gently down to the broken lava in the bottom and there we shall find saxifrage in bloom, and ferns and clumps of sedges. Halfway down a humming bird hovers over a patch of Davidson's Penstamon. Almost within hand's reach grow numerous plants of the Applegate's Paint Brush, their flame-bright flowers lifted against a background of gray ash and reddish hematite. We remember the lines of a poem about these flowers and quietly, while the wind sings through the white bark pine about our heads, the words take on a new meaning as we murmur them half aloud:

> Where flame once wrought its awful symphonies,
> Whose theme is death, with darkness woven through,
> The lift, in summer silence to the bees,
> A fairer beauty than the fire-gods knew.



ABOUT THE RIM

SEEN FROM WIZARD ISLAND