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W. B. LEWIS

Superintendent



“LEARN TO READ THE TRAIL-SIDE”

A PERSONAL INVITATION.

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Visit the Yosemite Museum!

Here you will learn the full story of the Park — what tools were used by the great Sculptor in carving this mighty granite-walled gorge; who lived here before the white man came; how the Days of Gold led to Yosemite's discovery; how the pioneers prepared the way for you; and how the birds and mammals and trees and flowers live together in congenial communities waiting to make your acquaintance.

Plan your trail trips on the large scale models in the Geography Room.

The Yosemite Library in the museum provides references on all phases of Yosemite history and natural history.

Popular lectures on Yosemite geology and other branches of natural history are given by nature guides at scheduled times each day.

The nature guide on duty will be more than willing to answer your questions on any subject.

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Take advantage of this free service that will help you to know your Park. A competent scientist will conduct you over Yosemite trails, and from him you may learn first hand of the native flowers, trees, birds, mammals, and geological features.

See Schedule of Nature Guide Field Trips.

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From there you will obtain an unexcelled view of Yosemite's High Sierra. The binocular telescope will bring Mt. Lyell to within one third of a mile from where you stand; you can recognize friends climbing trails several miles away. The Nature Guide in attendance will help you to operate it and will explain what you see.

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In addition to the museum lectures members of the educational staff give talks as a part of the evening program at Camp Curry and Yosemite Lodge. Non-technical explanations of how Yosemite came to be; what you may expect of Yosemite bears; how the local Indians lived; what birds you see about your camps; what trout you will catch in Yosemite waters; how you may best visit the wonderland of the summit region; and scores of similar subjects are given by the National Park Service Nature Guides.

ALL OF THESE OPPORTUNITIES ARE PROVIDED FREE OF CHARGE BY YOUR GOVERNMENT.

—TAKE ADVANTAGE OF THEM—



YOSEMITE NATURE NOTES

Volume VI

May 31, 1927

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BOHEMIAN WAXWING WEST OF YOSEMITE NATIONAL PARK

By D. D. McLean

On December 16, 1926, a large flock of Bohemian Waxwings (*bombicilla garrula*) appeared in the apple trees at Dudley, Mariposa county. There was a quantity of frozen apples still hanging on the trees, and the birds immediately began consuming them. On the 19th, the flock of thirty-five or forty individuals was increased to approximately one hundred by the arrival of more birds.

From that time until the 18th of March, 1927, they were always in evidence in varying numbers about the apple trees. At one time in January I estimated over five hundred individuals were present in the several flocks.

The birds were extremely confident, allowing one to approach within four or five feet of them. Many times I have seen them crowd onto one apple-laden branch in such numbers as to cause it to bend far down under their combined weight. From daylight in the morning until dusk, the thin, beady notes could be heard coming from the apple trees or from a cobbly place in the creek, where they gathered to drink and bathe. Every ten to fifteen minutes, while eating the frozen, punky, brown fleshed apples, the

birds would depart for the creek, drink, and perch in the willows a few minutes, and return to the feast again.

In eating the apples they differed from most birds. Instead of just picking a hole in the apple and eating a little of each, they would eat one almost entirely before going to another. Sometimes four or five birds would be pecking at one apple. As the apples were gradually knocked from the limbs, the birds began to go to the ground and eat them there.

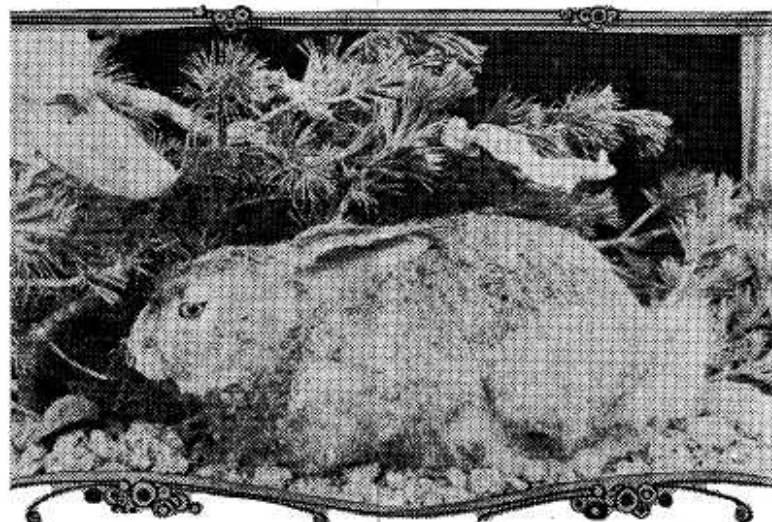
When startled by a hawk or the slamming of a door, the birds would dash off pell-mell in a series of zigzags and curves, all executed with military rhythm. They would soon return to the feast and finally became so accustomed to unusual hum and noises that nothing seemed to frighten them.

From the latter part of February on, their numbers began to dwindle away until the last were seen on the 18th of March.

The bird nests in the far north, in northern Canada and Alaska, seldom coming even in winter into the United States in any numbers. They were last recorded at Dudley, Mariposa county, on January 31, 1917.

WHITE-TAILED JACK RABBIT TAKEN

By C. P. Russell



The White-tailed Jack Rabbit in summer coat. It is unlawful to kill this species at any season in California.

ON APRIL 29, at Merced lake, Ranger Eastman and Sam Clark obtained a specimen of *Lepus campestris sierrae*, the Sierra White-tailed Jack Rabbit. This is the first specimen of this noted hare in winter pelage to be obtained by the Yosemite Museum. The heavy, long white fur of the animal was being shed, and rather more of the pinkish buff underfur of the upper parts is in evidence than would be the case in a specimen obtained in the dead of winter. The ears are tipped with black, and the top of the head is grey. The rest of the body is pure white except for the buffy area over shoulders and along the back to the hips.

This particular specimen is an old female. Examination of the uterus revealed no embryos. As is true of many other mammals of the Yosemite region, little is known of the life history and habits of the White-tailed Jack Rabbit. Grinnell and Storer in "Animal Life in the Yosemite," give considerable information on its characteristics and range; C. Hart Merriam in his "Rabbits of North America," describes the animal and shows its relationship to other rabbits; Ern-

est Thompson Seton in "Life Histories of Northern Animals," gives much interesting information on the life history of the genus *Lepus* and the species *campestris* but apparently, he had made few studies in the region in which the race *sierrae* occurs. Walter Fry in his May 9, 1924, Bulletin of the Sequoia Nature Guide Service gives a most excellent account of his observations on the *sierrae* race, and from him we learn that young

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A PLANT OF MANY USES

By C. P. RUSSELL

Of the numerous Yosemite plants that the Indian inhabitants found useful, the "Soap Plant," "Soap-root," or Pa-la-we of the Yosemite is among the most interesting. It is a member of the lily family and produces long, grass-like leaves that rest flat upon the ground. In the Yosemite, in May and June, a slender stalk grows up from the rosette of leaves. By June 15 many of these stalks have attained a height of two feet or more, and numerous flower buds and scattered blossoms appear on them. If we investigate the part of the plant below the surface, we find a bulb one to four inches in diameter and covered with ragged brown fibers. It is this bulb which the Indians put to good use.

Dr. Gifford of the California Museum of Anthropology found the Miwok, of which the Yosemitees were a part, roasting these bulbs, dipping them in water, and rubbing the soapy mass into the weave of burden baskets so that very fine seeds might be gathered in the baskets thus made tight. Dr. Gifford also reports the Miwok using roasted soap-root bulbs for applying a water-proof coating to dried deer sinew with which they strengthened their bows.

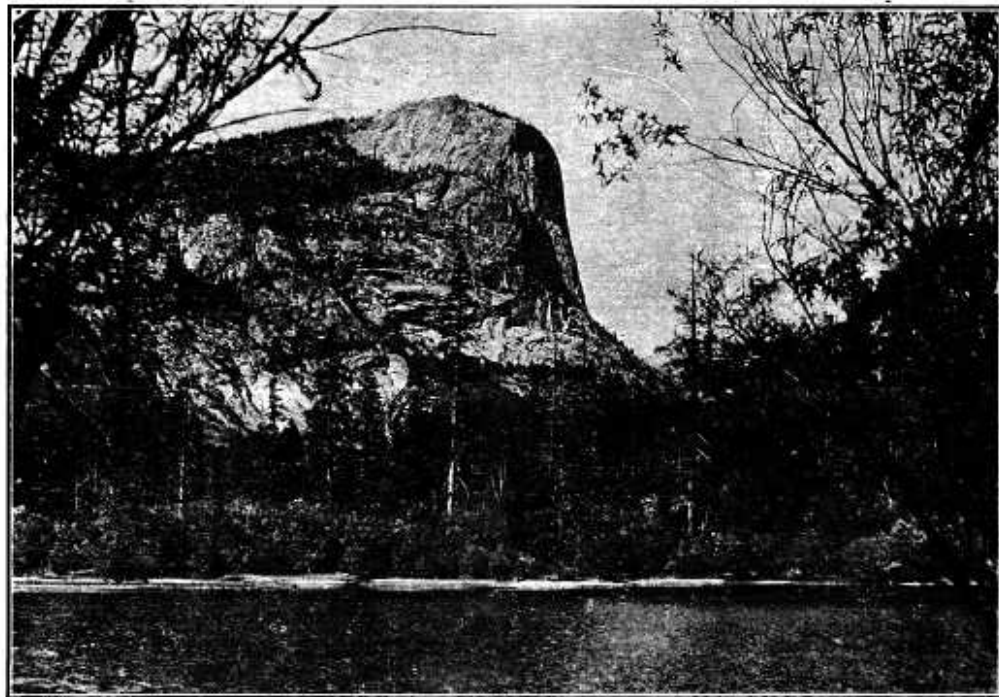
Galen Clark describes a startling method of using the bulb which was in practice among the Yosemitees in the early seventies and even later. The plant does not grow abundantly in Yosemite Valley but at lower altitudes it is to be found in plenty. The bulbs were gathered and transported to the camps of Ahwahnee. During the period of low water parties of Indians would proceed to the river with quantities of pulverized bulbs, rub

the stuff by the handful against rocks under water, and await results. The soap-root caused a frothing and discoloration in the water and actually stupified all fish in the stream for a mile or more below the point of introduction. Indians stationed along the river with baskets would scoop up the fish as they floated to the surface. This was the Yosemitees' most dependable means of fishing.



THE SOAP PLANT (*Chlorogalum pomeridianum*)

The fibrous covering on the bulb used by Yosemite Indians in making brushes. The fleshy bulb was pulverized, quantities of it rubbed against stones in a stream bed, and the resulting suds depended upon to stupify fish that might then be gathered.



MIRROR LAKE

Mirror Lake, like many other Yosemite lakes, has received the great burden of sand carried by its feeding stream and is rapidly filling.

WHAT BECOMES OF OUR MOUNTAIN MEADOWS

By C. P. Russell

Not infrequently mountaineers returning to the Yosemite after an absence of many years express surprise and perhaps dismay at finding their one time favorite high country meadows grown up to thickets and devoid of horse feed. Those who know may also remark the great change which is taking place upon the valley floor. Even Yosemite literature contains at least one lament upon the passing of our mountain meadows. Harold C. Bradley, in the Sierra Club Bulletin, Volume VIII, No. 1, went so far as to advise the grazing again of the park by sheep. In his words, "The sheep browse close, and year after year nip off the seedling pines."

Sierra meadows are found along the courses of ancient glaciers. The ice in its irresistible push toward the lower levels gouged out basins in the granite over which it moved. At the close of the glacial period the rock basins filled with water and became beautiful rock-rimmed lakes. Hundreds of these shining gems still exist and contribute munificently to the beauty of the back-country. Many others, perhaps because of their relation to the adjacent watershed, have through the years received the great burden of sand and sediment carried by their feeding streams and at last been glutted by the accumulation. At first these filled-in lakes were reedy swamps. With the continued growth of vegetation came more evaporation and more filling in until the swamp became moist peat, overgrown with rich succulent grasses. Like the lakes, these little meadows contribute notably to the beauty and attraction of the mountain wilderness; seen from afar their warm greens break the expanses of bare, gray granite and dark belts of timber. Upon close approach they charm the mountaineer with their exuberance of flowers. They provide abundant feed for the animals and make for the comfort of the camper. But they are short lived, comparatively.

Evaporation continues and finally the moist meadows become dry enough to encourage the growth of pines. The ever-present lodgepole pine belt that borders the meadow begins the invasion. In a remarkably short time the thicket expands, and there begins the struggle for light among the trees. The soil is further desiccated, and the grass is killed. Some of the trees will outgrow and kill the others, and in time the former meadow

becomes a "tamarack flat."

To be sure, the former meadow is more to be desired than the dry timber covered flat, but so drastic a measure as the grazing of the Yosemite by sheep is not to be considered as a remedy. As the editors of the Sierra Club publication pointed out, the mountain meadows existed before sheep had been introduced to the Sierra.

In connection with this discussion of the disappearance of meadows, it is interesting to consider a large map of Yosemite valley, displayed in the library of the Yosemite Museum. The map is the result of a survey made by Charles F. Hoffman in the early seventies at the order of the park commission. Plotted in contrasting green, the meadow lands stand out clearly as the greater part of the valley floor. In fact, the engineers who did the work tabulated the acreage of meadow and showed a total of 745.63 acres. Fifty-four years ago about 64 per cent of Yosemite valley's floor was open grass land. If now we study the 1922 Yosemite valley sheet, the latest map made by Messrs. Marshall and Matthes of the United States Geological Survey, we find about 430 acres or 37 per cent meadow.

At this altitude it is not the lodgepole or tamarack pine that encroaches. Incense cedars, western yellow pines, black oaks and black cottonwoods all vie for the opportunity to start colonies. Had no map been made fifty years ago the careful observer could yet read of the past events. Here and there among splendid, even stands of pine and incense cedar stand patriarchal yellow pines that rear their fractured tops a hundred feet above the hosts of close-growing, strong, young trees at their bases. If these scattered trees of the older generation be carefully observed, it will be found that their lowest limbs are near the ground and enormous in girth. The rising generation has in most cases enveloped these lowest branches, robbed them of light, and they have as a result died. Their bulky butts yet hold to the ancient trunk that nourished them, and they tell volubly of many decades of growth in an open meadow when no neighbors interfered with lateral expansion. When Mr. Hoffman was surveying Yosemite's meadows, these trees were outposts far from the forest flanks. As beautiful Lake Yosemite once yielded to the gradual intrusion of sands, Yosemite meadows now relinquish to encroaching forests.

SHARP-TAILED SNAKE IN THE VICINITY OF YOSEMITE

By D. D. McLean

While digging a prospect hole at Mount Bullion, 3400 feet elevation, west of Yosemite, on April 22, 1927, I was surprised at digging out a tiny snake eight feet underground, which proved to be a Sharp-tailed snake (*Contia mitis*).

It was found in a reddish yellow porphyry clay very near to solid bedrock. A small, rounded, flattened cavity inclosed the reptile, but we were unable to locate any entrance hole that might have led to the surface. The clay was very damp and cold, but the little snake was very active.

It is about seven and a half inches in length. The head is rather wide with a flattened top and a broad, rounded nose. The body is stout with a sharp, pointed tail, the tip of which is a horny,

sharp-pointed plate. The color above is grayish brown with a lavender tint in certain lights, with a brownish red line along each side. The sides of the head have a blackish lateral marking. Its belly is light grayish, marked with blackish transverse lines.

The snake is very active but showed no pugnacity at being handled. It seemed very sensitive to vibration immediately protecting its head under its body if the can, in which it was retained, was tapped or if I whistled shrilly.

A very young black salamander that was placed in the same can was not harmed by the snake.

The snake was sent to the museum of vertebrate zoology, University of California, for identification but will be returned to the Yosemite museum collection.

INDIAN MORTAR ROCKS

By C. P. Russell

Occasionally a Yosemite visitor comes to the museum with this question: "How do deep, round pits happen to be in certain slabs of granite?" The pits are so evidently hand-made that the thought of Indians must come at once to all observers. These pitted rocks are numerous in Yosemite valley and they mark the sites of ancient villages. Acorns of the black oak formed the staple food for Yosemite Indians. Because of their bitter taste they could not be eaten as most nuts are eaten, but required elaborate preparation. The shells were removed, and the rich, oily meats were ground to flour. It was through hundreds of years of such grinding that the round pits were made in the flat-topped rocks. Numerous squaws would work around the same convenient rock. A rock pounder or pestle was the grinder, and rarely one of these

smooth cylindrical rocks can yet be found near the old mortar rock. When a quantity of acorn flour had been prepared, the bitter tannin was removed. This was done by placing the flour in a basin scooped out in a pile of clean sand. Warm water was then poured over it, which seeped through the sand and leached out the tannin. The flour was then made into patties and baked on heated, flat rocks, or it was made into a mush and cooked in baskets. Baskets could not be put over fires, of course, so it was necessary to drop heated rocks into the mush, to provide the required heat.

Go with a nature guide and visit the old village sites and examine the mortar rocks yourself. At the Yosemite museum you will find exhibits giving the entire process of bread and mush preparation.

WHITE-TAILED JACK RABBIT TAKEN

Continued from page 34.

are usually born in June.

Tuolumne Meadows affords the nature lover a place in which to study many little known forms of animal life. Perhaps no other easily reached spot in the Sierras presents so good an opportunity for tourists to become acquainted with this most interesting rabbit. Here, these high mountain creatures have become accustomed to the presence of man and have dismissed a part of their usual timidity. It is no unusual sight to observe one of the animals, in late afternoon, boldly making its way on the open ridges at the edge of the forest. Any of the many trails which radiate from Tuolumne Meadows will take one through Lodge-pole Pine forests in which these hares abound. The trail to Lambert Dome and Dog Lake penetrates especially good rabbit territory, and any hiker may see one of the long-legged creatures by following this trail. Should it happen that no rabbit happens to jump from the trailside, it is only necessary to digress from the path sufficiently to approach a few of the many fallen lodge-pole pines along the way. The local snow-

shoe rabbits appear to make the debris of the tops of these fallen trees their daytime cover. The writer has frightened dozens of rabbits from such dead falls in the forests about Tuolumne Meadows.

In the summer no "forms" are occupied. The animals merely hide themselves between the trunk and the ground or in the maze of branches, yet on the fallen trunk. Frequently, these Tuolumne Meadows rabbits make no attempt at "freezing" while under the protection of this cover. Their long ears flop about, and they may even hop confidently from place to place within the dead fall. In fact, only very close approach will frighten them sufficiently to cause them to bound away through the timber.

The summer coat of the hare is grey and blends well with the surroundings in which it lives. In the fall, a molt takes place, and the snow-shoe rabbit becomes nearly white. At the high altitudes (8000 feet and up) in which it lives, snow accumulates to a great depth, and, of course, the white coat of fur adds greatly to the chance of the animal escaping its many natural enemies.

CHAUNCEY J. HAMLIN VISITS YOSEMITE

C. J. Hamlin, chairman of the committee on outdoor education, American Association of Museums, in company with Chief Naturalist A. F. Hall, visited Yosemite and inspected the museum and the Glacier Point branch museum on May 4, 5 and 6. He was accompanied by Mrs. Hamlin.

C. J. Hamlin made the initial step which procured Laura Snelman Rockefeller Memorial co-operation

in building the Yosemite museum. As chairman of the American association's committee, which directed the construction and equipment of the institution, Mr Hamlin has, of course, been very closely affiliated with the progress of the work. He had not, however, inspected the work previously, and it was gratifying to National Park Service officials to receive his approval of the nearly finished educational project.



DIRECTOR MATHER AND ELK CALF

Since 1921 a small herd of California Tule Elk have been confined in a 40 acre paddock in Yosemite Valley. This month the paddock gates were opened and the elk given the run of the valley.

FROM THE NATIONAL CONFERENCE ON OUT-DOOR
RECREATION

Called by PRESIDENT COOLIDGE

"THAT THE CONFERENCE ENDORSE NATURE STUDY IN SCHOOLS AND THE EXTENSION OF THE NATURE STUDY IDEA TO EVERY AMERICAN SCHOOL AND FAMILY; THAT THE ESTABLISHMENT OF MUSEUMS OF NATURAL HISTORY IN NATIONAL PARKS WILL INCREASE THE EDUCATIONAL RECREATIONAL VALUE OF THE PARKS".—Resolution of the Conference.



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Dan Anderson