

YOSEMITE NATURE NOTES

Vol. XXIV

February, 1945

No. 2



BADGER PASS SKI HOUSE

Yosemite Nature Notes

THE MONTHLY PUBLICATION OF
THE YOSEMITE NATURALIST DEPARTMENT
AND THE YOSEMITE NATURAL HISTORY ASSOCIATION

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FOOD HABITS OF YOSEMITE MAMMALS AS INDICATED BY THEIR TEETH

By Lt. (jg) Richard G. Miller *

Part I

Introduction

The great variety of animal life is one of the attractions of Yosemite National Park. Here one sees animals under natural conditions. The animals belong here and they fit into the surroundings for their form enables them to do so. The food they eat, the plants and animals they associate with, the hazards of their daily life are all a part of nature's plan of adaptation. Through ages nature has adjusted animal life to fit into every situation and circumstance, and in so doing, a variety of forms have appeared.

The meadows and forest floors are peopled with deer, bear and ground-squirrels that walk and run. In the vertical world of tree trunks and storied crowns there is a host of climbers. These even specialize on certain trees—the gray squirrel taking the oaks; the chickaree, the Jef-

frey and sugar pines, firs and sequoias; and the porcupine preferring the firs and lodgepole pines. Their long toes and claws and powerful little limbs enable the squirrels to go up and down speedily; and the porcupine need not hurry, protected as he is with quills. The flying squirrel, whose business carries him from tree to tree, cuts many a vertical mile by sailplaning on "wings" of furry skin.

Bats wing tirelessly over meadow and forest on the nightly insect hunt. Beneath the forest floor the moles work in solitary darkness, and among the meadow grasses the gophers and meadowmice are busy at furtive harvesting. Among the mountain peaks live marmot and cony. In the high forests the Sierra Nevada white-tail jackrabbit nibbles the shrubs and greens, ever ready to outleap his foes, his "snowshoes"

* Lt. Miller attended the Yosemite School of Field Natural History during the summer of 1941. Following completion of this course he served as a park ranger in Yosemite for several months. During the following summer, before he entered the U. S. Navy, he served here as a ranger-naturalist. This article, prepared on board ship, indicates that he has lost none of his interest and enthusiasm for Yosemite National Park. (C.F.B.)

and winter coat a perfect adjustment to the hazards of his land of prolonged snows. The unrelenting hunters are to be found here, too, well equipped to invade every realm — badgers to dig out and devour the burrowers; coyotes, foxes, lynx and mountain lions to stalk and strike the surface life from ambush; weasels and skunks to invade tunnel and nest; fisher, pine marten and ring-tailed cat to hunt in the trees.

Biologists have grouped the mammals into "orders" according to their characteristics. Six of these are represented in Yosemite fauna — the rodents or gnawing mammals (Rodentia), the flesh eaters (Carnivora), moles and shrews (Insectivora), bat; (Chiroptera), even-toed hoofed mammals (Artiodactyla), and hares, rabbits and pikas (Lagomorpha). Dental characteristics play a large part in such classification since they pro-

vide a clue to food habits. The teeth vary in importance and are exaggerated, modified or absent according to their use and importance to the species. Animals that cut or make incisions have exaggerated incisors, those that are carnivorous have enlarged canines. The molars are flat-topped grinders or shears depending upon the type of animal to which they belong.

Few mammals are capable of eating such a great selection of foods as humans do. Instead each species is somewhat of a specialist and is equipped with the tools of a specialist. The sketches included in this series of articles illustrate proportions of head and teeth of characteristic mammals of Yosemite. With each drawing the dental formula is given. It represents the teeth of one side of the face, reading from front to back, uppers and lowers.

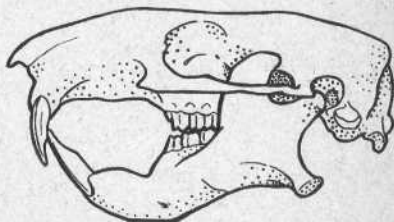
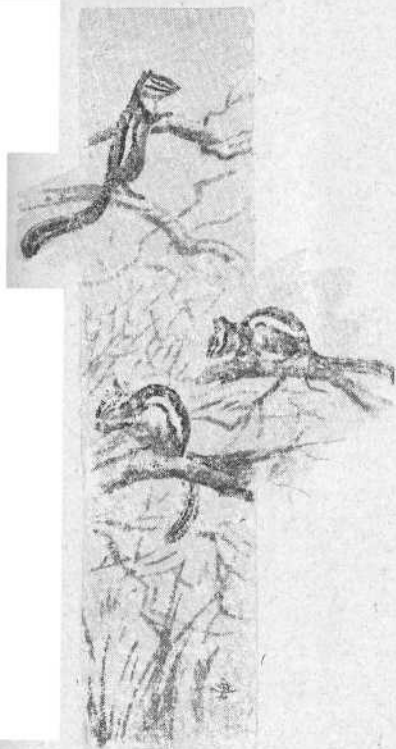


Rodents or Gnawing Mammals (Rodentia)

Rodents are the most abundant form of mammal life in the world, and Yosemite National Park is no ex-

ception. Chipmunks, and ground squirrels of several species, the Sierra Nevada chickaree and the California gray squirrel are well known to Yosemite visitors. Meadow mice and gophers are abundant but timid, while flying squirrels and white-footed mice forage at night and are less frequently encountered. The Southern Sierra Nevada marmot will be noted in meadows between 7500 and 11,000 feet. Porcupine and mountain beaver are present in Yosemite, but inhabit the higher forest

land of the Park. The mountain beaver, or aplodontia, is so little known that it might be well to use it as an example of the rodents. The name, mountain beaver, established by early explorers, is an unfortunate choice, for this animal has none of the aquatic characteristics or habits of the beaver. Instead, it looks much like an overgrown meadowmouse. "Sewellel," "mountain boomer" and "apodontia" are names sometimes used.



3 inches
Aplodontia $\frac{1}{4} \frac{0}{8} \frac{2}{1} \frac{3}{3} = 22$
YMNH #277

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As in all rodents the two upper front teeth are long and protrude forward through the lip to meet and overlap the two lower front teeth which protrude in a similar manner. Thus, rodents are provided with a set of opposing chisels for snipping off roots and stems, for cutting up pine cones, or, as in the case of the porcupine and beaver, for whittling. These chisel-like incisors are kept sharp by differential wear. The front surface of the tooth is of hard enamel which resists wear and remains as a sharp ridge after the softer dentine part has eroded back. Compensation is made for the wearing down of these important teeth in their con-

tinual renewal, pushing out from the base. Thus, a rodent's teeth are always sharpened by wear, but do not wear away.

The aplodontia live in colonies in situations which are moist or even oozing with water. Food consists of green vegetation such as foliage and branches of ferns, shrubs, small trees and other plants. This is left in neat stacks to cure outside the burrow before being carried inside for storage.

Some rodents have the storage habit and lay up reserve food stocks, while others live from day to day. Chipmunks and squirrels hide nuts

the lips, on each side of the mouth, and are thus enabled to carry several times more food than they could in the mouth cavity alone. The pocket gopher has pockets in his cheeks which open outside his lips and are fur-lined and they are used in the same manner.

In the high country the marmot hibernates after a short summer of foraging. The ground squirrels go into winter retirement for a period, the length of which is governed by the nature of the local winter. Chipmunks are more active in winter and have been seen out on warm winter



and seeds for winter use. Woodrats are notorious for taking what they like whether it is food or ornament, leaving in exchange sticks or twigs. This has earned for them the name "pack rat" or "trade rat." Frequently chipmunks and ground squirrels will be seen with cheeks crammed full, darting off to deposit the contents in the food "bank." These creatures have two thin membranous internal cheek pouches opening just inside



days. The gray squirrel, found only in the lower and milder parts of the park, does not hibernate. The chickaree, likewise, remains active throughout the winter, even though it inhabits the higher forested regions.

THUMBNAIL SKETCHES OF YOSEMITE ARTISTS

By Elizabeth H. Godfrey, NPS Staff

Gunnar Mauritz Widforss

While Gunnar Mauritz Widforss painted with equal effectiveness at Grand Canyon, Yellowstone, Zion, Bryce Canyon, Crater Lake, Sequoia, Mesa Verde, and Yosemite National Parks, and at Death Valley National Monument, his Yosemite and Grand Canyon paintings are perhaps the most widely known and appreciated.

He was born in Stockholm, Sweden, on October 21, 1879. His father Mauritz Widforss was a merchant.

Widforss obtained his art education at the Technical School at Stockholm and at the Academie Colcross in Paris. From the age of 29 on, he devoted his entire time to painting, using both oils and watercolors. Widforss liked to describe his studios as being in the great out-of-doors. From Sweden he went to Paris, Switzerland, Italy, and finally to America. King Gustavus of Sweden, Archduke Franz Ferdinand of Austria and the famous painter, Anders Zorn, were ardent admirers of his work, and did much to make him widely known in European art circles.

Widforss' watercolor painting, "Mt. Clark from the Northeast," is the only record we have that he painted in Yosemite National Park before establishing permanent residence in the West in 1921. This watercolor painting won him recognition by the Paris Salon, and was exhibited there in 1912. Later, Mr. Widforss

generously presented it to the Yosemite Museum, where it now hangs on the walls of the stairway. Because of its fine composition, unusual contrasting colors and clever technique in execution, it receives much attention and praiseworthy comment from the visiting public.

In 1921, Widforss came to the United States to make his permanent home. He was undecided just where to locate, when he made the acquaintance of the first Director of the National Park Service, Stephen T. Mather. Widforss caught Mr. Mather's unbounded enthusiasm and love for the scenery of the national parks of the West, and decided to devote his life to painting their manifold wonders.

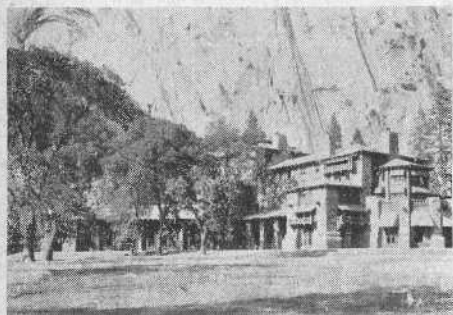
For the next five and a half years, the artist spent some time in Arizona and Utah, but the greater part of it in Yosemite National Park and on the Monterey Coast.

An acquaintance of the writer, who knew Widforss well, described him as about 5 ft. 4 in. in height, with blue eyes, blondish gray hair, a pleasant smile, and of such jovial manner and roundness of figure that he suggested a good-natured Santa Claus. He had a cheerful, complacent disposition, and his broken English sparkled with humor and graciousness. He enjoyed picnicking more than anything else, and

liked to treat the "whole crowd."

With such a personality he readily adapted himself to and became a part of the permanent community life of the national parks, and made hosts of friends.

In Yosemite, he painted prolifically. His paintings sold readily for



good prices at the former Ahwahnee Hotel gift shop. Those who could not afford the originals were delighted to purchase splendid reproductions which revealed not only the picturesque of the Yosemite scenery, but also expressed its intangible atmospheric and impressionistic qualities.

Among Widforss' many Yosemite friends was the late Chief Ranger Forest S. Townsley, of whom he painted a portrait. It is most unusual in that the upper portion of the face is shadowed by the wide brim of the ranger's hat, while the lower part is in bright sunlight /1/.

/1/ Widforss presented this portrait to Chief Ranger Townsley, and it is now greatly prized by his widow.

/2/ Widforss' painting "The Three Patriarchs" (from Zion National Park) is exhibited at the National Galleries, Washington, D. C.

In the living room of the Yosemite National Park Rangers Club, there hangs another Widforss given to the club by the artist. This scene is of Cathedral Rocks veiled in misty blue haze with autumn foliage in the meadow foreground.

In 1928, Widforss returned to Sweden to visit his mother. On this occasion, as a member of the Association of Scandinavian-American artists in New York, he conveyed greetings of that organization to the artists of the Scandinavian North.

Returning to the United States in the same year, he was awarded first prize at the exhibit of Scandinavian Artists held in New York. Thereafter, he made his home in Grand Canyon National Park, where he never tired painting the colorful splendor of that vast canyon in its ever-changing aspects of atmospheric effect occasioned by the time of day, the whims of the weather or seasonal variation.

Dr. William H. Holmes, formerly Director of the National Gallery of Art /2/ in Washington, D. C., said of his Grand Canyon paintings, "They are remarkable as to geological construction and color. They give a more satisfactory understanding of the Grand Canyon than any that have hitherto been attempted. It is well nigh impossible to convey the immensity and grandeur of these

marvels of nature, but Widforss has accomplished it."

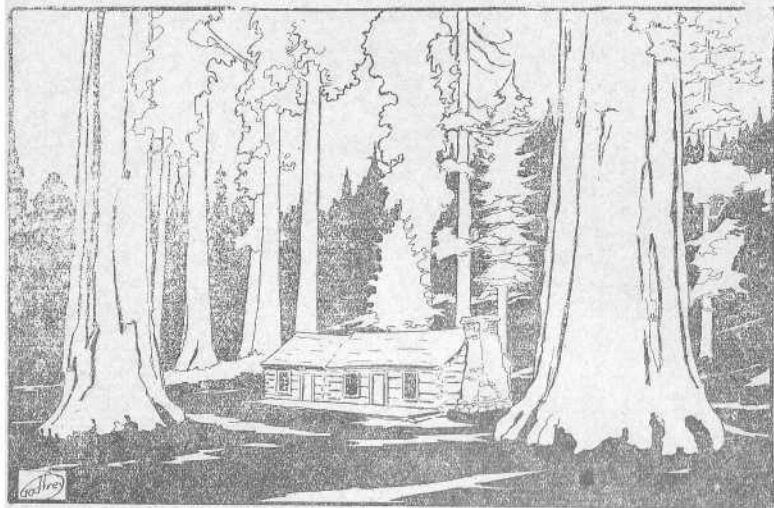
On November 30, 1934, at the age of 55, Mr. Widforss suddenly passed away of a heart attack while driving his car away from the Hotel El Tovar, Grand Canyon. A few feet from the point at which he apparently lost consciousness, the car partially left the road and rolled against a tree. Thus for him it was but a step "over

the brink" from an earthly paradise into the eternal.

Through fine artistic expression Widforss inspired others to become acquainted with and to appreciate to a greater degree the gems of nature as found in the western national parks. His many beautiful paintings are legacies he has left behind to give lasting pleasure for many generations to come.

SOURCES

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MARIPOSA GROVE MUSEUM

SURVIVAL OF THE FITTEST

By C. Frank Brockman, Park Naturalist

Many people feel that Yosemite Valley is "over-civilized." Yet on many occasions events are noted which indicate that our native birds and mammals pay little attention to human developments and activities in this area.

Early last October such an event was observed but a scant twenty five feet from the rear of the writer's home. In that location stands a woodpile which is a favored abode of a number of California ground squirrels. On this occasion one of these animals was not quick enough to escape a sudden attack from the air. In its dash for the safety of the woodpile it was intercepted and killed by a Western red-tailed hawk, which then proceeded to enjoy the fruits of victory alongside the woodpile.

This activity aroused the curiosity of several deer in the nearby meadow. Circling slowly, they gradually approached the woodpile but, except for occasional alert and furtive glances, the hawk paid them little heed. One of the deer, bolder than the rest, decided to approach closer. Its actions clearly indicated that it was somewhat perturbed over its observations. It stamped its fore feet nervously. The hair along the back of its neck lifted slightly. Its neck was extended first to one side and then the other as it scrutinized the activities of the bird. The deer had advanced to within a few feet of the

hawk when the latter suddenly turned its head in an ornithological version of a snarl. Startled by this



belligerent gesture the deer wheeled and, with its companions, bolted across the meadow as the hawk again nonchalantly resumed its meal.

By this time Ralph Anderson, our neighbor and the park photographer, had also noted this drama of the wilderness. With his ever-present camera he began edging from the rear door of his home in an effort to obtain a photographic record of this occurrence. But the hawk, sensing probable danger, immediately gathered up the remains of its prey in its talons, swiftly rose into the air with powerful strokes of its wings, and departed. The wing spread of the bird was about four feet, and as it disappeared toward the nearby timber the rusty brown color of its tail could be easily observed.



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Dan Anderson