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"LEARN TO READ THE TRAIL-SIDE"

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SOLVING A GRIZZLY PROBLEM

By J. J. Lermen

NOTE—Recently an attempt has been made to formulate policies regarding tourist problems in the Mariposa Grove of the Big Trees. At the request of the National Park Service, Dr. E. P. Meinecke, plant pathologist, has investigated the present status of the cherished Sequoias and concluded that long continued and heavy trampling of tourists' feet has destroyed the root endings and finer roots of many of the trees. This means that certain trees have been bereft of those organs which enable them to take up water and simple foods.

In view of these recent studies it is interesting to learn of the experiences of the former State commission to manage Yosemite Valley and the Mariposa Grove. J. J. Lermeu, to whom we are indebted for the following account, was the last secretary of the old State commission.—C. P. Russell.

About the year 1903, attention was drawn to the fact that the Grizzly Giant of the Mariposa Grove of Big Trees was each year leaning slightly more and more from the perpendicular. It was noticed, also, that the tree apparently was dying, the signs of approaching death being particularly upon one side of the tree. This led to a discussion of what was the best, as well as the proper, thing to do under the circumstances. This discussion found its way into the newspapers of the day, and many were the suggestions that came forth as a result of the discussion. There were two diverging points of view. One was that the trees should be preserved in its upright position, if possible. The other was that nothing should be done to it; that it had lived its life and should be permitted to die and, in time, fall.

In response to the first suggestion, it was thought that perhaps the tree might be held upright and prevented from inclining any more from the perpendicular by being anchored to the surrounding trees with a wire cable. Wholly apart from the objection that this would produce a very ugly effect, very

offensive to the eye, was another objection, which followed upon the report of the wire company to which was referred the plan of holding up the tree by wire cables It developed that the large size of the cable necessary to sustain and hold up the great weight of the Grizzly Giant made the cost somewhat prohibitive, especially when we realized the small amount of money with which the commission had to operate at that time.

And yet we felt that we could not and should not abandon this tree, for it was, even then, the pride and glory of the California forest.

In talking the matter over with the hard-headed, practical man of common sense who at that time was the guardian of the Yosemite valley and the grove, George T. Harlow, he said, "I think I know what is the matter with that tree. It is dying for the want of a drink." That being before the days of prohibition, there seemed to be no excuse for not giving the tree a drink, especially if, thereby, we were to save its life, but in asking him just what he meant, seriously, his answer was to call to our attention the soil conditions surrounding the tree. It was apparent, then, what was in his mind. For fifty years and more visitors at the grove, on foot or on horseback, had been tramping around the base of the tree, in admiration of its tremendous size and its extreme age. The result was that the soil surrounding the base of the tree had been either packed down or kicked away. This resulted in exposing to the air and above the surface of the ground the roots of the tree, which radiated for a distance of seventy-five or one hundred feet from the base of the tree. These roots were the arteries through which flowed the life fluid upon which the tree depended for its continued existence. These roots in some places were exposed to an extent of more than one-half of their circumference. No wonder that the tree was sick and dying! The cause was plain. It was being denied perhaps one-half of the moisture that it needed for the continuence of its life.

Upon being asked what he suggested, Mr. Harlow advised that the soil surrounding the tree be loosened up somewhat and that additional soil be placed around the tree and over the roots to a height of three or four feet or more. This suggestion was adopted.

The first result was a broadside of ridicule hurled at the commission, accusing its members of being a lot of idiots. Did they think that they could hold the Grizzly Giant upright by piling a few loads of loose earth on top of the roots of the tree? Once again the "friends" of the dear people had their inning in taking a few cracks at the fool commissioners.

However, it was with some sense of satisfaction, when we visited the Mariposa grove in the following spring, that we beheld, upon the side of the great and glorious Grizzly Giant, tufts of green, the first that had been there for a few years—indubitable signs of a recovery from a sickness that looked as though it were to prove fatal.

NESTING HABITS AND INSTINCTS IN BIRDS

By Robert Hays

OF ALL the important habits and instincts found to exist in animals those pertaining to the reproduction of the species are by far the most vital to the existence of the race. Birds in particular exhibit a repertoire or series of reflexes involving many peculiarities of behavior which constantly trouble beginners and students of natural history. Instincts differ from other forms of response to external conditions in being hereditary and continuous from generation to generation, and in being common to the species and not characteristic of the individual. This sufficiently distinguishes instinct from reason, but the line between instinct and reason and the various forms of reflex action are not yet sharply drawn.

The instincts of birds are found to be so constructed as to tell them what to do under various situations and are certainly brought into play far more than any other type of response during the part of the bird's life in which his bodily structures are developing and his nervous system is becoming co-ordinated to the extent of a perfect contrivance to care for all the actions of the bird.

The instincts of sex, which develop at maturity, involve a complicated series of highly complex responses which involve the following: Migration to suitable locality; the selection of the territory which is to be occupied while nesting; mating and copulation; the selection of the nesting site; selection of the materials for the nest (if the bird uses any); the construction of the nest; the number of eggs deposited, which bears directly upon the dangers to which the species is subjected; the length of the mating period; care of the young; suitable food supply, and defense and attack.

Here is set forth some things of the environmental complex which our birds must overcome and one cannot study the habits of these interesting creatures without reflecting in a philosophical manner as to the origin of so complicated a set of instincts.

Behaviorists are coming to think of instincts as physilogical drives which are so complex that they hesitate to try to explain them. Therefore I will not go into any discussion of this subject other than saying that these highly developed reflexes have a physiochemical origin and are absolutely dependent on the physiological conditions of the animal in question.

The whole question of the relation of instincts to inheritance is very perplexing. At present, we can make very little out of it; yet there can be no doubt that it concerns vitally our fundamental theories of evolution and such applied fields as eugenics.

The Nest Season

With most birds the nesting season is periodic and annual. With migratory birds it coincides with the season of the year when the summer homes are habitable. Gen

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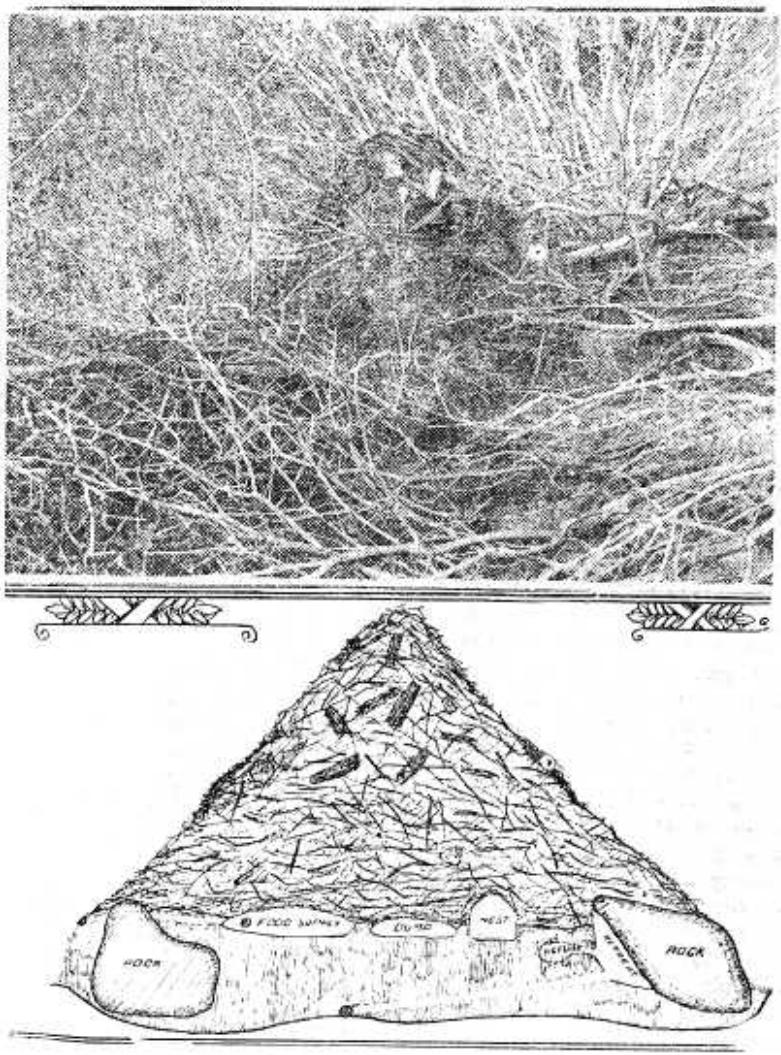

The home of a Streator Wood Rat has been brought to the Yosemite Museum, where, with the rat himself and many of his natural neighbors, it will form a part of the Upper Sonoran Life Zone exhibit. Lower—Diagram showing "rooms" of a Streator Wood Rat's House.

HOUSE MOVERS IN 'WOODRAT ROW'

By George M. Wright

Residents of "Woodrat Row" recently received forcible reminder that New Year is, after all, the traditional moving time. One of its citizens has departed with his model house to a new address at the Yosemite Museum where he may be found "at home" in the future.

High up on the warm south slopes of the Merced Canyon near El Portal are grouped many scattering colonies of the Streator wood rat (Neatoma fuscipes streatori merriam). There among the scrub oaks, digger pines, ceanothus, poison oak, manbanita, and other vegetation of the Upper Sonoran zone they seem to find the optimum living conditions for their kind. However, the new Upper Sonoran life zone case at the museum will depict the same ecological conditions of flora and fauna to be found near El Portal. The wood rat menage will be in harmonious surroundings and perhaps never be the wiser for the deception.

When the house movers repaired to the "row" they chose a type example of Streator wood rat architecture in the shape of a cone of bark and twigs measuring about two and one-half feet in height and four feet in diameter. Many other ground nests were larger but none more trimly built or showing greater symmetry than this one.

The superstructure rested on some loose rocks imbedded in a slight bulge of the earth on the hillside. This arrangement disposed of the drainage problem very effectively. In conformity with the other dwellings of the colony there was a small refuge nest perched about eighteen feet above the ground in a nearby oak tree, but the main nest was rather exceptional in not being itself anchored to any living plant stems. Oaks and the vines of poison oak surrounded the nest.

Small dead twigs and branches and strips of bark were so arranged as to make a compact structure which showed no tendency to fall apart even when carried down the hill on the shoulders of the "house movers." As is usual in such proceedings the foundations had to be left behind and with the removal of the roof the general living quarters were left quite rudely exposed to the stares of the curious.

The House Plan

As the diagram indicates, two runways led into the four main chambers. The largest room was strewn with about 200 acorns of the golden cup oak (Quercus chrysolopis). The only other fresh vegetation to be found in the dining room besides a few small sprigs of oak leaf was the young growth of a wall flower.

The next room in point of size was a retreat which was formed by the widening out of one of the main runways as it passed under

a large rock. It was quite clean and bare as though used for lounging quarters.

In the center, deep beneath the peak of the roof was a fine soft nest of grasses, cotton string and other shredded materials woven into a compact mass about eight inches deep and of the same diameter. No doubt it made a warm, comfortable bed.

The fourth chamber was smaller than the others mentioned and very dirty, being used as a depository for dung and other refuse.

On first inspection this seemed to comprise the entire floor plan, but there remained one weak point in the woodrat's housing scheme. Where was the safe refuge from carnivorous pryings of such small enemies as the spotted skunks, which are common in that vicinity? Two of these little predators were found entrapped as they came out of nest runways, showing that they make themselves at home inside the houses of "woodrat row."

Owner and Architect at Home

Further removal of dirt and loose rocks revealed a short runway back into the earth of the hill with something that looked suspiciously like a rat tail curled around in the far end. Here was a stroke of luck, indeed, for the movers had hardly expected to find the architect and owner of the house in such a position that he might be persuaded to go along, too.

The tail proved to belong to a Streator woodrat. These Sierra foothill dwellers resemble the common house rat in form and size, though they are far more pleasing in appearance, being not unlike great overgrown meadow mice. The tail is shorter than the body, closely haired as compared to that of the house rat, but not bushy like the tail of the Bushy-tailed wood rat of the high country. The ears are large and rounded. The pelage is dense and soft without long coarse overhairs. It is grayish brown above and white on all of the under surfaces.

Trade Rats or Pack Rats

These animals are known as trade rats or pack rats to campers who have frequent cause to deplore their light-fingered propensities around camp and cabin during the night hours.

The rat which the movers found lurking in his own basement was an old buck. He apparently was the sole inhabitant of the mansion if the numerous fleas, scorpions, etc., which shared it with him are eliminated. These might well be called the "hangers on" of the establishment.

So it is that museum visitors in the future will have the opportunity to see both the rat and the house the rat built. The Streator wood rat is a craftsman who may well be proud to have his art on exhibition.

THANK YOU!

Our recent request for back numbers of "Yosemite Nature Notes" received a gratifying response. Some readers who replied to our letter remarked that they possesed the needed numbers but desired to keep them. We find some satisfaction in knowing that. Enough others who had preserved files of the publication were willing to part with the specified numbers, and we are now able to bind complete files for National Park Service use.

THE CALIFORNIA GRAPE FERN

By Grace Benton

The average visitor to Yosemite sees along the roadsides many clumps of bracken, varying in size from a few inches to several feet in height and spread of frond. If he follows a nature guide about the valley or climbs the shorter trails he sees quantities of wood-fern, lady-fern, and brittle-fern. But an interesting relative of these "true ferns" may easily be overlooked.

The Botnychium californicum, or California grape-fern, of the Adder's tongue family, is a lover of well-shaped semimoist places and keeps well back in the shade of damp thickets. The rather thick fronds with their rounded, triangular but pinnately divided parts might easily be mistaken for some member of the parsley family. But in the mature plant these sterile blades are surmounted by a long-stalked sporophyll bearing a fruiting pinnacle which withers and disappears after the spores have been shed. Like the ferns, this plant reproduces by "alternation of generations," and the spores shed from the pannicle of the conspicuous plant contain the germ cell which produces the inconspicuous sexual plant. Upon the fertilization of this tiny form depends the growth of the new plant.

The California grape-fern appears infrequently in the moist meadows and thickets of the Transition zone. Although fern-like in habitat and in method of reproduction, it may easily be distinguished by its lax fronds, thickly massed leaves and fleshy stalks. In Yosemite it may be found among the bracken, azaleas and pines along Tenaya creek.—Grace Benton.

NESTING HABITS OF BIRDS

(Continued from page 11)

erally, the nesting season of a particular species comes about the time in which its particular food or food for the young is most abundant. Even in the tropics the breeding season is as well defined as it is in the northern regions, and occurs with the return of summer or the season of rain. So behind this whole process of the development of life, we find that climate and its changes are found to guide or direct the actions of animals and to particularly govern their nesting activities.

There is an obvious necessity for this regularity. Old birds can wander over large areas in search for food, but the young of many species must be fed on the nest, and their food supply should be both inexhaustible and convenient of access. Among the birds in this region, the hawks and owls, whose young are fed on small mammals, are the first birds to nest, while those which feed their young on fruit or insects wait until latter in the season.

Now let us see how this can be made to apply to the Yosemite region. Here we have a section of the country which has an abundance of rainfall in the winter and early spring, consequently our vast forests and dense growths of Sierra Nevada vegetation result. Birds have found this region to produce an abundance of food as well as a great variety, and as the forests and meadows offer suitable homes they have found and accepted the Yosemite country. This partially accounts for the abundance of species which we have represented here.

By protecting these regions from the onslaught of thoughtless men we can preserve a condition of tremendous wealth of wild life for the good of those who will follow us into these "Mountains of Light."

SHOULD BEARS BE KILLED?

This picture was published in 1887 and was made to represent a good day's sport. Today, it points to impending disaster with a warning finger.

Hunters of an earlier time exterminated the great Grizzly Bear. To residents of the Grizzly Bear State today this lordly animal is but a legend, a mythical emblem on the California flag.

Our most recent game laws have legalized the slaughter of Black Bears the year round. Now let all loyal Californians unite their voices in one insistent demand that the last of our bears be given adequate protection. Else he will quit the forest and the mountainside forever.

YOSEMITE NATURAL HISTORY ASSOCIATION

Y. SEMITE NATIONAL PARK
CALIFORNIA

YOSEMITE MUSEUM

Dear Friend:

Here are three good reasons why you should become a member of the Yosemite Natural History Association:

1. It will keep you in touch with Yosemite through "Yosemite Nature Notes".

2. It offers you opportunity to secure NATURE MAGAZINE, AMERICAN FORESTS AND FOREST LIFE, or both, at an unprecedented low price.

3. You materially aid a non-profiting Government educational activity (The Yosemite Museum and its attendant nature guide service) when you remit your membership fee.

Please read a sample of "Yosemite Nature Notes", consider our purposes, and don't overlook the benefits of the combination offers with the American Nature Association and the American Forestry Association. Remit by check or money order.

Cordially yours,

C. P. Russell
Park Naturalist