# YOSEMITE NATURE NOTES

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# Yosemite Nature Notes

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## CALIFORNIA RIVER OTTER IN YOSEMITE NATIONAL PARK

**By Gail Whitney, Field School '38**

On July 26, 1938, Mr. Joseph S. Dixon, Field Naturalist of the National Park Service, pointed out to a group of Field School students the sign of the California River Otter upon a small boulder near the water's edge of an unnamed lake in the northern section of Yosemite National Park. The sign contained fish scales which gave it a flaky appearance.

On July 29, Mr. Dixon took a group to the top of Saurian Crest. From this point looking eastward was a fine view of Mary Lake, elevation 9600 feet, its deep blue waters against a background of pure white snow. It had the further charm of being unsymmetrical where a sheet of ice edged by loose floating cakes occupied the northeast portion. The only motion in the picture was toward this spot, one lone gull, flying.

The whole party descended toward the place where its waters were cascading southward to become a part of Tilden Lake. This was to be our last day in the Arctic Alpine Zone and Mr. Dixon suggested that I hike around the lake to make individual observations. I left the group and descended to the northeast across a granite talus slope, intending to reach the lake at its northern snow covered shore. Keeping my eyes upon this goal, I noticed a slight movement near a little waterfall that leaped from beneath a field of ice and into the lake. I cautiously sat down upon a granite boulder and slowly raised my binoculars. A broad mammalian head protruded from the water. Front feet were placed upon the edge of an ice cake and a river otter, large, sleek and brown, climbed upon the ice. It had a trout in its mouth. Two other adults joined the first, all of them lying upon the same ice block. Before the fish could be devoured the shadow of the California Gull fell across them. The three glided smoothly into the water and out of sight. They soon appeared through a crack in the ice and then dived under again. This time all three came up together in open water, one of them holding the fish by its head. Then came a series of rhythmical dives made by arching the back. Each otter's head would go down mouth first with its

back coming into view above the water. The long tail, broad at the base and tapering to a point would follow the long slender back through its arc above the surface.

By this time the fish was getting shorter, disappearing head first. From its torn appearance it was being chewed and swallowed little by little. On about the fifth concerted dive a second otter caught a fish also by the head. Both fish caught appeared to be good sized Rainbow Trout. The two otters with fish continued for a time to dive with the third one as if helping it to corner and catch its prey. Apparently a trout surrounded by otters would dash away from one, head first into the jaws of another. Then the first otter with its fish half eaten without further diving, swam across open water. It was followed by its unsuccessful companion. They turned and took a new course to the east across the south edge of the floating ice.

I raised my eyes to look at the gull that was now approaching the otters for the second time. When I looked once more the otters were gone. They did not appear again.

In circling the lake thereafter I found a great slab of packed snow and ice extending into the water of the lake at the same angle as the surface of the sloping shore. It could be seen as a projecting ledge of blue far beneath the water's surface. Above the blue, patches of partly trampled snow marked the playground of the otters.

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## HEXAGONAL BIOTITE TABLETS

**By Ranger-Naturalist E. L. Lucas**

The Half Dome quartz monzonite controls most of the topography of Little Yosemite, Tenaya Canyon and scattered domes. It is a light gray, medium-to coarse-grained rock made up largely of quartz, orthoclase, plagioclase, biotite and hornblende. One of the noticeable features of this rock is the occurrence of embedded hexagonal shaped biotite crystals. The biotite tablets literally fall out when the rock crumbles due to weathering.

One may easily be misled as to the crystallographic system to which the biotite belongs. These tablets have a characteristic six-sided shape and suggests at first the hexagonal system. They also have a flaky appearance and are further characterized by unusually perfect cleavage in one direction which is parallel to the basal pinocoids (001). Biotite crystals, apparently hexagonal, are usually best developed in glassy extrusive rocks. They are usually resorbed in the more crystalline rocks. Why should they retain such a definite shape in this rock which is somewhat coarsely crystalline?

It may easily be seen that late-stage solutions causing changes in previously crystallized rock minerals have many aspects which have to be dealt with under the subject of assimilation. In fact, the processes responsible for igneous rocks and their associated phenomena are overlapping and interwoven. However, a granite magma, having reached the stage of crystallization when biotite is crystallizing, becomes saturated with biotite and effectively supersaturated with the pyroxenes and amphibole minals. Inclusions rich in these last named minals will be remade into substances as nearly like biotite as possible. This together with the aid of convection magmatic currents reduces the possibility of the basic minerals such as biotite being dissolved. Therefore, the sharp outline of the biotite crystals are likely to remain embedded in the coarse crystalline granitic mass through the final stages of the consolidation of the rock without being altered.

A thin layer of the biotite was placed under the polarizing microscope in convergent polorized light. Since the cleavage planes are so nearly at right angles to the optic axis and the optic angle of biotite is not too small, an excellent biaxial interference figure was obtained. This dispelled any idea of it being hexagonal because all hexagonal minerals produce the uniaxial interference figure. The next step was to clean the edges of several well developed crystals and check the exterior angles with the goniometer.

After checking the angles with the goniometer the side views prove it to be monoclinic. The biotite crystals are tabular and pseudohexagonal in habit, but they belong to the monoclinic system of crystallization.

## THE ARCTIC THREE-TOED WOODPECKER IN THE INSECT INFESTED LODGEPOLE PINES

**By Ranger Naturalist Ernest A. Payne**

One of the fundamental laws of nature seems to be the maintenance of a more or less constant balance between the various component parts. Occasionally, however, something goes awry and certain phases of the primitive organization are thrown out of gear. Controlling factors are outnumbered or overpowered and some aggressive species takes the upper hand and dominates the situation for the time being.

Under normal conditions injurious insects are kept moderately well under control by such factors as predatory insects and birds but occasionally some species is able to build up to abnormally large numbers and defies control by any agent. Then follows severe infestations or epidemics resulting in economic losses or devastation of wilderness areas.

The Ghost Forest of the Tenaya Lake basin and the present destruction of the Lodgepole Pine forest on the Forsyth Pass near Clouds Rest are examples of what can happen when insects get out of control. In these cases the insects concerned are the Lodgepole Needleminer (Recurvaria milleri Busck) and the Mountain Pine Beetle (Dendroctonus monticolae). Needleminers start the destruction by killing great quantities of needles thus weakening the trees, then the beetles move in to profit by the new condition.

In hiking through the Forsyth area one is appalled by the condition of the forest. Although most of the trees are still alive, the ravages of the insects are manifest in the general appearance of the trees. They are partially defoliated and the few needles that yet cling to the branches are assuming a rusty aspect, not unlike foliage terribly scorched by fire, indicative of the presence of the destroyer.

In one particular section of this area we were attracted by the appearance of the bark of many of the Lodgepole Pines. The outer scales of the thin bark had been removed from the trunks and were accumulated at the base of the trees as though the trees had actually been scraped. The phenomenon was so striking that our curiosity was aroused as to its cause.

Very soon a muffled pounding was detected eminating from a nearby tree and in tracing the sound an Arctic Three-toed Woodpecker (Picoides arcticus Swainson) was observed busily engaged on the trunk of a large lodgepole.

The actions of the woodpecker were not the typical head on, hammering, pounding strokes commonly associated with the woodpecker tribe but more nearly assumed a quiet, determined, chipping of the bark scales by means of vigorous sideward, prying movements of the beak. The bird was absorbed in its work and ignored us completely so

**Arctic Three-toed Woodpeckers**

we were able to get quite close and make careful observations.

As the bird worked there were periods of active prying during which the bark fell in considerable quantities, alternated by moments when the woodpecker seemed to feed upon insects exposed by the removal of the bark. Judging by the work of the woodpecker and on examination of the trees, we were sure that in addition to the needleminers present here in epidemic proportions, that bark beetles, evidently monticolae, were also working on the trees.

Although the insects are out of control and the devastation of the Forsyth lodgepole forest seems to be almost complete, we are compelled to marvel at the enormous numbers of insects destroyed by these woodpeckers as evidenced by the area covered in their bark scraping activities.

## BIRDS AND AUTOMOBILES

**By Ranger Naturalist Enid Michael**

The automobile, bringing smooth pavements and fast travel, has modified the feeding habits of many species of birds. Quite naturally food attracts birds and quite naturally birds recognize happy hunting grounds when they find them; hence many species of birds have learned to haunt the highways. Both birds of prey and carrion feeders fare well along the highways, picking up such food as snakes, rodents, rabbits and other small animals that have been flattened to pavements by fast moving cars.

In the Imperial Valley where rich fields and irrigating ditches are on one side of the highway and desert lands on the other side there is afforded especially happy hunting grounds for birds of prey. Little animals coming out of the desert land to drink must cross the broad, smooth highway to reach water and during the daylight hours hawks stand guard above the irrigating ditches and at night owls watch the highway from almost every fence post. In Yosemite Valley it is the same story, but with a different set of hunters and a different set of victims. Insects and worms that fall from the leafy boughs that overhang the paved roads become conspicuously apparent to sharp-eyed birds such as robins, blackbirds and jays. These birds have learned that pickings will be good along the highways after a wind or a brisk shower and they are quick to take advantage of the bountiful offering.

On my daily walk to the village I have often watched Brewer Blackbirds feeding along the paved forage lanes and I have come almost to believe that the blackbirds know the traffic rules, for when a car is coming they feed on one side of the white line and when a car is going they move over onto the other side of the white line.

Some of the Blue-fronted Jays of

Yosemite Valley have cultivated a taste for toasted food. These jays hang around the Museum and watch the cars that come into the parking space. When a car comes to a stop a jay will hop onto the bumper and pluck toasted dainties from the radiator. Cars that have come up from the hot San Joaquin Valley offer a rich assortment of toasted insects.

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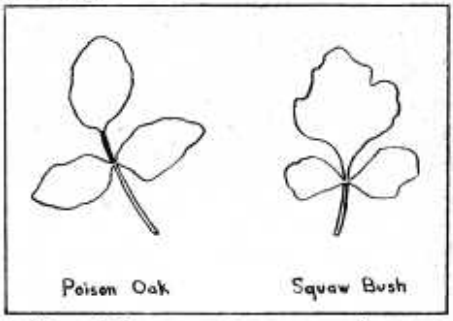
## SQUAW BUSH vs. POISON OAK

**By George Osborn Hale, Field School '38**

There are two closely related shrubs found in the El Portal region and in the lower part of Yosemite National Park which are often confused by park visitors. One is the harmless Squaw Bush (Rhus trilobata) which produces an abundance of dry, red berries used by the Indians for food and whose slender but tough, pliable branchlets were prized in basket-making by native tribes; the other, Poison Oak (Rhus diversiloba), which produces an oil in its plant juices that is highly poisonous as a skin irritant. Both plants are avoided because of mistaken identity which can easily be eliminated if one observes an obvious difference in the leaf arrangements, a difference so noticeable that a questionable plant can be identified at several yards. Both plants have trifoliate leaves with one leaflet terminal and the other two lateral and opposite each other. The terminal leaflet of Poison Oak has a petiole while in the Squaw Bush there is no such stalk like structure supporting the terminal leaflet, and the blade extends to the base of the lateral leaflets. The accompanying drawing of leaf outlines illustrates the difference between the two types, and for clarity the petiole supporting the terminal leaflet in Poison Oak is shaded.




The difference between the two plants is pointed out so that people susceptible to the irritating oil of Poison Oak will not fear the Squaw Bush. Knowledge of the difference is also of value to the person who has learned of the Squaw Bush and its historic significance and who might think Poison Oak to be Squaw Bush and suffer accordingly. Fortunately there is no Poison Oak on the floor of Yosemite Valley.

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## PRICE REDUCTION ON BOOKS

**Call of Gold**—True tales on the Gold Road to Yosemite—N. D. Chamberlain. Formerly $3.00, Now - - - - - - - - - - - - - - - - - $1.94

**Handbook of Yosemite**—Ansel F. Hall. Formerly $2.00, Now - - - $1.25

**Birds of Pacific States**—R. E. Hoffmann. Formerly $5.00, Now - - - $3.50

## YOSEMITE
### A Song

Dedicated to the men and women who have charge of the Park and its hostelries, in appreciation of the skill and solicitude with which, though entertaining thousands of guests of a modern day, they preserve its natural beauty and simplicity.

I.

There is a place where God must come to worship,
When weary of the petty ways of men;
A sculptured shrine of granite walls and spires,
Of lofty domes and towers, and peaceful glen.
Peaceful? Yes, the peace that holds this place
Surpasses understanding—deep, profound:
The majesty of poise adorns its face,
And love and solemn power within abound.

II.

A place where loveliness and might are wed:
Exquisite beauty wrought against the rocks;
A crown of snow on yonder massive head
Of mountain range; a stream of silvery locks;
Rich tapestires of cedars, pines and firs;
While draperies of soft and satin white
Are hung from cliffs, as laughing water stirs
And leaps and plays in free and joyous flight.

CHORUS

Yosemite, I hear your call again.
It haunts me as I walk the world of men.
Your magic spell steals over me as mist.
My answer is: I come, I can't resist.
Spirit of the loyal chief, Tenaya,
Brooding, as you said, in rocks and walls!
Spirit of the Evil Wind, Pohono,
Weaving bridal lace of waterfalls!
Spirit of the Good Wind, Great and Kind!
You call: "All's Well!" You call to some and find
Valley of the Light; Valley of the Night;
Valley of the Moon; Valley of the Sun!
Ahwahnee! Ahwahnee!
You are all of these in one!

—William J. Palmer