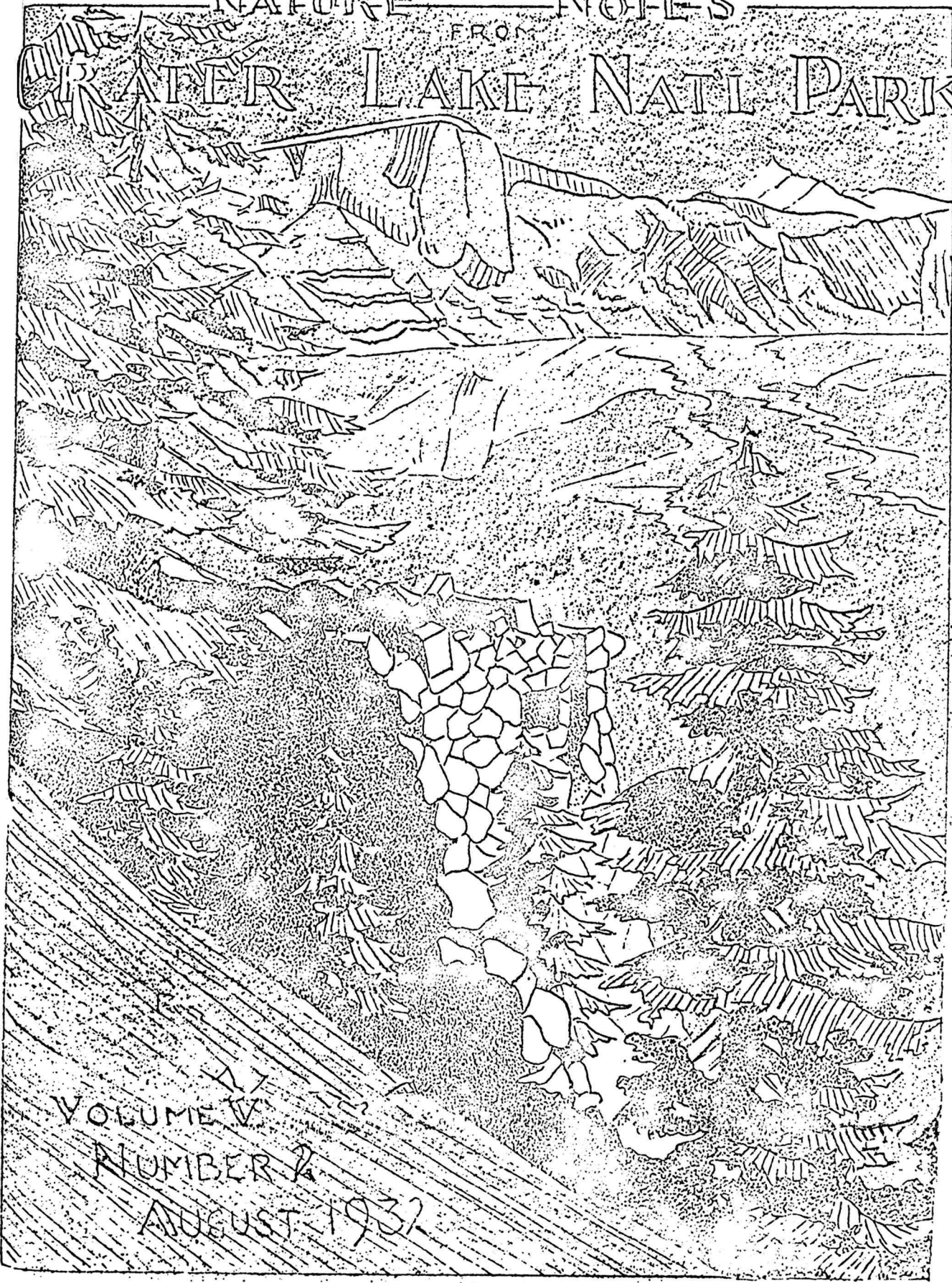


NATURE NOTES

FROM

CRATER LAKE NATL PARK



VOLUME V

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

Mr. E. C. Solinsky
Superintendent

Mr. D. S. Libbey
Park Naturalist

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This publication is issued for the purpose of recording observations and making known the results of research and scientific investigation concerning the natural history of Crater Lake National Park. It is under the jurisdiction of the Research and Education Staff and is supplemental to the lectures, field excursions and other services. Publications using these notes please give credit to the author and to Crater Lake National Park Nature Notes.

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Cover design and illustrations by Albert E. Long.

THE SINNOTT MEMORIAL ORIENTATION STATION AND MUSEUM
(Sketch of the building appears as the cover design).

Park Naturalist D. S. Libbey

This year our visitors to Crater Lake are finding the views along the parapet of the Sinnott Memorial Orientation Station and Museum to be particularly fascinating and instructive. Those who approach this station are impressed by the marvelous beauty of the deep dark blue water of Crater Lake visible through the hemlock trees as they make the descent along the winding walk,

In this issue of Nature Notes the description of this viewpoint is made so that you who have visited Crater Lake in past years may realize the great value that the parapet displays and museum exhibits render. The marvelous beauty, the aesthetic charm, the influence of color, and the exceedingly fascinating story as told by Crater Lake is the purpose of this unique orientation station and museum.

Immediately, when the visitor steps inside the door to the station a Ranger Naturalist hands him a pamphlet describing the use of the equipment. The story which is told in the pamphlet and by the views, aided by display material in cases and located by binoculars and range finders, is as follows:

The first binocular the visitor meets with as he begins his tour of inspection from left to right is the one focused upon Discovery Point, the place where John Wesley Hillman accidentally approached on mule back, June 12, 1853. Attaching interest to this point affords a tie which binds the interest both with the contemporary history of the region and with the question which unconsciously occurs in the minds of the visitors: "What did Mr. Hillman think when he, as the first white man viewed the tremendous caldera filled with marvelous blue water". No one probably will ever know exactly what thoughts dominated Mr. Hillman's mind but it seems exceedingly probable that anyone would have been impressed with the fact that some great cataclysmal action of Nature had occurred here at Crater Lake sometime in the past. With this concept the visitor looks down through the binoculars to read the following story as revealed in Nature's great out-of-door laboratory, in this case, the caldera walls of the Rim Area, and the views of Crater Lake. The first display case shows the approximate location of the vast lava field, some 2,500 square miles in area extending over six states of the Pacific Northwest. In addition the location of these huge fire mountains, volcanoes which were probably formed as one of the late stages in the volcanic activity of the entire region, is shown.

Specimen Case No. 2 accompanied by attendant binoculars, one focused on the west side of the Rim for morning observation, the other focused on the magnificent exposure of Dutton Cliff for afternoon views, lets the visitor read the story of the building up of a mountain by successive flows of molten lava interspersed with recurrent explosive action. Observation shows that the final and topmost layer was the fire-fragmented, pumiceous cover.

In succeeding views one observes that the mountain side was fractured, molten material forced in the crevices thus forming the radiating dike system. The fact that the mountain reared its top so that it was exposed to the erosive action of running water and of ice and snow is made evident. Glacial valleys are shown and the evidence of lava pouring down the mountain side and filling these ice scoured depressions is spectacularly displayed.

The progress in the building process is emphasized, and then in View 5 diagrams explain how the mountain top was destroyed by any one of three alternative catastrophes; these being engulfment, explosion or sapping, or possibly a very complex combination. The precise nature of the catastrophe is not yet accurately known. Then a view shows how a huge kettle-shaped pit or caldera existed and as the final dying gasp of vulcanism Wizard Island and lesser volcanic cones were built in the bowl-shaped depression. The next view explains how Crater Lake was filled with water to its approximate present level and has continued to exist as an exceedingly deep fresh water lake without surface inlet or outlet. The climax of the entire story is told impressively by two intriguing views. These show the marvellous color and the exquisite beauty of the lake with its surroundings. The visitor is left with the following concepts:

First that the color of Crater Lake is generally recognized as the most attractive feature of this region. Among the spectacular lakes of the world there is none in which the depth of color and brilliance of blue is more striking. The blue of the deeper water is brought out in contrast with the brilliant green of the shallow areas along the margin.

In the second case the concept is developed that a thing of beauty may have its value enhanced by the setting in which it appears; so that the attractiveness of this lake varies according to the conditions under which it is seen. In the same way the beauty of other things may be increased by relation to the lake. Of many possible examples, the following have been found of interest:

I. Beauty of color in the Lake as seen through the screen of hemlocks on the path leading to the Sinnott Memorial--similar as seen through trees from many points along the Rim.

II. Form and reflection of the Phantom Ship. The smooth reflecting surface of the water enhances this concept.

III. Continuous changes of light, due to position of sun, to wind, reflections and shadows of clouds producing continually changing pictures of great interest.

IV. Reflections of cliffs and other features along the margin of the lake materially aid in enhancing the entire concept of the inter-relations of beauty.

After completing the observations along the parapet all of our visitors then pass into the museum room and see balopticon views, moving pictures and transparencies. These supplement the story.

It is suggested that you who have visited Crater Lake in the past, return and visit the Sinnott Memorial Orientation Station and Museum. A new beauty, and a greater appreciation of the vast forces of power and fire which brought the lake into being as well as the emphasis upon the inter-relation of color, beauty of form and the aesthetic charm of the entire setting is impressed. The cover design of this issue shows an artist's sketch of the memorial building.

Earl W. Count, Ranger Naturalist

Is Wizard Island the head of the monster, Llao, slain by Skoll, or is it massive, black or red lava fragments and cinders, a volcano within a caldera? Take your choice or take both. At any rate, five hundred-odd acres of cozy desolation are marooned in the "Sea of Mystery". After crossing the lake to the island you land most unstrategically on a shaky, weatherbeaten dock in the shallow recess of a cove. Blunderbusses or bows might rain thrilling death from the trees on three sides of you. But let us say that you have miraculously escaped this first disaster; perhaps the pirates were out fishing on the other side of the island. Perhaps the Indian savages, the Moros, the King of the Cannibal Islands, or what you will, were sliding down the snowbank within the crater that scoops its bed in the crest of the mount. You hitch up your belt, take a deep breath, and start your trudge. It all looks innocent enough. The path stoops under a fallen tree, and turns to dodge upward between two lava flows that form a small valley of incongruously heavy boulders. Dust and tree seeds years ago have flown across the water you have just labored over, and together they have made your path possible by carpeting it crudely with crushed and weathered needles and wood. There is shade here of fir, hemlock, and white pine, and against the black rocks it is dark indeed.

Can anything moving live in a place like this? The bleeding-hearts not far from the water, the penstemons and scarlet paint-brushes farther up can, to be sure, live in whatever soil the island has captured, but certainly no bird or beast would choose a haunt here.

Then a belted kingfisher swoops through the trees, on his way to a cove on the other side of the island. A chickadee babbles from somewhere in the tangle of boughs. A hummingbird flashes over to a scarlet paint-brush, uttering his quick shrill little click. A coney shoots in between two rocks. You look for him, and uncover a little green frog, or a jolly toad. How did the coney get there? What was the frog doing a hundred feet or more above the lake level? Is a pile of volcanic ashes exactly the place for a toad? There are butterflies dodging among the branches, and bees in the flower cups. There are ants (with doodle-bugs to eat them), spiders, and dragon flies.....The island is alive. You, a mere human, are a decided minority against the other life that pops up from the ground, out from behind boulders or tree-trunks, or from the needles of the lanky conifers.

The path is not easy to the top, but you grind out foot after foot. Here is where the lava ends, and where the ash and cinder of a dying mountain spilled over it and built the cone that caps the whole. It is harder trudging here, and even the host of trees seem to have hesitated, for they thin out to a few hardy stragglers.

The thin little trail sweeps in one spiral loop around and up the cone. As you curl onto the northern slope, the ranks of the trees disappear. They huddle far below you. Above and below, the broad back of the mountain spreads away. Above and below, that broad back is covered with the thin down of white-and-yellow anemones. A unique experience now comes upon you, for, as you progress, you will pass from January to September in a couple of minutes. In the region of a snow-back, where the soil has been uncovered but recently, the anemones have just sprung into bloom. Small clusters pop into view even as you look at

them. There is no solid carpet of blossoms; the plants are few enough to be individuals, yet frequent enough to mollify the protoan barrenness of the cinders. Then, as you pass on to where the sun has been ever increasingly active, the anemones have flowered, faded, withered and seeded. Here at last, in shaggy, tufted heads, like some girl's roguish bob, the plumed seedlets write the epilogue to the life of the anemones. Here, too, their province ends. The rocks now burst into a hot maroon, and the scarlet paint-brushes spring out fiercely, all the redder for their red background. By some fantastic quip of artistry, Nature has managed even to underscore this with just enough clumps of blue penstemons and yellow sulphur flowers. No peasant embroidery was ever more gaudy, yet harmoniously so, than this emphatic little country of the scarlet paintbrushes

You are "up". The crater breaks upon you suddenly. It is about one hundred feet deep; yet it seems less. The size of this bowl must be grasped from the depth, looking upward. You note, with a sort of poetic justice, that the lava-maw has been stopped with a snow-bank.

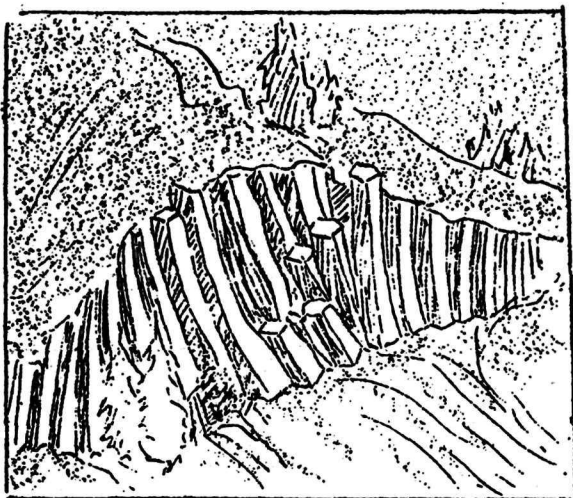
On the crater rim, for a moment, you may seem to be in the center of the universe. Your outermost horizon is the encircling rim walls of Crater Lake. Concentrically, the blue of the Lake encloses your island. Within this is the shaggy ring of green trees that holds the base and lower slopes of the mountain. Then comes the cone of ashes, and lastly yourself---Abruptly you realize that the center of a circle is a point, and a point is a figment that has no dimensions.

It is now, as you start to retrace your path, that you see war. The seeds that once flew across the lake and lodged in the scraps of dust and dirt, are trees, herbs, and groveling shrubs. The crest of Wizard Island is the citadel. Who knows but that once the garrison effected sorties against premature landing-parties? At least now the trees have entrenched themselves solidly on all sides, although they are massed only at the base, as though not comprehending that the garrison long since has starved. On the sunny side, the besiegers struggle raggedly upward, exactly like a crouching party of raiders facing fire. In places they have rushed up and set foot upon the parapet, but where they have done so, they are battered and twisted. As a final touch of realism, there are the trunks that lie prone and broken, scattered on the hillside. On the northern slopes, as you look down upon them, you see that the line ends abruptly, where the masses of trees are gathered but seem to be holding fire. Then you notice that immediately in front of the mature individuals is a solid row of young saplings. Here, too, then, there is an offensive; but it is slow, dogged, and not spectacular. Up the slope, crouch and creep the anemones and the fierce paint-brushes. Are they Nature's "scouts" who pave the way for the "regulars"?

There is more than idle fancy in such speculation. The warfare is real and also intense. Wizard Island is weird in its quiet.

COLUMNAR STRUCTURE IN OUR LAVAS

E. L. Clark, Ranger Naturalist



Many of our visitors have wondered if the elongated columns of rock that are observed in various parts of our Park are petrified logs, i. e., logs that were neatly arranged in piles and bundles, then turned to rock by some unknown and uncanny process. It is found in our lava flows and dikes, and is due to the regular development of prismatic joints that break up the rock mass into parallel columns, the sides of which are characteristically five or six in number. This rock phenomenon is known as columnar structure. While most of the columns will portray a rough and irregular hexagonal outline, many of them will have the sixth side so depressed and small that it is entirely eliminated.

This structure is variously portrayed in our Park. It may be observed at the following localities within the Rim Area: (1) the upper exposed portions of the andesite dike about two hundred yards west of the foot of the Lake Trail; (2) in a small area some forty feet above the Lake and fifty yards west of the dike just mentioned; (3) the Devil's Woodpile some seven hundred yards west of the foot of the Lake Trail (this feature is observed on the lake excursions under the guidance of some member of our Naturalist Staff); (4) parts of the dike known as the Devil's Backbone; (5) near the base of the great dacite flow that forms Llao Rock; (6) the constriction at the base of the bowl portion of the Winoglass; and (7) in a lava flow on the inside of the Rim below Kerr Notch. Near the crest of the steep portion of the grade over Vidoe Ridge, and facing Sun Creek Valley some six-tenths of a mile southwest of the Sun Creek crossing another exposure of columnar lava may be observed. Here the lava has been poured onto a trifaceous agglomerate (a chaotic assemblage of coarse volcanic ashes and cinders). The attitude of the lava readily suggests its direct relations to the former mountain.

RANDOM OBSERVATIONS

Earl W. Count, Ranger Naturalist

A Western Bolted Kingfisher was observed twice on Wizard Island, July 16, by the party conducted by Dr. May, State Ornithologist for Massachusetts. The first time it rose from the shore near the boat-landing. Later it was seen streaking through the trees a few yards from the shore-line.

A California gull was also seen wheeling over the lake. Ranger-Naturalist Clark reported that from the Sinnott Memorial. Two were seen.

The Bald Eagle that has habituated Eagle Rock was perched for an indefinitely long time on a hemlock in his usual haunt.

THE RECEDING RIM OF CRATER LAKE

D. L. Evans, Ranger Naturalist

The rim of the caldera has been worked upon, worn back and eroded by many of the tools of nature. Melting snows in the early summer carry into the lake a vast amount of material. Sliding snow undoubtedly has

its effect in the winter time. The prying force of ice - the sand blast of wind - all of these things perform a never ending task the result of which will eventually (a few geologic hours away) wear down the Rim. Of course, we will never live to see that time, or progeny. But Nature, in a word for two the Crater Lake Ground his cousin the chip-

will our
may I put
great workers:
Squirrel, and
munk.

The observant
Rim will note that fif-
period between rolling
also note that boulder
start by chance - that
is some pernicious rodent.

Mr. Ground Squirrel's
perfect. A small rolling pebble
a ton strike against one a little
the wall the material goes until a
result of that first pebble.

person standing on the
teen minutes is a long
boulders. He will
slides do not
behind it all

technique is
and he scores
larger. Down
landslide is the

Some ambitious student might calculate the tonnage and volume of rock entering the lake daily in this fashion and calculate how many millions of years it will take the chipmunk clan to destroy the West Rim.

MONKEY FLOWERS

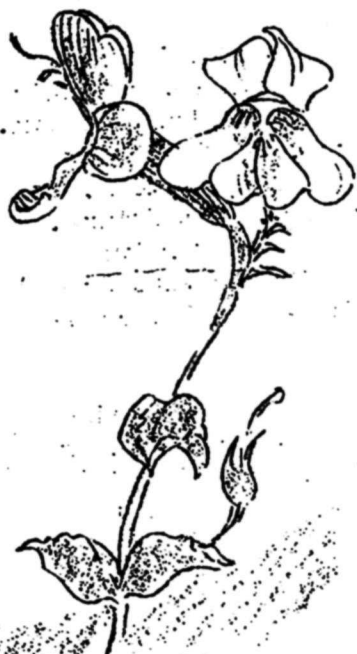
Lincoln Constance, Ranger Naturalist

Perhaps no group of plants contributes more varied and alternative blossoms to the floral population of Crater Lake National Park than the Monkey-flowers. While most of them prefer a swampy habitat, individuals may be found almost throughout the area. Even on the top of some of the

higher points of the Rim we meet them, and they adown the Lake Trail from top to lakeshore.

Monkey-flowers are members of the *Eigwort* family, and bear a close resemblance to many of their relatives, such as, the Snap dragons, Fox gloves, Beard tongues, and others. At Crater Lake we have five or six varieties, ranging from deep red to pink and thence through several shades of yellow. The leaves are borne in opposite pairs and the stems are relatively weak, and distinctly herbaceous.

The so-called Common Monkey-flower (*Mimulus glutinosus*) is usually found growing along streams, or in other very moist places. It seems to occur almost everywhere throughout the West Coast, in several Life Zones. Its height and general appearance depend largely upon the conditions in which it is forced to live, so we may find it growing three or four feet high, with immense yellow flowers. Our representatives, however, are largely a depauperized or stunted form (var. *depaupouperatus*) and the golden flowers are small in size.



Monkey Flower

Another yellow Monkey-flower is the "Musky-scented Monkey flower" (*Mimulus moschatus*), which prefers a well-shaded site, growing best under alders and other trees. It has a woolly stem and leaves, and the plant frequently reclines upon the ground instead of growing erect. As its name would imply, it does give off a faint, musky odor, but it is too weak to be called offensive.

In the Castle Crest Flower Garden we frequently see a carpet of brilliant light yellow flowers, borne on short stems, over a rosette of small leaves. This is the "Primrose Monkey-flower" (*Mimulus primuloides*), and perhaps one of the most attractive, if not as showy as some of its cousins. It must have lots of moisture and have it close at hand in order to thrive. The yellow corolla, or blossom, is daintily marked with blotches of brown or purple, following a regular pattern. Growing beside this plant is a very, very tiny flower of much the same appearance. The individual flowers are seldom more than a quarter of an inch across, and the purple markings are definitely arranged "beauty spots". Whether this is merely a dwarf form of the "Primrose Monkey flower", or a distinct species, we have not definitely decided.

The "Pink" or "Lewis Monkey flower" (*Mimulus lewisi*) is by far the most gaudy member of the group to be found in our environs. The blossoms are pale pink, rose, or almost purple, charmingly marked with bright yellow. Along the streams, in the flower garden, and even along the Lake Trail, this brilliant bloom is sure to draw the interest of the most casual observer. The flowers are borne at the end of the stem, and usually only one or two bloom at a time. They are so large and showy, that many have mistaken them for Petunias, and not without some reason.

When you parked your car on the top of Cloud Cap, you may have noticed that the pumice by the roadside was ensanguined in places by masses of tiny red flowers. This is the favorite habitat of one of the "Dwarf Monkey-flowers" (*Mimulus nanus*, in this case). It seems very odd to see a member of this water-esteeming genus choosing such an exposed and arid home, but there is no denying this case. It is dwarfed by lack of water, though, and is usually only an inch or two high, the whole plant frequently having a reddish or purplish cast.

The petals of the Monkey-flowers are united into a corolla, which is frequently cut partly in half, or "two-lipped". This arrangement gives the blossoms an odd resemblance to little faces, as they peer up from their green bed. It required no great expenditure of imagination for a fanciful flower lover to liken them to the countenances of little simians, and thence, no doubt they derived their common name.

THE VARIED THRUSH (*Ixoreus naevius*)

Don C. Fisher, Permanent Ranger.

Among the uncommon birds of the park, perhaps the varied thrush is entitled to a place. The varied thrush is similar to the robin in size and shape, but it has a breast that is colored a deep orange trimmed with a black band. The appearance of the band suggests the existence of a collar. The back of the bird is a sort of slate color.

The varied thrush loves the deep shade of the hemlock forest and also dense fog and rainy weather. When the heavy snow drives this bird from its favorite haunts, it migrates south as far as Costa Rica for the winter.

The varied thrush's song has a clear flute-like tone sometimes characterized by a rather mournful sound. The sound is in keeping with the rather dismal choice of abode.

The time of breeding for the varied thrush is late May and since the nest is built within the deep gloom of a forest, visitors seldom find the nesting place. It is said that this bird sometimes builds its nest on top of the old nest. This practice is also commonly followed by the robin. The varied thrush is found largely along the Pacific Coast from Southern Oregon to Alaska and while it is typically a western resident it has been found occasionally in the New England states.

A variety of names has been given to this bird. The names as suggested are Alaska robin, Oregon robin, Mountain robin, but the true name is varied thrush (*Ixoreus naevius*).

MYTH OR LEGEND?

Earl W. Count, Ranger Naturalist

This have I heard from old Tom Skelloc, the blind Klamath who knows no English and from Abraham Charles, who knows it well.

Many years ago an Indian stood on the brink of Gaywas, Crater Lake, and beneath him gaped an awful chasm; for Gaywas was without water. The depth was great, it was fearful. The bottom was rough and gnarled with huge masses, and there were mounds in the bottom of Gaywas.

The Indian grasped every bit of his courage, and descended into the monstrous cauldron. He traveled over the crags, and passed through fissures. There lay before him some yellow stuff which he did not comprehend.

At last he returned with much trepidation and toil. His story he told to but few, and from them it has come down the generations.

But the yellow stuff which he did not comprehend, was Gold.

This have I heard, I do not know whence it comes, nor what truth it may possibly hide.

THE BLUE ENIGMA

Russell Andrews, Park Ranger

Blue enigma of ages, ringed with immutable rock,
Fiery cradle of mountains whose barren ridged mock
Man's puny and ceaseless endeavor, his straining and pigny strife;
Let him look on the patience of ages and know the end of life.
Mighty forge of the Titans where mountains were welded and made,
Glaciers have cooled your seething, hemlocks reared their shade,
And now you mirror your cradle, your mountain-making done,
And your blue inscrutable depths reflect the dwelling of the sun.
Now men stand safe on your lava brink with awe intaken breath
Lost in the contemplation of a mighty mountain's death.