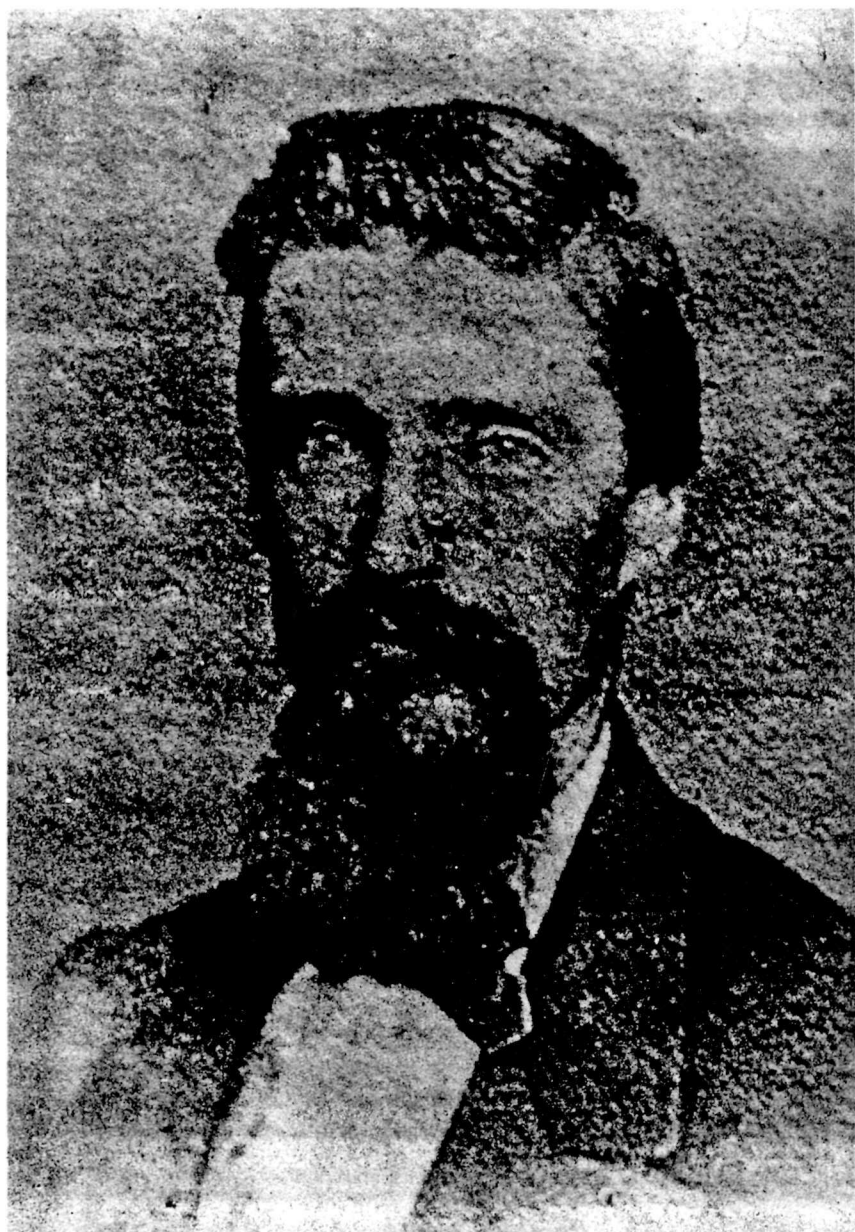


NATURE NOTES
from **CRATER LAKE**

DISCOVERY CENTENNIAL NUMBER



John W. Hillman

NATURE NOTES FROM CRATER LAKE

National Park Service
Crater Lake National Park

Crater Lake Natural
History Association

CRATER LAKE DISCOVERY CENTENNIAL NUMBER

Volume XIX - 1953

Harry C. Parker
Editor

Fred T. Johnston
Superintendent

Richard M. Brown
Associate Editor

INTRODUCTION

The Crater Lake Natural History Association was founded in 1942 to promote and assist the ranger-naturalist program offered the public, to further the investigation of subjects of popular interest and importance and to aid in the distribution of information on all subjects pertaining to the Park. Towards this end it sponsors CRATER LAKE NATURE NOTES and operates a publications sales counter, the proceeds from which are used entirely to support this work. Reprinting of articles appearing in this publication is encouraged. It is requested that acknowledgement of the source be made by giving the name of the author and of CRATER LAKE NATURE NOTES.

In line with one of the objects of the Association, namely, "to aid in the distribution of information on all subjects pertaining to the Park", this 1953 number is offered to the public. It has been designated the Centennial Number, because special attention has been paid to the fact that John Wesley Hillman, first white man to lay eyes on the Lake, made his discovery on June 12, 1853.

A dedicated staff presented a very successful public program in the Park during the summer. The material in this magazine is the result of activities on the part of the staff which are seldom brought to the notice of the public - - the gathering of new information about your Park. The results of such efforts serve to document the talks, exhibits and other presentations by the naturalists to the public.

Product of several years of such study, a guide to Crater Lake National Park, by Dr. George C. Ruhle, formerly Park Naturalist at Crater Lake National Park and now serving as Park Naturalist of Hawaii National Park, has recently been published. Copies of this useful publication can be obtained by sending \$1.05 to the Executive Secretary, Crater Lake Natural History Association, Box 97, Crater Lake, Oregon.

Harry C. Parker
Park Naturalist

The cover photograph of Hillman Peak is from a Kodachrome by
C. Warren Fairbanks.

CRATER LAKE DISCOVERY CENTENNIAL

By H. John Runkel, Ranger Naturalist

Gold! Gold! That cry rang across the United States in the late 1840's, and Mr. Wesley Hillman heard the call and responded. He set out for California from New Orleans in 1840 - - taking his young son, John, along (see inside Front cover). The party followed the Old Immigrant Trail and crossed the Rockies via the South Pass. Young John later recalled seeing thousands of buffalo and remembered the stampedes. Three months passed before the group reached the area where the waters flow west. Soon they arrived at the Columbia River and used it as their avenue to the West. Mecca of the West at this time was San Francisco, as for thousands of prospectors, the destination of the Hillmans. An exciting trip along the coast on various craft carried John and his father to San Francisco.

John Wesley Hillman soon departed from his father to search for a strike that could bring wealth in a day. Having only moderate success as a prospector, John Hillman shifted from job to job for the next three years. While driving mules for an ungrateful, penny-pinching, pioneer business man, John Hillman received word of a California party secretly purchasing supplies near his home in Jacksonville, Oregon.

A prospecting party quickly organized and decided to follow the California group on their search for a rumored fabulous Lost Cabin Mine. The Californians soon realized they were being followed and began scattering through the brush, camping in inaccessible areas and using a series of other pioneer tricks in the attempt to shake off the pursuing Oregonians, but to no avail.

One June day in 1853, when both parties had scattered and were searching for landmarks which would lead them to the mine, John Hillman approached close enough to bid one of the Californians a good day. Soon after this incident the groups settled their differences and united. Supplies of both groups were low so it was decided to allow three men from each party to gather as many provisions as possible and make one final search for landmarks.

On June 12, 1853, this group, including John Wesley Hillman, climbed the west slope of the mountain now called Mazama and became the first white men to gaze upon this circular sea of indigo later to be named Crater Lake. John Hillman stated that if he had not borrowed an exceptionally fine mule from a friend, he would not have been the first man to see the lake. Hillman was so surprised to find a lake he had noticed in the distance that he failed to look down; his mule suddenly stopped and he was about to spur the animal when he glanced over the rim and noticed the 1,000 foot drop. Had his mule been blind someone else would have discovered Crater Lake!

Recovering from the initial impact of finding this unusual lake, the



Hillman Plaque

group assembled and two names were suggested. Mysterious Lake and Deep Blue Lake were voted on and the latter was chosen as the first name of the Lake. Hillman suggested descending to the water's edge, but his exhausted and hungry companions vetoed this idea and the group started home to Jacksonville. The excitement of Indian wars and the discovery of gold, plus the fact that there was no newspaper

published in the area allowed their discovery to be quickly forgotten.

The United States was well launched into the Civil War by the year 1862. Prospectors, settlers and westerners were hardly affected by the war and it was in that year that Chauncey Nye and his party were heading south from the John Day Basin area in search of water. They came upon the rim of the Lake and thought of using it as their source of water. However, they decided to use melted snow for their water supply, as they soon realized the tremendous distance to the water.

The Nye party drew a crude map of the area as they moved around the rim and they called the Lake simply Blue Lake. Enroute to Jacksonville, Chauncey Nye and three others noticed a very rugged peak which they climbed and named Union Peak. A majority of the group favored the Union cause in the Civil War and they hoped the name of this volcanic plug would never change. Following the usual slow route of travel to Jacksonville, Oregon, the Nye party reported their discovery and on November 8, 1862, in the Oregon Sentinel, the first printed article about the Lake appeared.

The Civil War had spread to the West to a considerable degree by 1865, both the Confederacy and the Union Army having sent men to the West in search of horses. Captain B. F. Sprague, Company I of the 1st Oregon Infantry, had been detailed to build a road from Fort Klamath to Jacksonville. He sent F. M. Smith and John Corbell to hunt game in the area because the fresh meat supply of the Company was getting low. While on this hunting trip, these two men came upon the Lake. They returned and told of their discovery. This news was passed on and so excited several members of the Company that they decided to visit the Lake at their earliest convenience.

Meanwhile, the Snake Indians in the Steens Mountain area had one of their frequent uprisings. Captain Sprague and five volunteers headed for the troubled territory and decided to visit the mysterious lake on their return. Captain Sprague suggested that the group descend to the water's edge and a friendly race soon developed, Orson Stearns being the victor.

Since Stearns was the first to reach the water, he was given the honor of naming the lake. With appropriate ceremonies it was called "Lake Majesty".

In the course of the next four years, reports reached many scattered towns and settlements concerning this large sunken lake and the lonely island cinder cone on which the foot of man had never trod. Our early western settlers had a spirit of adventure found only in an energetic and colonizing group. These reports excited John Sutton, and in 1869 he organized a party with the specific purpose of visiting the Lake. Carrying a knocked down boat which they assembled at the shore of the Lake, they rowed over to, named and explored Wizard Island. The Sutton party wrote an account of their trip, placed it in a tin can and left it in the rocks of the island's crater. After exploring the island they decided to sound the Lake. They made several soundings, but soon decided their craft was too frail for such a job. From those taken, however, they estimated the lake to be 2,000 feet deep and later official soundings indicated they were very nearly correct.

John Sutton's party christened the blue waters "Crater Lake" and also took the first photograph of the lake. In 1872, Crater Lake was visited by the Applegate party, which included Leslie M. Scott, Lord Maxwell of Scotland and Dr. Munson. Applegate Peak and Munson Point were named by this party.

Hillman, Nye, Sprague and Sutton are names important in the discovery of Crater Lake, but the development of this area was to rely on a man of steel convictions, William Gladstone Steel, later to become known as the "Father of Crater Lake National Park". His association with Crater Lake began as a boy in his teens. Will carried his lunch in a newspaper rather than a dinner pail because he did not like carrying a cumbersome pail five miles home from school each day. One noon, forced inside by inclement weather, Will Steel was reading various articles in a newspaper wrapped about his lunch when his attention focused on an article of a mysterious lake in a crater somewhere in Oregon. Will Steel read the article over several times and while walking home to the ranch in Kansas the curiosity and desire to visit this mysterious lake increased with each step. Once home, he talked about that lake continuously and eventually resolved to see it.

He never forgot this boyhood vow and when, at the age of eighteen, his family moved to Portland, young Will Steel immediately started a search for information about the lake. It was not until four years later that the information necessary for a visit to the lake was found. William Steel was employed at a local publishing firm when C. E. Watson stopped in the office to visit a friend and told of his visit to the lake. Of course, Will Steel obtained all information possible. He learned of two ministers planning a visit to the lake and asked to join the group.

In 1885 Will Steel finally saw the watery gem of the Cascades, the rim and the Lake, a place he was to know so well that it was to become

a major part of his life. Humbled and inspired by the heavenly blue color of the lake, he soon conceived the idea of preserving this area for all the people, for all time. A national park there was the dream of William Gladstone Steel.

"What was necessary to develop this area into a national park?" he asked himself. Most important at this early date was the publication of its beauty, to announce its grandeur and then to establish its location. Closely connected with these steps were the publication and improvement of the routes of accessibility. To those few who had visited the area, the beauty and the glory of nature's handiwork were as impressed on their thinking as the effects of the master architect, erosion, or the results of glacier and volcanic action evident everywhere in the vicinity of the lake. William contacted these people and asked them to contribute articles to various organizations concerning these wondrous sights and, more important, information establishing the definite location of available routes to the lake.

The enthusiastic spirit of the people contacted by Mr. Steel soon made Crater Lake the most visited scenic wonder in Oregon. One needs little imagination to realize that William Steel's next problem was to bridge the gap between Washington, D. C. and Crater Lake. National parks are established by a Congress in Washington, and Will Steel attacked the problem with great vigor, writing a petition to President Cleveland explaining the natural wonders of the region. On August 21, 1886, ten townships including Crater Lake were withdrawn from public sale. This same year, Captain C. E. Dutton and party, coupled with the work of Professor J. S. Diller in 1883, did a great deal to familiarize Washington Congressmen with the geologic wonder of Crater Lake. Officially establishing Crater Lake's depth at 1,996 feet, the deepest lake then known in North America, was news of national importance.

Writing thousands of letters, organizing petitions, seeking prominent citizens' support and carrying on the battle of the Cascade Forest Range and its closely aligned fight with ranchers and lumbermen who could only look at the forest with "board feet" eyes were some of the unpaid tasks carried on by Will Steel.

Since the first discovery of



William Gladstone Steel

the lake, men had wondered if there were fish in Crater Lake. In 1888, Will Steel was enroute to the lake on one of his many visits to explain some of the numerous outstanding features to guests, when trouble caused the group to stop at the Gordon Ranch. The Gordon boys collected 600 fingerling trout, which Steel purchased. Steel began the forty-nine mile trip to the lake, stopping at each fresh stream to change water. As he neared the rim, several fish began to die and at the time of the planting only thirty-seven remained alive - - but the first fish had been stocked in Crater Lake.

On May 22, 1902, Crater Lake was established as our fifth national park and Steel's efforts were rewarded. On October 13, 1902, W. F. Arant became the first Superintendent of Crater Lake National Park, appointed by Secretary of the Interior Ethan A. Hitchcock. Arant's first and most important contribution was the improvement of roads. This was the beginning of an ever-improving highway system in the park. This was not the end of work for William Steel, for he threw his weight behind the effort of developing roads and lodging for visitors. In 1913, he became the second Superintendent of Crater Lake National Park. Much personal time and money were sacrificed by him in the improvement of the park.

The advent of the horseless carriage was of critical importance at Crater Lake and a suggestion was made to build two roads to the rim, one for horses and the other for the noisy automobile. In 1907 the first cabinet member visited the park, James R. Garfield, Secretary of the Interior. Several years later, in honor of his visit, Garfield Peak was named. 1907 was a year of firsts, the first public boat, the Wocus, having been launched on Crater Lake at that time also.

In 1912, the lodge was erected and one unit of it is the oldest structure now existing in the rim area. 5,235 visitors were recorded in that year. Seven years later, the rim road around Crater Lake was completed and visitors had increased to 16,645. The plaque in honor of John Wesley Hillman was dedicated in 1925, and three years later the Crater Wall Trail was completed. By 1931, the new standard grade road was in operation, Sinnott Memorial was dedicated and visitors totaled 170,284 during that year. In 1953, 332,835 persons came to the park.

In Crater Lake National Park we have commemorated within one year of each other, a centennial and a semi-centennial - - last year the fiftieth birthday of the National Park and this year the one hundredth anniversary of its discovery. The history of the park does not end with these, but rather will continue to reflect the broad-minded concept of administration initiated with Will Steel's dream - - to conserve the scenery, the natural and historic objects and the wildlife therein and provide for the enjoyment of the same in such manner and by such means as to leave them unimpaired for the enjoyment of future generations.

Selected References

- Arant, W. F. 1904. Report of the Superintendent of Crater Lake National Park to the Secretary of the Interior.
- Carey, Charles Henry. 1922. History of Oregon.
- Fremont, John Charles. 1887. Memoirs of my life.
- Goman, M. W. 1897. Discovery and early history of Crater Lake. In Mazama.
- Gray, W. H. 1870. History of Oregon.
- Steel, William Gladstone. 1914. Report of the Superintendent of Crater Lake National Park to the Secretary of the Interior.
- _____. 1885 - 1934. Eleven volumes of scrapbooks containing numerous clippings, telegrams, and correspondence concerning Crater Lake. Also his correspondence file concerning Crater Lake National Park. In the files of the Park Naturalist, Crater Lake National Park.

NEW BIRD RECORD

By Harry C. Parker, Park Naturalist

Last spring, a species of bird was recorded that not only was new to the park list, but it was found under most unlikely circumstances. During a light snow storm, while skiing at the upper headquarters residence area, April 6, 1953, at 6:13 p.m. the writer observed an American coot, Fulica a. americana Gmelin, often known as "mud hen", denizen of marshes, ponds and lakes.

The locality was where the driveway of the residence of then Park Engineer Robert Hursh connects with the main residential road. The bird flew slowly past me, about four feet above the surface of the road, so that the white frontal plate was clearly visible. It came from the east, landed outside the Hursh garage door, then walked inside. Mrs. Hursh, who is also familiar with the species, saw the bird there and agreed with my identification.

The next morning, the bird had gone and there was no evidence that it had eaten any of the water-soaked oatmeal provided for it by Mrs. Hursh the night before.



Rangers Bertsh, Turner and Ward, with Sno-Cat at the start of the trip.

LOST CREEK SKI PATROL

By Richard M. Ward, Park Ranger

Each year a crew of rangers makes a patrol to the Lost Creek Cabin (East Entrance). This patrol is made primarily to remove the snow from the roof of the cabin, which would otherwise be crushed. The total depth of snow to be removed has varied from a record of eleven feet, in the spring of 1952, to a low of four or five feet. This year the depth was approximately seven feet.

The morning of February 11, 1953, was clear and cold - - ideal weather for a ski patrol. I say ski patrol; actually we used a Tucker Sno-Cat as much as possible. On the trip to Lost Creek it is possible to use the Sno-Cat for four miles, thus leaving three miles to be skied.

The rangers on the patrol this year were Paul Turner, Verne Bertsch, and Richard Ward. We left Park Headquarters at 8:00 A.M., in the Sno-Cat and proceeded out the East Entrance road to the Vidae Falls truck trail. We then traveled this road to the point where it starts around the flank of Dutton Ridge. Here we parked, took time for a cup of coffee, put on our skis and started around the ridge.

The day was beautifully clear, so the three of us were busy taking color shots of Union Peak, Klamath Lake and other interesting features. About one and a half hours after leaving the Sno-Cat we reached the

the point where the rest of the trip was downhill. Here we stopped for lunch, as it was almost noon. We also took several pictures of Mt. Scott with its covering of snow. We always look forward to that stretch of the trip from Dutton Ridge to the Lost Creek Cabin as it is downhill all the way. (I make the above statement only from the standpoint of "going over" because "coming back" the slope seems ten times steeper up than it does down.) We put on our skis after lunch and started down. Luck was with us as we had almost ideal snow conditions. At first we encountered a few patches of ice, but we soon worked our way out of it onto a stretch of powder snow about three inches deep, arriving at the cabin early in the afternoon.

The first job was to dig out the stove pipes and to shovel the snow from the cabin door. Finding the stove pipes was a big job in itself. We knew approximately where they were, so we started digging. After removing about seven feet of snow we found the ridge; then we started down the slope of the roof and, as the snow had pushed the pipe over, we had to search for it. This took some more digging. By the time the pipe was dug out and straightened we had worked up an appetite. While the stove pipes were being dug out, one man gained access to the door of the cabin and laid the fire. At the signal that the pipes were clear, the fire was started.

The cabin was like a deep freeze when we first went inside, but after a few minutes it started to warm up and all thoughts turned to food. Each man picked his specialty and started to cook. The food had been stored late in the fall in mouse-proof containers and, although many of the items were frozen, it was in good condition. After a good meal, the dishes were washed, more snow shoveled, beds were made, fires were built up, and then to bed.

Next day the routine was as follows: Up in the morning, after some discussion as to who would get up and build the fires and start breakfast (hot cakes and bacon). After breakfast snow removal. We divided the roof into sections and shoveled trenches all the way to the roof, eave to eave and over the top; then using a saw, sections were cut off and rolled clear of the roof. This soon becomes back breaking work. The snow removal continued all day,



Ranger Bertsch
standing in the initial cut in the snow.

with short breaks for coffee and lunch.

As soon as it started to get dark we had dinner of wieners, potatoes, peas, biscuits with butter and jam, and peaches - - all washed down with lots of coffee. We all "hit the sack" early - - to rest our sore and tired muscles.

The morning of the third day we were up bright and early, ate breakfast and finished the roof. We had an early lunch, put out the fires, locked the building, put on our skis and started back up the steep mountainside to the Sno-Cat. For this climb we used "seal skins", a mohair material fastened to the ski bottoms that allows a skier to climb a slope without sliding back. After several hours we reached the top of Dutton Ridge and had a candy bar and a cup of coffee. We only had a little way to go now, with some excellent downhill skiing. Soon we saw the Sno-Cat - - and it was a welcome sight. Ranger Turner started the motor, we had another chocolate bar, and then settled back for a comfortable ride back to Headquarters.

THE MARTEN AND THE "MAC" MARMOTS

By John R. Rowley, Ranger Naturalist

I was set up to take pictures of a young marmot whose talus slope burrow is located north of Llao Rock. On several earlier visits I had found the young fellow to be sufficiently curious or uninitiated that he would come out of his underground home, looking up toward me from his ridiculous sitting position with his little round belly resting on the ground between his not-long-enough hind legs. My little friend had sat like this several times in the past, with forepaws held primly in front of him, looking toward me with as much interest, it seemed, as I showed toward him.

However, on that day all was not well on the precipitous marmot rock pile. The little fellow came out within minutes, but two adults - - some 60 feet distant - - were constantly giving the alarm cry of the yellow-bellied marmot. Their cries could, I thought, be directed toward me. No, there was a red-tailed hawk sailing slowly overhead; this was probably the cause for the marmots' unusual display of alarm. The short, shrill cries continued, though, long after the hawk had disappeared far east along Crater Lake's rim toward Cleetwood Cove.

Then, without warning, a small mink-like head, rich brown in color, peered from behind the large rock just below the young marmots' hole. It was a pine marten, fearless, pugnacious animal, smaller and more slender than a domestic cat.

The young marmot disappeared into the burrow; the marten, after a hasty look about, which included a glance in my direction, followed. After a few seconds, the marten reappeared and for a time was lost among the rocks. Once more I saw my little friend's nose with its knowing



Yellow Bellied Marmot

expression. But the sharp, warning crys of the two adults, sitting up like overgrown golden-mantled ground squirrels, sent the young fellow back out of sight.

Once again the marten appeared, eyes gleaming, head bobbing. He entered the young marmot's burrow, this time coming out of another exit. Smelling the rocks about the area, he once again gave me a fearless glance - - a glance that made me feel the tenseness of the moment acutely - - before he again slipped into the main entrance.

After many seconds, the marten reappeared and poised on the large rock with my little friend clenched shapelessly in his jaws. Quickly now, the marten carried his prey down the rocky slope and across a small pumice meadow to the shadow of a Shasta red fir. Here the marten put down the marmot, looked toward me and toward the two adult marmots, his body vibrating intensely. Then, picking up his plunder, the marten disappeared into the depths of the forest.

Now one of the adult marmots went into action. Whether my presence had prevented earlier defensive activity or whether they had not actually seen the marten, there is no way of determining. I had thought of the marmot as a slow animal, moving lazily about on its short legs. This conception was soon to be altered, for this adult covered the 60 feet of rough terrain between his burrow and that of the young marmot in a matter of seconds. On arrival he sat up and gave three shrill "chrips" before dropping into the burrow, tail bristling so strongly that it approached the size of his fat body. The adult marmot soon returned, sat

up straight for an instant. Then, with the bristling tail trailing like a pennant, he returned to the home burrow as quickly as he had come.

For the next ten minutes both adults sat upright, giving their shrill chirp every few seconds. One of the adults began to run toward a pile of rocks that stood on the edge of the pumice meadow and, to my surprise, a marten dodged from behind one of these rocks. The marten sped from the lumbering marmot with a swift airy grace, possibly very soon, by taking to the trees, to complete his escape.

IMPRESSIONS OF CRATER LAKE

By Beatrice E. Willard, Ranger Naturalist

What is Crater Lake? How does it affect you? What do you see when visiting it for the first time? The answers to these questions would undoubtedly be as varied as the people giving them, but a general picture would emerge - - an overall impression of beauty and power.

It has long been a conviction of mine that we sometimes become so immersed in a small segment of nature or life that the total picture is lost to our view. Certainly here at Crater Lake, because of the structure of the Park, a full comprehension is more easily gained from one point than in many National Parks. Yet it is ultimately made up of numerous impressions absorbed while watching and studying this outdoor museum. Rather than become engrossed with one of the specific, minute segments of this unique scene, I prefer to view it as a whole, discovering for myself the aspects which unite to form a panorama which has brought many people to think of Crater Lake as the "eighth wonder of the world."

Looking at the Lake for perhaps the first, perhaps the hundredth time, we are unceasingly impressed by the roundness of this caldron of deep blue water, by the steepness of the slopes delineating the Lake, by the intense color of the waters accented by the green hemlocks and multicolored rim and by a sensation of height and space gained from being on top of a collapsed mountain.

In watching this "thing of rare beauty, resting in a circular crater of a great volcano," we become increasingly aware of a unity of form, pattern, and color - - - "a symphony of line."

Forms that immediately draw our attention are: Llao Rock, whose massive face forms an imposing feature of the rim wall from any vista; closer examination reveals the volcanic source of this "bird of fire". Wizard Island, whose shape inspired the belief among early travelers that monsters might live on this volcano within a volcano. The trees, uniformly arranged in line patterns against the gray and black cinder, catch the evening light as it glances golden across the southern face. Hillman Peak, whose sharp, unicorn-like point is the highest on the rim wall, creates many varied impressions of form and color as light and shadow play upon the jagged spires, remnants of an age-old vent from which once

spewed molten materials from deep within the earth. Delicate tints of red, lavender and black emerge at various angles and in varying lights. And, last but not least, the Phantom Ship, whose so illusive, and yet so majestic, shape has aroused the casual visitor and the ardent scientist alike to wonder about the story which lies bound within its rocky masts and wing-torn sides.

Line and pattern add to the picture: The frivolous wind ripples playing constantly about on the surface of the Lake create an ever-changing pattern; reflections of the steep rim walls and passing clouds add soft line and color; layers of long-erupted lavas parallel the sky as huge rock slides reach skyward from the water; and light and shadow produce shifting contrasts.

All of these impressions add to our awareness of distance, size, and scale. John C. Merriam expresses the idea that "The sublimity, power, and orderly operation in this process of creation develop in us reactions produced by other elements which we recognize as beauty and harmony".

The finishing touch to our impressions of beauty born of form, line and pattern is color - - color born of light as it reflects from the steep walls and deep water; color which at first is not apparent, so subtle is its effect upon our view. But, as we continue to look at this incomparable scene, we begin to see myriad hues within the frame of this "deep Blue Lake".

The primary color, and the only color evident to many, is Crater Lake Blue. So blue is it that one feels it cannot be real! But the Lake varies in shade from pale, baby blue where the horizon is reflected, to a somber midnight blue when, near sunset, the cliffs cast their dark shadows upon the waters. Thus, since the origin of these colors is dependent mainly on light, as the light changes so does the blue.

The pastels of the rim contrast strikingly with the intensity of the water and serve well to enhance its beauty. Such are the vivid pinks of Dutton Cliff, the softer hues of Red Cloud Cliff - - startlingly accented by the tile red of Pumice Castle; the brilliant golds and browns of Garfield Peak and Chaski Slide which turn to turquoise the water of Eagle Bay; the somber grays and blacks of Roundtop and Palisades which form a fitting backdrop to vivid crustose lichens of chartreuse, orange, blue-gray and black. A symphony of gray rises from the andesitic and dacitic flows of Mt. Mazama - - in Llao Rock, Palisades, Roundtop, and the cinder of Wizard Island, Red Cloud Cliff, Sentinel Point, the many layers of Dutton Cliff, Phantom Ship and those transient summer visitors, the thunderheads. And over all the rim lies the light tan of pumice flows, a neutral color which ties together all in peaceful harmony of line and color.

To this picture painted in rock, water, sky, and wind are brought each summer the fleeting colors of wildflowers as they make their ephemeral display within hitherto unnoticed crannies of rock, on forest floors and in pumice flats. Prominent among the eye-catchers are the

smooth wood rush whose yellow-green shoots spring through shallow snow in their eagerness to become a dense green carpet beneath the hemlocks; the rock-loving penstemon whose showy, trumpet-shaped flowers make a blaze of color on overhanging ledges; the spreading phlox whose petals shade from white to deep lavender, making a patchwork quilt of the open pumice slopes; the Indian paint brush whose gaudy crimson heads wave merrily in the wind; and the Lewis's monkey flower whose more demure shade attracts ardent rufous hummingbirds for a drink of nectar.

And so these impressions flow and change, but constantly build an abiding feeling of serenity and an increasing awareness of the magnitude of the creative Power, which guides us all. We might say, as did the poet, Ernest Moll,

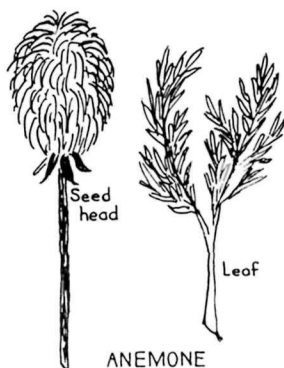
"Untouched by thought, I give myself to these
Rich intervals of blue and rose and grey,
Free as a white-winged ship that sails the seas
Knowing no port nor and homing-day."

References

- Merriam, John C. 1938. Published Papers and Addresses of John Campbell Merriam. Volume IV. Carnegie Institution of Washington, Washington, D. C. pp. i-vii, 1947-2672.
- Moll, Ernest G. 1934. In: Ranger - Naturalists Temporary Manual of Operation. Field Division of Education, Berkeley, California (Mimeographed). 109 pp.
- Moll, Ernest G. 1935. Blue Interval. Metropolitan Press, Portland, Oregon. 41 pp.

CRATER LAKE WILDFLOWERS AND THEIR RAPID GROWTH

By Joseph Burgess, Ranger Naturalist



At elevations from 6000 to 8000 feet, like those near the Rim of Crater Lake, winter weather exists during a major portion of the year. Records kept in the Chief Ranger's office show snow on the ground from October until June with snow often recorded in September and sometimes remaining until July. Compared with the season of 1951-52, when snowfall was almost a record, the total reaching 835 inches, (Hallock, 1952) only 571 inches were recorded for the year of 1952-53. Of this amount, 6.8 inches fell in June and approximately 108 inches remained on the

NEWBERRY'S KNOTWEED

Bright crimson stems push up
as soon as the snow melts.



Three weeks after the stems appear, the plants bear flowers.

ground at the Rim Campground July 1st. Hence the late season. The Rim road around the Lake was not completely opened until July 30th and the trail to the Lake, August 1st.

On the bank bordering the Sinnott Memorial walk, snow disappeared July 10th. Twenty days later, prickly currant, Ribes lacustre Poir, had put on new leaves and a profusion of greenish pendulous flowers.

The smooth wood rush, Luzula glabrata Hoppe, cannot wait for the snow to melt but sends up bright green, grass-like leaves through the thinning snow, often while it is three inches deep. This plant is a perennial, the stoloniferous stems staying alive underground during the long winter months.

The western windflower, Anemone occidentalis Watson, is not-able for its quick appearance when the snow melts. In less than a week the finely divided leaves appear, and two weeks later the flower stem is crowned with a white flower, the center filled with canary yellow stamens. This in turn is short lived, and the attractive greyish seed head, resembling a wind blown cloud, takes its place. Like so many members of the buttercup family, the flower has no petals - - the showy sepals taking their place.

For speed in completing its annual cycle, one must mention one of the commonest of Crater Lake flowers, Newberry's knotweed, Polygonum Newberryi Small. The history of several recorded plants on the Garfield Peak trail was as follows: Two days after the snow melted back, bright red stems pushed through the drying soil. A week later green leaves were in appearance, and the plant was about three inches tall. Seven days later, short spikes of greenish flowers were showing, and the plant had attained the apex of its flowering season just 24 days after the bright red stems pushed through the earth. Very quickly the green chlorophyll in the leaf disappears, and the hillsides are brightened by the red and orange tints of this fast growing little knotweed. This is just another of the many plants which take advantage of the brief hours of summer sunshine to complete their short yearly cycle before autumn frost and snow terminates activity for another year.

Reference

Hallock, Louis W. 1952. The big snow of 1951-52. Crater Lake Nature Notes 18:3-5.

FROM PHOTOGRAPHER TO NATURALIST

By Ralph E. Welles, Seasonal Ranger, and Mrs. Welles

(Photographs From Kodachromes by the authors)

"Where is all this wild life you show so many pictures of and talk so much about?" is a question repeatedly asked us after an evening program at the Rim.

The answer, to a naturalist, is simple. Direct him to the habitat, and he knows the rest. To the layman, you must all too often begin as far back as the definition of the word "habitat", and go on from there in an effort to condense in a verbal moment information which actually has taken years to compile into volume after volume of painstaking research, observation and experience, and which is still incomplete.

In the beginning, the amateur photographer of wild life is content to ask someone else for the answer to his questions. But inevitably the fascination of his pursuits make him want to find the answers for himself. It goes something like this:

One day going up a mountain trail that cut through a steep talus slope which ended in a lush green meadow a few yards below the trail, our novice caught a flash of movement among the boulders below him. Ready-ing his camera, he watched and waited and was soon rewarded by the appearance of a strange little rabbit-like animal about six or eight inches long, dragging a sprig of Cascade aster through the rocks. The little creature paused just long enough for one click of the camera and disappeared.

The developed picture revealed that while the little animal was rabbit-like, there were significant differences. His ears were short and round. He seemed to have no tail at all, and our photographer recalled a peculiar high squeaking call which he could not associate with rabbits.

A naturalist friend glanced casually at the picture and remarked, "So you have been up in the talus slopes."

Our friend was surprised. "How do you know that?"

"That's where this fellow lives", was the answer. "This is the cony, or pika, sometimes known as the little chief hare, the haymaker, or the ventriloquist of the talus slopes."

"Do you mean," he asked incredulously, "that you never find this cony or whatever you call him any place else?"

"Not precisely," said the naturalist, "but that is where you are most likely to find him, because such terrain affords him the most of what he needs for existence - - the green grasses, sedges and flowering plants for the little hay stacks which he puts up under rock slides during the

summer for his winter food supply, the quick shelter among the rocky crevices both from the weather and his natural enemies."

"Well, then," said the photographer, with a gleam in his eye, "if I want more pictures of the cony or the pika, all I have to do is find a rock slide and I can get all I want."

"Not quite so simple as that. There must be food near the rock slide, and it must be at a certain altitude, usually from 5000 to 13,000 feet, depending on the section of the country he is in." He turned to his library. "Look him up. You can find out all about him."

He extended a book, but his friend laughed. "I'm not taking it as seriously as that. I know where to find him and that's all I need to know."

The naturalist smiled. "Well, I guess that settles Ochotona princeps."

"What?" asked the photographer.

"His scientific name."

The photographer laughed. "Oh," he said, "That stuff is not for me."

That evening the photographer showed his pictures to a group of friends, and when he came to his new little animal there was much excitement. He felt well prepared to answer any questions.

"What is it?" asked one. "It's a - - -" and he had to think a minute, but finally it came to him, "cony or pika," he said triumphantly.

Then someone said, "But what's its scientific name?" This question came from a friend who was known as "The Scientist."

"I don't know," he said. "I don't care about scientific names." And he went on quickly. "He lives in rock slides because that's where his food is. I mean," he said, as The Scientist raised his brows, "If the rock slide is close to a meadow, that's where his food is, and also he can find protection from his natural enemies there." He was beginning to sweat a little.

"Natural enemies?" inquired The Scientist. "What are his natural enemies?"

Our photographer was suddenly desperate.

"I haven't looked that up yet," he snapped, and suddenly he had a brilliant flash of recollection.

"His scientific name," he said "is Ochotona."

"Oh, of course - - Ochotona," said The Scientist, "but is it Ochotona princeps or Ochotona shisticeps shisticeps or Ochotona brunescens or or Ochotona fumosa?"

The photographer wasn't sure what happened after that.

Late that night he decided what he was going to do, and day-break found him headed for the home of his naturalist friend to borrow the book that told about the strange little animal that looked like a rabbit but wasn't.

"That book," he said, as casually as he could make it. "Could I - -"

"Of course," said the naturalist, and gave it to him at once. He hadn't even put it back on the shelf. "While you are about it," he added,

smiling, "you will want to look up the golden-mantled ground squirrel, the yellow - bellied marmot, the pine marten and the red fox. There are many others but don't try to take in too much at one time."

The photographer gulped.

"I've marked the pages," the naturalist said soothingly. "You see, one thing follows another.



The ground squirrel . . .



and the marmot, . . .



like the coney, . . .



live where they do . . .



because of what grows there.
They eat the vegetation . . .



and the marten . . .



and the fox eat them.

We must know their habits, you see. Where they live, and how and when. Some are out in the day time, some at night. Some live in trees, others on the ground. Some hibernate, others do not, some migrate, others--"

The photographer stood up with an air of sudden decision, and started out.

"Wait," cried the naturalist, "you're forgetting to take my book!"

The photographer turned and for the first time that day he was smiling.

"I've got a better idea," he said, "I'm going to buy one for myself!"

THE CRATER LAKE COMMUNITY

C. Warren Fairbanks, Assistant Park Naturalist

Probably the most asked question concerning Crater Lake is "Are there any fish in the lake?" To answer "yes" is easy. Such a reply, however, calls to mind the question of what they use for food. This, in turn, leads to a discussion of conditions which make it possible for fish to live and maintain themselves in Crater Lake.

Crater Lake rests in an unusual setting in comparison with most bodies of fresh water. It lies in the top of an ancient mountain - - old as man reckons time, but geologically recent - - the upper 5000 feet of which was destroyed about 6450 years ago. This destruction was in nature of a collapse which dropped the top of the mountain into a great void within its lower reaches and produced a cauldron - - or "caldera," in the geologist's terminology - - nearly 4000 feet deep and from four to six miles in diameter.

Preceding the collapse, a brief series of gigantic pumice eruptions withdrew great amounts of material from below the mountaintop and contributed to formation of the mammoth chamber. Some of these outpourings rushed down the slopes as flaming avalanches of gas-charged lava, each pushed along by its own jet-propelled impetus. Aside from filling stream

and glacier-cut valleys, they engulfed and destroyed the forests and all other life, effectively sterilizing the area for miles around. Incidentally, the engulfed forests, through the medium of radioactive carbon, give us our best evidence as to the date of these last eruptions.

Since the collapse, precipitation has filled the cavity to a depth of nearly 2000 feet with water of great clarity and pureness. Its salt content is less than one-sixth that permitted for drinking purposes. Its bacteria count, even in parts where recent storms had carried large quantities of sediment into the lake, was found to be exceedingly low. The shores and bottom are rocky and the lake bed drops rapidly into deep water. There is no true shallow zone or real emergent vegetation. This geologically young lake - - probably less than a thousand years old at its present level - - has no beach worthy of the name.

The unusual setting of Crater Lake in the top of a mountain isolates it from the ordinary channels through which living things migrate and extend their ranges. This old volcanic cone slopes away on all sides. There is no higher ground from which rivers flow into the lake and which could carry living organisms, although there are numerous small cascades whose origins are in melting snows higher within the walls. Neither are there known channeled outlets, which could also serve as pathways of migration. Compared with most lakes, which in reality are only widened streams, Crater Lake is separated from the usual sources of plant and animal population. The life which exists there had to come into the lake by extraordinary means - - the hard way. There was no readily accessible reservoir.

It is interesting to conjecture just how life did come to Crater Lake. Briefly, many lower plants and animals pass into stages of existence which are resistant to drying, freezing, and other conditions inimical to normal active life. Frequently, such inactive stages are associated with reproductive processes and involve eggs or spores which can renew activity at some later time when conditions are right. The shallow vernal pond which appears each spring, blooms rapidly and abundantly with diverse plant and animal life, and completely dries up later each summer is an example of this phenomenon. Since many of the forms found in Crater Lake have such inactive stages, it is easy to understand how they came to be there. Bits of mud clinging to the feet of birds could have brought many of them. Some could even have been carried by wind. Others could have been introduced with planted fish.

The Crater Lake community is complex. While the number of forms is small compared with many lakes, among the animals are representatives of most groups found in other fresh waters. In considering the community, however, the green plant is the key to its existence. As is true elsewhere, the green plant with its almost magic chlorophyll supplies all the energy used by animals. It alone has the unique ability to trap energy from the sun and make it available to other living things. It does this by combining two simple substances, carbon dioxide and

water, to form grape sugar which is rich in tied-up energy.

This energy is passed on in one form or another to animals and some other plants. The fish - - or man, who eats the fish - - thus derives its very existence, perhaps through a long line of progressively smaller animals, from the simple green plant which started the process. The biologist calls this a food chain, with the green plant at one end and the large animal at the other. This is the sort of relationship which makes it possible for fish to live in Crater Lake.

Of the green plants in the lake the most important, and practically the only ones, are the algae. These simple, essentially one-celled plants exist singly or in small groups that ordinarily can be seen only with the aid of a microscope. Some are grouped into long thread-like filaments. The filaments in turn may be gathered into jelly-like balls or masses large enough to be seen with the naked eye.

It would be difficult to assign relative importance to the members of this large plant group. Surely those classed as blue-greens, having a blue pigment which partially masks the green of the chlorophyll, appear most abundantly. One of these, Nostoc, is found growing in ball-like masses attached to rocks and among mosses. Other blue-greens are Oscillatoria, Calothrix, and Chroococcus (Brode, 1938). Other important algae, however, are certain filamentous greens, for example, Mougeotia and Zygnema. Rocks and logs along the shore show a conspicuous growth of Cladophora (Brode, 1938) and Ulothrix. Diatoms comprise the third important algal group. They are so abundant in "Fumarole Bay," on the western side of Wizard Island, that the glass cases which enclose the living portion of this one-celled plant have formed, as countless numbers have died and settled to the bottom, a thick floor of diatomaceous ooze. This, of course, does not exhaust the algae found in Crater Lake but is only representative.

Mosses also are represented in the waters of the lake. Near Wizard Island, Fontinalis and Drepanocladus form a very thick mat on the bottom at a depth of 394 feet (Hasler, 1938) - - an indication of the great clarity of the water, which permits light to penetrate to such a depth in sufficient quantity for these plants to carry on the essential process of food manufacture.

Fontinalis also occurs on the "Old Man of the Lake," the only place it is found near the surface (Brode, 1938). During the summer of 1953, a collection of several moss specimens was made on the "Old Man of the Lake." Recent examination of these specimens by Dr. Henry S. Conard, Grinnell College, Iowa, showed all the material to be Scleropodium obtusifolium (Hook.) Kindb. It would appear, therefore, that this species is now the most abundant, if not the only, moss in this unusual habitat. Appreciation is expressed to Dr. Conard for making this identification.

According to Brode (1938), the only flowering plant growing rooted in the lake is the water buttercup (Ranunculus aquatilis capillaceus), found at depths of five to fifteen feet.

These, then, are the green plants which form the base of the great pyramid at the apex of which are the fish which dominate the waters.

Green plants alone, however, would not support a population of rainbow trout or sockeye salmon. These animals require a "meat" diet. Between them and the plants there is of necessity at least one intermediate animal which feeds upon plants and serves to convert plant materials into animal substance. Several inhabitants of Crater Lake serve in this capacity. Some feed directly upon the living plants while others function as scavengers which utilize dead organic matter for food. Hubbard (1934) lists five such converters. The most important is the "bloodworm," or midge larva, which feeds almost exclusively upon algae. While some larvae are taken by fish, the pupal stage, since it is less active, appears to be a more important component of the fish diet. Caddis fly pupae are also found in some abundance in fish stomachs.

Snails, which feed on diatoms as well as upon dead animal matter, are often taken by fish. Chief Ranger L. W. Hallock reported the catch of a 23-inch rainbow, the major food item of which was the snail. This returning of dead animal matter directly to living flesh is an important short cut in the food cycle.

Certain small relatives of the crayfish which live in the lake also play their part in food conversion. Daphnia, the so-called "water flea," is very tiny--it measures perhaps 2mm., 1/12 inch, in length--but exists in rather large numbers. Kemmerer et al. (1923) state that they are found mostly between about 250 and 300 feet or more below the surface. The preferred food item of these small crustaceans is the diatom. They, in turn, are of primary importance to the fingerling fish and often make up a considerable portion of the food of larger fish. Brode (1938) reported 7500 in the stomach of one fish. The freshwater shrimp, Hyalella, also forms part of their diet. The copepod, Cyclops, though not as abundant as Daphnia, plays a similar role as a converter.

Many of the smaller converters are also fed upon by large carnivorous water insects, which then fall prey to fish. Of these intermediate forms, dragonfly nymphs play an important part. While they themselves are seldom taken by fish, adults, as they fly over the water, often are caught by them. Adult whirligig beetles, which live in the water, also are important intermediates.

During the summer months, those fish which feed at the surface take advantage of any food items that may come their way. While no considerable number of fish stomachs were examined this season, those studied--from fish taken exclusively by casting from shore--had fed predominantly upon terrestrial insects. These consisted of various flies, bees, ichneumons, a great many long-horned beetles, butterflies and dragonflies. A few spiders were also found. Strictly aquatic forms were few and were primarily midge larvae and pupae.

Most of the fish reported were taken by Ranger Joseph C. Hunt. These were largely rainbow trout (Salmo gairdnerii irideus), although a few were sockeye salmon (Oncorhynchus nerka kennerlyi). The former ranged in length from about 12 to 22 inches, while the sockeyes had a maximum of

about 12 inches. The fish, therefore, is an opportunist and takes advantage of what may come his way. In this manner he is able to encroach upon food supplies from outside the lake.

Other forms of animal life not of great importance as fish food are also found in Crater Lake. The endemic salamander, the Mazama newt (*Triturus granulosus mazamae*), occasionally furnishes a meal for a fish. This near relative of the frog, in company with the long-toed salamander (*Ambystoma macrodactylum*), lives under rocks along the shore.

Water-dwelling annelids, related to the common earthworm, are found in small numbers and sometimes are retrieved from fish stomachs. In a rather cursory examination of the aquatic community on the "Old Man of the Lake," the remains of a hemlock tree with part of its root system below, and about five feet of stump extending vertically above, the water surface and which is carried about the lake by wind currents, there were found two kinds of these annelids. Among other interesting forms in this community were a large number of mites--relatives of the spider. Quite abundant, also, were copepods belonging to the harpacticid group. Specific identification has not yet been made. The available literature indicates, however, that this group of microcrustaceans has not been previously reported from Crater Lake.

Fish, as previously stated, are the dominant forms of animal life in the lake. It should be evident that these inhabitants did not enter the lake by natural means. The first planting was made September 1, 1888, by William Gladstone Steel when he released 37 of an estimated 600 rainbow trout "minnows" with which he had started from the Gordon Ranch, 41 miles from the lake. The first trout was caught in 1901. In 1902, and in many years thereafter, other plantings were made by the National Park Service. A number of species were tried but, with plantings discontinued in the early 1940's, the only ones that have persisted and reproduced are the rainbow trout and sockeye salmon.

The Crater Lake community is thus seen, from this brief review, to be a relatively closed community, at present essentially self-sustaining.

Some forms have been introduced artificially. Most of the inhabitants, however, have found their own ways there and have become established as important components which make their own peculiar contributions toward the total economy.

References

- Brode, J. Stanley. 1938. The denizens of Crater Lake. Northwest Sci. 12 (3):50-57.
- Hasler, Arthur D. 1938. Fish biology and limnology of Crater Lake, Oregon. Jour. Wildlife Management 2(3):94-103.
- Hubbard, C. Andresen. 1934. Fact and fancy about Crater Lake fish. Report submitted to the Research Branch of the National Park Service, March 1, 1934. (MS. in Crater Lake National Park Library).
- Kemmerer, George, J.F. Bovard and W. T. Boorman. 1923. Northwestern lakes of the United States: biological and chemical studies with reference to possibilities in production of fish. Bull. Bur. Fisheries 39:51-140.



Crater Lake Bears. From kodachrome by Welles and Welles.

OBSERVATIONS AND CENSUS OF THE BLACK BEAR IN CRATER LAKE NATIONAL PARK

By Roland D. Walters, Ranger Naturalist

The Olympic black bear, Euarctos americanus altifrontalis (Elliot) was first noted at Crater Lake from the standpoint of numbers in 1896 when a biological survey was made of the mammals in this area. At that time the black bear was reported to be uncommon (Merriam, 1897). According to one ranger naturalist, bears were so scarce at one time that it was feared they would become extinct in this area. It seems, however, that in 1919 hopes for their survival took a turn for the better when a long, starved-looking female bear put in her appearance (Wynd, 1930).

She soon gave birth to a pair of twins and, after rearing them to the independent stage, wandered off one day to a nearby logging camp. Having learned to place her confidence in human beings, she sat down by a tent and waited to be fed--but instead of food she received a lead slug. The twins, named Jemima and Buster, carried on successfully and are said to be the forerunners of most of the bears now found in the park.

The total number of bears observed in the fall of 1933 was fourteen. This census was taken after the first heavy snowfall, at which time the bears relied on food scraps obtained at the dining hall near park headquarters (Canfield, 1933). According to Wallis (1947), Wildlife Ranger Wilfred Frost observed forty-two bears on August 31, 1939. Thirty-three were black, the remainder being of the brown color phase. Wallis himself estimated the bear population in 1947 to be between twenty and thirty in number. From the foregoing records it is evident that the census of bears during the past 50 years is rather incomplete and lacks data in regard to

methods used, percentage of various color phases and any breakdown into age groups.

"Where can I find a bear?" "How many bears are there in the park?" Questions such as these stimulated me to pursue an active program of observations on the bears in the park. During the summer months of 1953 daily records were made in regard to size, color, number and habits.

Although the National Park Service long ago discontinued bear feeding "shows" and prohibits the feeding, teasing and molesting of bears, with the welfare of both bears and visitors in mind, the animals are occasionally seen crossing the roads in various places in the park. They frequently wander through the campgrounds looking for food that may not have been packed away in a secure place. The bear is not a rare mammal in Crater Lake National Park.

The following table is a record of the quantitative results obtained. To obtain this data a segregation plan was used. First, the several females and their first year cubs were segregated, the second year cubs were then differentiated from medium and full size single adults. Daily observations included many repeats which were hard to distinguish at first but soon various differentiative characteristics such as general size, obesity and sex became helpful in individuals within a given category.

It should be understood that by no means do I consider this to be complete because such a field census undoubtedly includes some duplication, and some bears would go unobserved in an area covering two hundred and fifty square miles. However, this is an attempt to start filling in a gap that can be added to from time to time as better methods and additional observations are employed.

ADULTS

No.	Size	Color
8	Full grown	Black
6	Full grown	Brown
4	Medium size	Black
4	Medium size	Brown

22

CUBS

No.	Size	Color
5	First year	Black
7	First year	Brown
1	First year	Cinnamon
3	Second year	Black
3	Second year	Brown

19

Total 41



Cinnamon Cub

From kodachrome by the author.

The only record of a bear observed nursing her young in the park prior to this year was made in 1939 by Mr. Frost (Wallis, 1947). He observed a mother bear nursing triplets near one of the disposal areas. Ranger Naturalist John Mees observed a mother nursing her twins in June, 1953. According to Mees, the mother bear assumed a prostrate position by lying on her back; then with the help of her front paws the two young were arranged in orderly fashion on her ventral side for nursing. Mr. Mees observed them from a distance of fifty yards and noted that loud gurgles could be heard that far away.

As can be seen in the table, which notes the number of bears observed, there was apparently only one cinnamon cub for the 1953 season. This little cinnamon bear had a black twin which was considerably larger. One day the mother crossed the road and, since the snow banks were rather steep on either side, the cubs had to really scramble to climb over them. In fact, the poor little cinnamon could hardly make it up. He rested about half way up one bank and then made it on the second attempt. Since he was not seen again during the season, I wondered if some male bear had killed him.

Two of the full grown male bears, one black and one brown were very conspicuous because of their unusually large and seemingly long front legs. Several of the park staff noted this unusual anatomical feature. The older males also have very large, hard-looking heads which one cannot mistake in trying to segregate the groups.

References

- Canfield, David H. 1933. A Bear Story. Nature Notes from Crater Lake National Park 6(1):8-9.
- Merriam, C. Hart 1897. The Mammals of Mount Mazama. Mazama 1(2): 204-230.
- Wallis, Orthello L. 1947. A Study of the Mammals of Crater Lake National Park. Unpublished Master's thesis, Oregon State College, Corvallis. 91 pp.
- Wynd, F. Lyle 1930. Triplets. Nature Notes from Crater Lake 3(1):2-6.

THREE SIMILAR SHRUBS IN CRATER LAKE NATIONAL PARK

By Charles F. Yocom, Ranger Naturalist, 1952.

Visitors in Crater Lake National Park during the latter part of the summer frequently notice the attractive white blooms of certain green shrubs along the Klamath Falls entrance road (south entrance) and along the walks near the Information Building and the Lodge. Ranger naturalists are occasionally asked the name of one of these plants but from the description are usually unable to tell the visitor the exact name of the plant, for there are three different kinds of shrubs in the park that have somewhat similar appearing blooms and leaves. These are blueberry



Figure I



Figure III

elder, Sambucus coerulea (Fig. I), Pacific red elder, Sambucus racemosa var. callicarpa (Fig. II), and western mountain ash, Sorbus sitchensis (Fig. III).

Two of these plants, the elderberries, are in the same genus and the leaves and stems look nearly identical. They differ, however, in the shapes of the flower clusters. The blueberry elder has a cluster of flowers that appears somewhat similar in shape to an umbrella, whereas the white flower clusters on the red elder are dome-shaped or somewhat pyramid-shaped. If the branches of either are broken one can see that the stems are filled with a soft substance called pith.

Mountain ash is related neither to the elderberries nor to the ash tree, which it also resembles; but it is closely allied with the wild rose, apple, peach, pear, plum, chokecherry and serviceberry, all of which belong to the rose family. In some areas, mountain ash attains the proportions of a small tree; in Crater Lake National Park, however, it usually occurs as shrubs. The elders belong to the honey-suckle family and should not be confused with alders.

For structural differences between the three shrubs, see the table below. Blueberry elder occurs only along the south boundary of the park and is common along the roadsides between Klamath Falls and Fort Klamath. Mountain ash and red elder occur at higher elevations in the park and often are growing side by side. All of these shrubs furnish an important source of food for many birds and some mammals.

In late summer and fall visitors observe the attractive berries of these shrubs along the roads and walks. There is no difficulty in telling the two elders apart at this time of year, for they have berries colored according to their common names. Of course, those with blue berries (Sambucus coerulea) are found at lower elevations and are often sought for pies and wine. Mountain ash and red elder have berries that look somewhat alike, so one must look for differences in leaves and stems. Also remember that the cluster of berries of mountain ash is somewhat umbrella-like in shape and that the berry cluster of red elder is oblong, the berries themselves being brighter red.

Comparative Table of the Three Confusing Shrubs

Character	Mountain Ash	Red Elder	Blueberry Elder
Color of flowers	white	white	white
Shape of flower cluster	umbrella-like	dome-shaped or pyramid	umbrella-like
No. of petals	5	5	5
No. of stamens	more than 5	5	5
Color of berry	Orange-red	bright red	blue
Shape of berry clusters	flat topped cluster	oblong cluster	flat topped cluster
No. of leaflets	9 to 11	3 to 9	3 to 9
Color of leaflets	shiny green	dull green	dull green
Amount of pith in stem	very little	much	much

NESTING BIRDS

By Robert C. Wood, Ranger Naturalist

During the summer, at least several visitors came into the Information Building to inquire about the two blue birds seen near the back of the building. Of those who saw the pair of mountain bluebirds, Sialia currucoides (Bechstein), only a few realized that the birds were nesting behind a half-closed window shutter on the second floor. When the nest, made up of grass, dead staghorn lichen and one piece of twine, was first discovered on July 11, it contained two eggs.

On subsequent visits the female was nearly always seen on the nest, incubating her undersized clutch of eggs. On July 21, two helpless, pink mites were seen for the first time. The babies grew rapidly; 20 days later one was still in the nest but the other had ventured as far as the ledge a foot away. When the nest was visited the following day, both young bluebirds had departed.

Other nests were found during the summer, most of them being located by observing the adults carrying food. In this way, a second mountain bluebird's nest was discovered in a hole 20 feet up in a mountain hemlock, several hundred feet east of the Lodge.

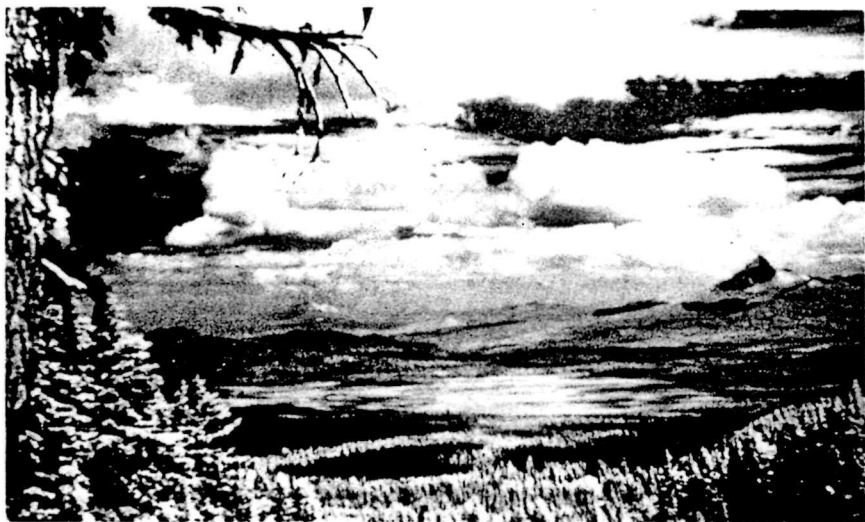
The nesting hole of a red-breasted nuthatch, Sitta canadensis Linnaeus, also in mountain hemlock, was watched by numerous members of the morning Garfield Peak field trips. The dead stub, to which the nuthatches came regularly with food, was conveniently located near the first lookout along the Garfield Trail.

Mountain chickadees, Parus gambeli Ridgway, were found in a snag at Cold Spring Campground, and a pair of violet-green swallows, Tachycineta thalassina (Swainson), evidently reared a family in a cavity in one of the Wheeler Creek pinnacles. The swallows were observed making frequent trips to a small hole in one of the tall, spire-shaped formations, presumably feeding their young.

The nests of two Oregon juncos, Junco oreganus (Townsend), were discovered quite by accident when, in each case, the incubating female was flushed from her nest, well-hidden in a depression in the ground. One nest contained three eggs, the other held four; both were located between the highway and lower Munson Meadow. Unfortunately, there was not an opportunity to observe the hatching and growth of the young. Perhaps our visits were too frequent, perhaps some catastrophe overtook the females. At any rate, the nests were abandoned and neither adult was seen again in the immediate vicinity.

References

- Famer, Donald S. 1952. The Birds of Crater Lake National Park. University of Kansas Press. ix, 190 pp.
 Famer, Donald S. 1952. The use of the Wheeler Creek Pinnacles by nesting birds. Crater Lake Nature Notes 18:9-10.



Mt. Thielsen is on the right.

Photo by James Richards, Seasonal Ranger, 1952.

CLIMB MOUNT THIELSEN!

By Clifton E. Peterson, Ranger Naturalist, 1952

Mount Thielsen, the magnificent pinnacle seventeen miles NNE of Rim Village, always excites the interest of the visitor to Crater Lake National Park. This pointed spire, commonly compared to the Matterhorn in Switzerland by the European visitor, even though only 9,173 feet in elevation, beckons the adventurous.

Mount Thielsen rests on a base of rocks uplifted from the ocean about 60 million years ago. Covering this, and rising to an elevation of 3-4 thousand feet, is the same kind of basalt that makes up the Columbia River plateau. The next several thousand feet are composed partially of lavas which may be referred to as either basalts or andesites, the remainder being pumice and scoria. Forming the mass of the barren pyramidal summit is a compact cinder-like material which has been invaded by many basalt dikes. Through this tuff cone projects the dark lava plug which forms the sharp projecting peak of the mountain.

Mount Thielsen, like all volcanoes, is thus composed of materials thrown up by its own eruptions. Intermittent eruptions began some 25 million years ago and ceased sometime during the last of the Great Ice Ages, probably about one million years ago. At that time the elevation of the summit was in excess of 10,000 feet. The ponderous, moving sheets of ice upon Mount Thielsen's slopes ground away the top until, with the gradual warming of this continent, the glaciers passed away.

The Skyline Trail to the summit of Mount Thielsen begins near the trailer camp just off Hwy. 209, at the SE corner of Diamond Lake. The five mile trail to the summit of Mount Thielsen fades as the solid rock near the top is reached, but beyond this point the best route approaching the spire from the south should be apparent. Except for the last 100 feet, which necessitates climbing upward at an eighty degree angle utilizing crevices in the rocks as support, this trip should present no problems to the average hiker using common sense. No ropes are needed. The hike to the top will take 2-5 hours.

For the safety of hikers, it is desirable for them to state, on forms available at the Forest Ranger Station 1.4 miles north from the trail entrance along the Diamond Lake road, their intention to climb Mount Thielsen. At the end of the hike they should return to the Ranger Station and note the successful completion of the climb on the same form.

On the morning of August 8, 1952, our party of six started from the foot of the Skyline Trail, packing canteens and lunches. The meadow at the start of the trail changed rapidly to the dense forest of lodgepole pine which covers all the lower slopes of the mountain. The few small open areas beside the trail were filled with flowers. After a slight downward slope across the now dry Camp Creek, the trail became steeper. From the deadened tramping of feet on the dry pumice slopes little clouds of dust arose. We stopped to rest, discussing the natural history unfolding before us. Juncos and western tanagers perched above us.

We started upward again. Intermixed with the lodgepoles were a few ponderosa pines, western white pines and firs. More and more mountain hemlocks were noted; the elevation was becoming too high for the lodgepoles. Small pieces of pumice covered the ground, replacing the pumice dust. More basalt was seen.

We passed across relatively open pumice slopes. Trees were fewer, and most of these were white-bark pines. Then the pumice slope became barren of trees, except for a few small scraggly white-bark pines struggling in a sterile and as yet undeveloped soil. But sulphur flower, Newberry's knotweed, lovage, alpine false dandelion, varied-leaved phacelis and other flowers brightened the area. Each step forward was partly lost by sliding backwards, due to the softness and slope of the trail.

Light colored, fragmented lava gradually replaced the pumice and the slope increased. Here visible plant life was at a minimum. We passed by dark, horizontally-layered remnants of the old tuff cone projecting high into the air. To the south and southeast the tuffs dip steeply for the most part. This material gave a better foothold for climbing than was available upon the fragmented lava.

A depressed area in the sloping tuff to the west of the spire, cut by water from melting snows, was heavily populated by the golden long-leaved arnica, bleeding heart, Davidson's penstemon, long-stemmed penstemon, lovage, and, more rarely, Lewis' monkey flower, Jacob's ladder and five-finger.

As we neared the top, rests were more frequent. We approached the base of the summit pinnacle from the south--the only readily accessible route to the top. A few dwarfed white-bark pines grow near the base of this last obstacle to a successful climb.

The last 100 feet was almost straight up, and it was necessary to pull oneself up by handholds in the rock. I was carrying the pack containing the lunches. Trying to hug the bare rock for that last hundred feet, the feeling of being pulled off-balance and away from the rock by the pack, the strange feeling at looking off into a void from this precarious position--well, nothing can quite compare to it.

The view from the top was spectacular! To the north we saw a storm--lightning and thunder and drenching rainfall. Westward, the slopes of Mount Thielsen fall off toward shallow Diamond Lake, lying 4,000 feet below. Beyond the lake is the broad-shouldered volcano, Mount Bailey. Eastward, the slopes of Mount Thielsen lead gradually down to the broad basaltic plateau of central Oregon and across the marshlands where graze 150,000 cattle. To the north, the Three Sisters are easily visible, and to the south, across Pumice Desert, is the grandeur of the rising slopes in which nestles Crater Lake. Fully one-third of Crater Lake is visible beyond its precipitous rim. Far, far to the south, the snow-capped peak of Mount Shasta is dimly seen through the slight haze, 140 miles away in California.

The top of Mount Thielsen is a small area about 9x14 feet. This is where we ate our lunch. The wind was blowing with that eerie sound to be heard around barren rocks in high places. To the NE and ESE of this platform are sheer drops of 1,600 feet into barren valleys containing masses of glacial debris. These valleys were formed as glacial cirques ages ago. Far down, 1,900 feet below, mighty springs can be seen gushing from the side of the valleys, the waters of which wend their way across forested valleys, eventually to reach the Pacific.

We prepared to leave. All around as far as the eye could see were forests and lakes and mountains, certainly defying description, almost defying belief. Except for the very intriguing first portion of the descent, the trip down was uneventful.

For the visitor to Oregon, the climb up Mount Thielsen will provide a memorable experience.

Reference

- Williams, Howel. 1933. Mount Thielsen: A dissected Cascade volcano. University of California, Berkeley. Bulletin of the Department of Geological Sciences 23: 195-214.

LIZARD ADVENTURES ON MT. MAZAMA

Richard M. Brown Assistant Park Naturalist

Previous to the summer of 1948, our knowledge of the lizards in Crater Lake National Park was very scanty. The pigmy horned toad, Phrynosoma douglassi douglassi Bell, the northern alligator lizard, Gerrhonotus coeruleus principis Baird and Girard, and the Shasta alligator lizard, Gerrhonotus coeruleus shastensis Fitch, were the only ones that had ever been reported for the area (Vincent, 1947). It has just recently been determined that all of our alligator lizards are intermediate between these two subspecies, although the characteristics of the latter predominate (Farner and Kezer, 1953).

During the 1948 season, the first observations and collections of the Sierra pine lizard, Sceloporus graciosus gracilis Baird and Girard, were made inside park boundaries (Wood, 1952). The first Shasta alligator lizard was captured that same summer, along Copeland Creek (CLNP 44). Since that time, through 1951, no pine lizards and only two alligator lizards were collected, one near Park Headquarters (CLNP 313) and one on the summit of Union Peak (CLNP 360).

Several new discoveries were made in the summer of 1952 which provided additional records and specimens for the park. The first horned toad came into our collection (Farner and Kezer, 1952). An alligator lizard was found in a new locality, beside Vidae Falls (CLNP 558). One pine lizard (CLNP 526) was taken just inside the south boundary (Wood, 1952).

These events of the early summer aroused much interest and enthusiasm on the part of Ranger Naturalist Robert C. Wood and myself in respect to lizards of the park. We were eager to find new places in which these creatures were living and, if possible, to turn up new species for the area.

On September 2, 1952, Robert Wood and I were driving along the northwestern part of the Rim Drive. Suddenly, near the Devil's Backbone, I spotted a large lizard right on the road. We stopped almost immediately, jumped out of the car and captured it with much excitement. Except for the Union Peak record, this was the highest point (ca. 7400 ft.) within the park in which a lizard had ever been seen! We brought our prize to



Shasta Alligator Lizard;
tail regrows x 2/3.
Photo by John Rowley,
Ranger Naturalist.

Park Headquarters and added it to the collection (CLNP 570). It looked very similar to our pine lizards, although it was somewhat larger and rather differently colored and patterned, but time was so short before we were due to leave for the season that we were unable to try to identify it.

This summer we soon turned our attention to that unusual animal. Robert Wood tentatively classified it as a Pacific fence lizard, Sceloporus occidentalis occidentalis Baird and Girard. Here was a new lizard for Crater Lake National Park! The specific identification has since been confirmed by Dr. Robert H. McCauley, Jr., who did his research in herpetology at Cornell University. He considered that this is probably the correct subspecies also, but he could not make positive determination from the preserved specimen. I wish to thank Dr. McCauley for this generous assistance, given so willingly during his brief visit to the park.

Our story now turns back to June 21, 1952, when Mr. and Mrs. Michael Harrison were camping in Castle Crags State Park, near Dunsmuir, California. The following day, the Harrisons came to Crater Lake National Park to visit Ranger Naturalist Ralph Welles and his wife, Florence. Their visit lasted two days, during which time they enjoyed traveling the Rim Drive.

Early this season, Ranger Naturalist Beatrice Willard was chatting with Ralph and Florence. They mentioned, incidentally, that the Harrisons had discovered a lizard in the back of their car while stopped, on June 23, 1952, at a viewpoint along the Rim Drive near The Watchman. Little realizing the possible consequences, Gayle Harrison had put the lizard out of the car then and there. Beatrice, remembering that we were quite pleased with a new lizard which we had found the previous year, brought this significant bit of information to me. Another visit to the park by the Harrisons this year gave me an opportunity to learn that their lizard had probably been picked up during their 1952 stay in Castle Crags State Park.

Now, to be sure, we have no way of knowing whether or not their lizard and ours are one and the same. But it is interesting to note that more than two months elapsed from the time at which Gayle released a lizard near The Watchman and the day on which we found ours near Devil's Backbone. This is surely time enough for a lizard to travel the distance of approximately two miles between these points.

This story would be a most remarkable series of coincidences if these two lizards should actually be the same individual. Such a possibility is increased by the fact that no lizard of this kind has ever been found in the park before. In addition, Castle Crags State Park is nearly in the center of the natural range of the Pacific fence lizard (Smith, 1946)! Here, at least, is an excellent example of the care which must be taken in announcing the discovery of a new species in an area and especially in a National Park, which receives a great number of travelers from a wide range of places.

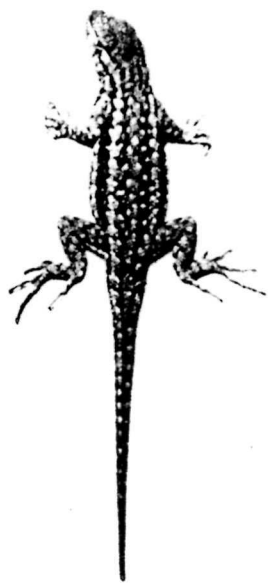
To report at this time that the Pacific fence lizard occurs naturally

in Crater Lake National Park would be unjustifiable. Several additional records would be required before we could be reasonably certain that such lizards had not been released by one or more of the many thousands of visitors who come here each year. This is made even more significant by the fact that the Pacific fence lizard, although it occurs natively here in Klamath County, is known only from the Sonoran and Transition zones (Anderson and Slater, 1941). Our specimen would therefore be completely out of place where it was found on the Rim Drive. That spot is in the Hudsonian zone (Wynd, 1941), a long jump from the natural habitat of this lizard.

This season I have found and collected, with Robert Wood's assistance, several Sierra pine lizards in various new localities. These were taken in the South Entrance utility area (CLNP 571, CLNP 572), about one mile north of there along the highway (CLNP 573) and on the Wineglass (CLNP 588, CLNP 594). This last location is particularly interesting because of its elevation (ca. 6450 ft.), the highest place in which the pine lizard has been collected within the park, and because of the plants growing there. In this area are found ponderosa pine, Pinus ponderosa Dougl., and green manzanita, Arctostaphylos patula Greene; which otherwise grow at much lower altitudes in the park.

These plants are typical of the Transition zone, the natural habitat of the pine lizard. I suggest that this part of the rim wall is supporting a relict Transition zone community. The Wineglass area is located on the northeastern part of the rim, which there receives the greatest amount of sunlight and would be the most favorable section of the rim wall for such a community. This possibility is strengthened by the work of Hansen (1947), who has found that ponderosa pine ("yellow pine") forest had reached a maximum in the Mt. Mazama area at the time now established for the collapse of that mountain - - about 6450 years ago. This is probably the type of vegetation that would have reforested Mt. Mazama, at least as high as its new rim, upon the return of conditions permitting tree growth. Thus, a Transition zone community may have persisted to the present time in this isolated area within the rim, high on the mountain where the Hudsonian zone now prefares.

Another discovery for this summer was made when I found a colony of alligator lizards in the talus slope at the southern edge of the rock



Sierra Pine Lizard x 2/3.
Photo by John Rowley,
Ranger Naturalist.

quarry 0.9 miles north of Cold Spring Campground, giving us an additional location for this elusive animal. Three of these have been added to our collection (CLNP 587, CLNP 592, CLNP 593).

Here are the most unusual and important experiences that we have had this summer in our seeking out and finding the evasive lizard. Perhaps another year of exploration will provide us with even more fascinating adventures.

Now and then surprises seem to come more suddenly and unexpectedly than is believable. Less than two hours after I had finished writing this article, Assistant Chief Ranger James W. B. Packard telephoned Park Naturalist Harry C. Parker to tell him that he had found a lizard on the back steps of the Packard residence at Annie Spring junction. It turned out to be one more alligator lizard (CLNP 595) and one more new location for this interesting creature.

References

- Anderson, Oscar I. and James R. Slater. 1941. Life zone distributions of the Oregon reptiles. College of Puget Sound, Dept. Biol., Occ. Pap. 15:109-119.
- Farner, Donald S. and James Kezer. 1952. A new horned toad record for Crater Lake National Park. Crater Lake Nature Notes 18:22-23.
- _____. 1953. Notes on the amphibians and reptiles of Crater Lake National Park. Amer. Midl. Nat. 50(2):448-462.
- Hansen, Henry P. 1947. Postglacial forest succession, climate, and chronology in the Pacific Northwest. Trans. Amer. Phil. Soc. 37 (1):1-130.
- Schmidt, Karl P. 1953. A Check List of North American Amphibians and Reptiles (6th ed.). University of Chicago Press, Chicago. viii, 280 pp.
- Smith, Hobart M. 1946. Handbook of Lizards. Comstock Publishing Co., Ithaca. xxi, 557 pp.
- Vincent, W. S. 1947. A check list of amphibians and reptiles of Crater Lake National Park. Nature Notes, Crater Lake National Park 13:19-22.
- Wood, Robert C. 1952. The northern mountain lizard. Crater Lake Nature Notes 18:17.
- Wynd, F. Lyle. 1941. The botanical features of the life zones of Crater Lake National Park. Amer. Midl. Nat. 25(2):324-347.



OH, TO BE SO

DILIGENT!

By John R. Rowley

Ranger Naturalist

A golden-mantled ground squirrel that was found dead, apparently by drowning, behind the Crater Lake Lodge may hold a record for diligence in spite of his unfortunate end. This little fellow's pouches were found to contain 736 seeds, each about two-thirds the size of a grain of wheat, and one half-peanut. The peanut undoubtedly came the "easy way", as a handout, but the source of the seeds remains unexplained, since these seeds were the so called "canary seeds" which are packaged commercially as part of bird seed mixtures.

A FOGGY MOOD

By Beatrice E. Willard, Ranger Naturalist

Bright and early, September 1, 1953, those who approached the rim of Crater Lake were amazed to see, not the usual brilliant blue water, but a bowl of cloud. A fog bank completely filled the cauldron up to the 6500 foot level. The sky in all directions was clear, thus the great surprise. (See photo back cover).

A few hardy souls ventured forth on the boat trip that morning, with Mr. Paul Herron, boatmaster for the concessioner, at the helm. He stated that it was the densest fog he had ever experienced on the Lake. As the boat crept forward, all aboard had the impression of being literally "lost in the fog", only occasionally to sight the rim walls through the mist.

Many eerie and mystic glimpses of the walls were seen that day. The high point came when the boat overshot the Phantom Ship and wandered in the fog near the middle of the Lake for about 15 minutes. However, all was clear by noon, revealing the Lake in its usual beauty, and those who took the trip were pleased to have had the unforgettable experience of seeing the Lake and the walls under such weird conditions.

