

# YOSEMITE NATURE NOTES

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VERNAL FALL

# Yosemite Nature Notes

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## The Resistance of the Rattlesnake to Carbon Monoxide Poisoning

Ranger-Naturalist Ernest A. Payne

Carbon monoxide, the gas found so abundantly in the exhaust products of internal combustion engines such as the automobile and in the air in the vicinity of a poorly regulated gas heater, is generally regarded as quite deadly to most forms of animal life. Recently we were able to make a first-hand observation of the action of this gas upon a Pacific Rattlesnake (*Crotalus oreganus*).

The biology department of Chaffey Union High School with which I am associated, like any biology department, is continually made the recipient of almost anything that walks, crawls, swims or flies. Recently an interested citizen presented us with a young rattlesnake. Now, live rattlesnakes are dangerous objects to have about unless proper facilities are available for their safe keeping. As we are not so equipped, I was anxious to dispose of the snake in some humane manner as soon as the students had been given an opportunity to observe it.

The chemistry teacher, Roy T. Vick, who is also very much interested in natural history, suggested that we try carbon monoxide as a herpicide. Neither of us had read of such a method being used, but we were willing to experiment. Forthwith, a carbon monoxide generator was set up and the snake placed in the lethal chamber. The surplus air was exhausted from the chamber and an atmosphere of carbon monoxide was created.

Judging by the ravages wrought by the gas upon the bodies of most animals, including man, we watched expectantly for the usual signs of lethargy, drowsiness, stupor and finally death. However, none of these symptoms appeared. After one half hour in an atmosphere of carbon monoxide gas the snake showed no visible evidence of inconvenience or discomfort from the supposedly lethal compound. Now, how was the rattlesnake able to withstand subjection to a pure atmosphere of carbon monoxide with no apparent ill effects?

The fatal atmosphere resulting from carbon monoxide poisoning seem to be brought about by the action of the gas upon the hemoglobin of the blood. In the blood stream the normal function of the hemoglobin is to combine with the oxygen in the lungs and to distribute the oxygen to the various parts of the animal body. In gas poisoning the carbon monoxide combines with the hemoglobin, forming a new compound, methemoglobin, which does not combine with oxygen. The chemical change deprives the cells of the victim of oxygen which is vital for the ordinary processes of metabolism, and, if the condition is not relieved, death results.

Snakes are so-called cold blooded animals. Respiratory and circulatory activities are so sluggish and slow that very little noticeable internal body heat is produced and the animal assumes the temperature of its environment.

In view of the fact that carbon monoxide is carried by and affects the blood stream and that it enters the blood by means of the lungs, it may be concluded that the rapidity with which the gas operates would be in direct proportion to the rate of circulation and respiration of the animal, are very slow and it would follow then that a considerable period of time would be required for a sufficient quantity of carbon monoxide to be absorbed to cause death. Just what that time would be I do not know and I have been unable to find

anything in the literature that would suggest an answer. At any rate, we know that one half hour is not sufficient to kill a twelve inch rattlesnake.

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### THE RANGER-NATURALIST

By Frances Osborne-Stallings

Men who, having climbed the  
mountains of great thoughts  
Can look out over the world  
And love the nearness of solitude.

Who have made friends with the  
wild things of the earth  
And roamed, unafraid  
Beyond the assurance of civilization.

Who understand the language of  
forest and mountain  
Who can wait—and can listen,  
Who count all life a precious heritage.

The Creator of all things  
Gives them wisdom and understanding;

The immensity and order of the  
universe  
Teach them patience and tolerance.

Because they have learned these  
things

And are generous,  
We have the privilege of following  
trails with them

To mountain height or valley floor,  
While they teach us that life means  
living.

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## Cruising Speeds

By Ranger Lon Garrison

While patrolling on the fire roads to Deer Camp and Spider Meadow. I frequently have the chance to follow for short distances, different animals and birds and gauge their speed of travel. When a bird is flushed that seems to be trying to fly directly from me, or an animal encountered in the road where it cannot turn off for a short distance, I try to follow it so that my speed is exactly that of the other. When the speed is definitely the same, I look at the speedometer and note the rate. Probably speeds taken in this manner do not represent the ultimate of which the animal is capable, but is the normal cruising velocity. Also there are possible errors in speedometer readings, so these should be considered as approximations only.

**Flicker**—I have followed two of them. The first and largest could do just twenty-four miles an hour. A smaller one was timed at twenty-two miles an hour.

**Robin**—A large robin, with its dippy-do, bobbing, flight surpris-

ingly enough did thirty miles an hour. A smaller one at twenty-six miles an hour turned off into the brush in about fifty feet.

**Mountain Quail**—The previously recorded flying speed of twenty-five miles an hour holds the quail record so far. I have noted other speeds of twenty-three and twenty miles an hour, both from smaller birds. The smaller the bird, the slower it seems to be. Doubtless the tremendous speed the quail is reputed to have is due in great part to its ability to change directions quickly at full speed.

**A Month-old Fawn**—I followed this youngster for about one hundred and fifty yards. At twenty-five miles an hour it was definitely doing its best.



**A Black Bear**—Probably a two-year old. I met this fellow in a rough cut near Deer Camp and when he seemed inclined to loaf, I opened the siren at his heels. That got some motion. Until I viewed bruin-in-a-hurry from behind, I had not realized how bowlegged he really is. About twenty-one miles an hour was his limit on level ground. I followed for about sixty yards before he crashed over the edge of the road down into a cherry thicket. I stopped to look, and clear to the top of the next ridge a steadily advancing agitation in the brush indicated that he still was on his way.

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#### SIERRA PINE MARTEN

By Ranger Naturalist  
Ernest A. Payne

While walking along the road toward the Tuolumne Meadows Gas Station about dusk on Sunday, July 25, 1937, we were attracted by an unusually vociferous chorus of scolding emanating from the colony of Juncos and White-crowned Sparrows that inhabit the willows and lodgepole pines along the base of Sunset Dome. In locating the center of the commotion a long, dark animal was seen to bound guiltily along through the grass and over the rocks and stumps. We stopped immediately and with our field glasses followed the course of the animal and were able to identify it as a Sierra Pine Marten,

*Martes caurina sierrae* (Grinnell and Storer).

That the animal was aware of our presence was quite obvious. As it leaped along it stopped several times and looked directly at us and continued on its way as though we were not there, but the marten's head and eyes followed the movement of our arms as the glasses were raised and lowered.

Upon reaching a part of the open meadow where there were no protecting trees and undergrowth, the marten seemed to suspect danger and its demeanor immediately changed to one of escape. With a series of long, arching, graceful bounds it crossed the clearing, turned sharply toward us and crossed the road not more than fifty feet from where we were standing and disappeared in the dense thicket at the base of a rock slide nearby.

Although an occasional camper or fisherman reported seeing a pine marten in the Tuolumne Meadows area this past season, this individual was the first one we saw. (Two others were observed later). The long, dark-chocolate, weasel-like body, cat-like face with triangular-shaped head set off by rather prominent ears, all aided in assuring the identification of the animal.

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#### NEXT MONTH

#### "101 WILDFLOWERS OF YOSEMITE"

A 40 page special issue of Yosemite Nature Notes at 25 cents.

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## Fishing for Adventure

By Ranger Naturalist Harold E. Perry

"Where is the best place to fish?" Many times a day during the summer season each ranger is the target for this and many other questions of a similar nature. Each time, the question is asked in all sincerity and seriousness, just as if the fisherman really believed that the actual catching of fish is essential to a successful fishing adventure. Such is not the case however and many angling enthusiasts have discovered that a day spent in the High Sierras with rod and reel can be rich in its rewards even though the creel is empty at evening.

For example, there is the fisherman who is aware of the presence of trees around him. It may be that his expedition takes him among the stately sugar pines—trees so majestic as to be second in size only to the Sequoias themselves.—trees whose flat-topped silhouettes and enormous cones identify them as John Muir's "Queen of the Sierra." Or should his trek be to higher elevation, an alert fisherman will recognize the first graceful hemlock along his path, a tree whose pendant top responds to every passing breeze.

Then there are the flowers along the trail to be considered. Even the most ordinary fisherman thrills to the thought of getting up beyond the rim of the Valley and in so doing he can scarcely avoid flower gardens of every brilliant hue. Of

course if he is concerned only with fish, he may miss the upturned faces of woody violets and is thereby a loser. John Muir was an ardent lover of Cassiope, a white heather found at rather lofty elevations. This same delicate little flower is still there to be found by even the most unfortunate fisherman and with its discovery, his status changes immediately.

One of the successful competitors of the ambitious fisherman is the kingfisher. Some anglers are so narrow visioned as to begrudge this striking bird the trout which it catches with such seeming ease.



Others, the ones who are more nearly attuned to the great world of Nature, recognize a note of companionship in the rattling call of this blustering fellow.

Rare adventure awaits the fisherman who becomes acquainted with the water ouzel. The water

ouzel is a lover of turbulent water where also is found the gamy rainbow trout—a bird whose nest is frequently built behind waterfalls, where the young occasionally tumble out and learn to swim before learning to fly. Rare adventure indeed for the fisherman who is not too busy with his fishing.

The frisky little chipmunk is never too proud to associate with the commonest man and is ever ready to share his lunch. A chipmunk's animated nature is as tonic to anyone who seeks friendship. Or should larger association be preferred, the appearance of an adult bear along the trail or of a mother

bear and cubs beside the stream are experiences to be recorded with emphasis. What if the fish do not bite!

Again, an empty creel at the end of the trip does not necessarily mean an empty day. Happy is the fisherman whose feeling of satisfaction is not entirely dependent upon the catching of fish. He is one who will agree with what John Muir wrote many years ago:

"Nevermore, however weary, should one faint by the way who gains the blessings of one mountain day. Whatever his fate—long life, short life stormy or calm—he is rich forever."

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## The Wright Flycatcher Nesting in Tuolumne Meadows

By Ranger Naturalist Ernest A. Payne

Some birds' nests are quite easily discovered. Others are ingeniously tucked away out of sight where they are camouflaged among the leaves, branches, grasses or rocks. If the nest is not meticulously hidden, the concealing coloration of the avian occupant usually completely protects the bird from detection by its enemies. Many times one passes a nest by without being aware of its presence, due to its very conspicuousness. In our attempt to ferret out the hidden and obscure our eyes are not focused to the near at hand and we look completely beyond that for which we are searching. Such was the

case last summer with a pair of flycatchers that had built a nest near the woodpile back of the District Ranger's cabin at Tuolumne Meadows.

For several days we had elbowed our way through a clump of young lodgepole pines near the woodpile when, on one of our frequent trips for wood, a startled bird flushed hastily, yet reluctantly from one of the trees. By following the direction from which the bird had flown, we found a nest containing four newly hatched young. While we were examining the nest and its contents the parents birds found shelter among the lower branches

of the nearby trees where their presence was made known by a soft, frequently-uttered, "pit" or "put."

During the next few days we made frequent observations of young and adults. Only once did we hear the complete song of the bird and then not clearly or distinctly. The usual sound being the "pit" or "put" of which we have spoken. This lack of song complicated the problem of identification which is a real problem at best when the smaller flycatchers are concerned. However, the fragment of song we did hear corresponded very closely to the song pattern of the Wright Flycatcher, *Empidonax wrighti*, as reproduced by Park Naturalist C. A. Harwell. The physical appearance of the bird and the location and description of the nest all seemed to satisfy the accepted description for the Wright.

The nest was located about four feet above the ground on a small branch where it rested snugly against the tree trunk to which it was securely fastened with spider web. The nest was a well-formed cup constructed of various plant fibers, pieces of thread, bits of cloth, spider web and feathers, and lined with a generous layer of horsehair.

The nest was first observed on July 11, 1937, and the young left on July 20. At the time the young abandoned their home the small nest seemed to bulge with the bodies of the rapidly growing babies,

but the birds seemed far too small and undeveloped to be ready to face the many dangers with which young birds are beset. However, in spite of their apparent helplessness, at about five o'clock in the afternoon the little fellows hopped out of the nest almost in unison as if in response to some prearranged signal and disappeared through the protecting branches of the small trees.

With the exception of one of the young which was seen on the woodpile the following morning, neither the young nor the adults were seen after the evacuation of the nest. In fact these were the only Wright Flycatchers seen by us during the summer at Tuolumne Meadows.

Following the exodus, the nest was collected and is now in the Research Collection of the Yosemite Museum of Natural History.

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## A CYCLE OF PLENTY

By Ranger Lon Garrison

A number of times this fall I have heard the statement, "There are sure a lot of rattlesnakes around this year." And while I have not seen many, I have observed numerous places where snakes have crossed the Spider Meadow road, leaving their trail in the dust. And why shouldn't there be snakes? There is an unusual supply of ground squirrels and quail. Even the California Gray Squirrel is very much more



numerous than had been observed in six summers in the Sierra. And since it is a definitely accepted generality by hunters that where quail and squirrels abound there will be rattlesnakes, it is probable that there is an abnormal supply of rattlers. They are one of the natural control factors of the rodents, and I for one am glad there are plenty of snakes.

There are lots of berries too. Gooseberries by the tons hang ripening on the bushes. The birds cannot destroy them all. Elderberry bushes turn whole spots of the hill-sides blue with their ripened fruit. Again, the birds cannot possibly eat the whole crop and many of them fall where rodents eat the seeds. Even the scarce fruit of the hazelbrush is plentiful enough in some places that the squirrels cannot carry them all off to board for the winter. Last season was an exceptionally heavy seed year for the sugar pines, and this year promises to be a repetition. So, why shouldn't there be lots of squirrels? And quail too? Nature is lavish with food this year.

Inevitably the circle revolves a good water year, a good seed year, a plentiful supply of birds and squirrels, more predators. Snakes take their toll, and are more numerous. Red-tailed hawks and an occasional lone Golden Eagle soar frequently near Chinquapin, they too reduce the rodent and bird over supply. Coyotes yelp on the hill-

sides across Indian Creek from the Ranger station, and there is no doubt that they are having a fat year. Bobcats prowl near the road. I saw one within 200 yards of the Wawona highway carrying off its meal of quail. Deer are fat and with many twin fawns. Bear cub twins are common, and the bears are in good shape with plenty of berries. We seem to be at or near the peak of the cycle of plenty.

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### INDIAN CREEK RANCHERIA

By Ranger Lon Garrison

On lower Indian Creek just above Chinquapin Fall, opposite El Portal and near the west boundary of the park, lies a little known and seldom seen old Rancheria. On two big flat granite stones near the creek are the mortar holes—14 in one and 16 in the other. It is located in a pleasant, sunny little valley, near the old trail to El Portal and beneath huge black oaks that would yield a plentiful crop of acorns for flour. There are one or two rocks nearby that look as though they might have been used for pounding, but this is near the lower part of the logged over area within the park, and probably most of the pestle stones have been carried away. Water, sunshine, acorns, fish, deer—it would seem to offer almost everything that an Indian could desire in a camp site.

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Dan Anderson