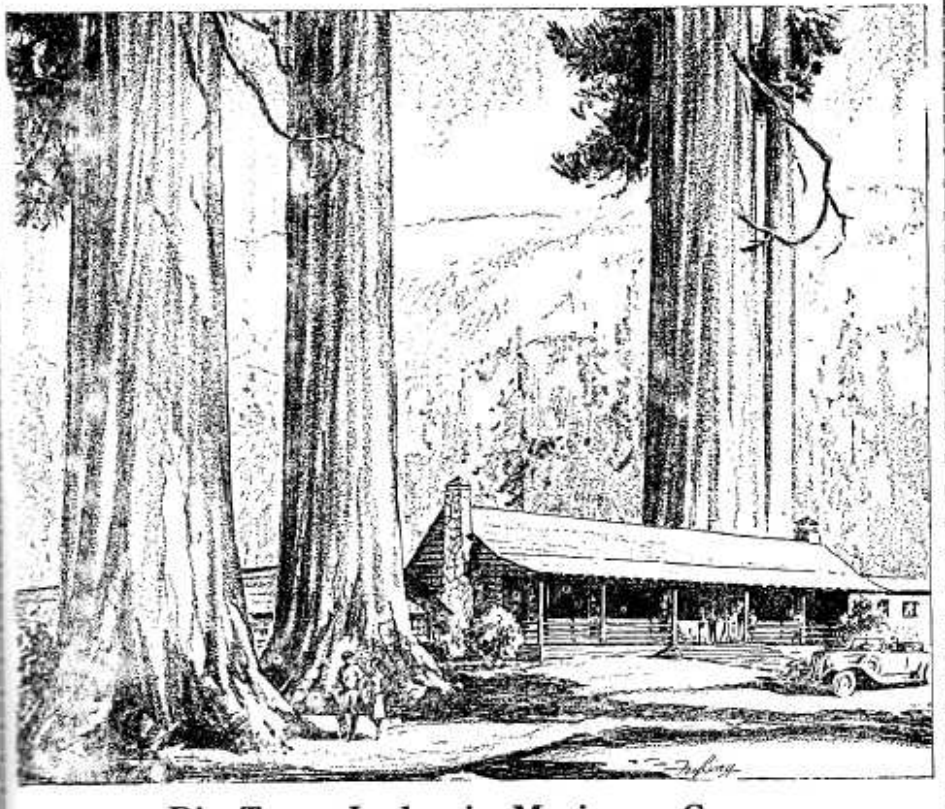
YOSEMITE NATURE NOTES

VOL. XIX September 1940 No. 9



Big Trees Lodge in Mariposa Grove

Yosemite Nature Notes

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

Published Monthly

VOL. XIX SEPTEMBER, 1940 NO. 9

CENTENARY OF THE GLACIAL THEORY

By Ranger-Naturalist Carl W. Sharsmith

The story of the glaciers and the part they played in the formation of Yosemite Valley is familiar to most visitors to the park. Evidences of past glaciation are everywhere patent to the eye; the hanging valleys with their great waterfalls, and the shape of the valley itself are expressions of past ice action on a huge scale. In higher altitudes beyond the valley's rim are great areas of polished and striated granite, and countless perched or erratic boulders. Extensive moraines mark the extent of the ice, and evidence indicates a succession of glacial invasions. This succession of glacial invasions, or stages, is probably correlated with glacial stages elsewhere in North America and in Europe during the Ice Age or Pleistocene.

Confronted with such obvious indications of past glacial activity as are presented in Yosemite, any other interpretation as to the origin of these landscape features is not possible. That they are attributable to glaciation is now accepted without question. Yet it is only one hundred years ago that the origin of such features was first clearly understood. Prior to 1840, several writers had ventured an opinion that glaciers had once been more extensive, but it remained for Louis Agassiz first to formulate what is now known as the Glacial Theory. In 1840, his "Etudes sur les glaciers" was published, a landmark in the field of glaciology; in it he presents the evidence to show that at a geologically recent time Switzerland was covered by a great ice sheet. With these and other observations he concludes that "great sheets of ice, resembling those now existing in Greenland, once covered all the countries in which unstratified gravel (boulder drift, moraines) is found."

Since the time of Agassiz, the accumulation of evidence proving his theory has assumed overwhelming proportions. Passed into the realm of fact the tracing of the extent of the ice sheets, the discovery of discrete phases of glaciation separated by non-glacial intervals, the length of time involved during all these phases and since the disappearance of the last ice sheet, as well as the growing body of fact supporting the

correlation of all these phases throughout the northern hemisphere, is a triumph of geological science. This knowledge has made possible a theoretical reconstruction of the climate during the last million years of earth history, the most marked of which oscillations in temperature or precipitation, or both, the changes from one peak to another taking place during many thousand-year intervals. This climatic reconstruction leads down to the present in which a phase of glacial retreat is observed the world over. Careful glacial measurements from year to year are being carried on in numerous points, those in Yosemite having been continuous since 1931. It is of interest to note in this connection that measurement of glacial movement and retreat was begun in Switzerland under the genius of Agassiz, in 1840, one hundred years ago.

BILEDO MEADOW FLOWER GARDEN

By Ranger Naturalist Arthur Carthew

On July 18, members of the Yosemite School of Field Natural History visited the Biledo Meadow at that time when floral display was at its height. Biledo lies at an elevation of seven thousand feet on the southern slopes of Mount Raymond. Although not within the boundaries of Yosemite, it is readily accessible from the museum in the Mariposa Grove, three miles by an almost level trail following the pipe line which conveys water from the meadow to the grove. After leaving the Sequoias the trail winds through a virgin forest of Sugar Pine, Incense Cedar, and Jeffrey Pine for a mile or more. Then a sudden change brings one into a logged and burned area beyond the park boundary. What was once a beautiful forest is now a chaparral covered slope, overgrown in manzanita, ceanothus, and other shrubs with an occasional burned snag still defying the forces of time and decay. Beyond a gate along the trail are to be found the Washington Lilies (Lilium washingtonianum), lending a patch of beauty to the otherwise drab chaparral in which the plants are concealed. The trail finally merges into a road which serves the mines in the Biledo area. The meadow itself is fenced to prevent the grazing by stock although in times past considerable damage has been done to the flowers by cattle and horses. A few rustic log cabins of the miners working on the slopes of Mount Raymond lend a note of beauty rather than detract from the appearance of the meadow.

The floral display in the meadow was beautiful beyond the ability of mere words to describe. Unlike many meadows where a few species dominate, Biledo was a quiltwork of color, with a great variety of flowers enriching small areas

with their particular hue or shade. Those members of the Field School interested in plant classification identified seventy species in three hours' time. Undoubtedly many more could have been found if time permitted. Not only were the species numerous but the plants themselves were particularly luxuriant, invariably approximating or exceeding the maximum size for the species assigned in Jepson's Manual of the Flowering Plants of California.

On approaching the meadow the

Coneflowers (Rudbeckia californica) were the most conspicuous flowers. The bees were quite active on this species, making the flowers almost seem audible in their beauty. In sharp contrast with the Coneflowers were the Lupine (Lupinus longipes) growing on the outer margin of the meadow. Close by the tiny rivulet draining the central portion of the meadow were to be found the moisture loving plants—lovely Sierra Shooting Stars (Dodecatheon jeffreyi), the Sierra Rein-orchis (Habenaria leucostachys), the smaller and daintier orchid (Habenaria sparsiflora), an occasional Columbine (Aquilegia truncata) or the Monkshood (Aconitum columbianum). Several gorgeous clumps of

Scarlet Mimulus (Mimulum cardinalis) added a rich scarlet to the color pattern of the meadow, helped in this regard by the brilliantly-colored Paint Brush (Castilleja miniata). Outstanding in size and luxuriousness was a large cluster of Mountain Larkspur (Delphinium glaucum), the stalks exceeding eight feet in height with flowers in racemes over two feet in length. No cultivated Larkspur could exceed this wild flower in beauty and luxuriousness. In addition to the particularly showy flowers were many smaller plants content to bloom beneath their dominant neighbors, but hardly less lovely in form and color. Bordering the meadow was the typical forest of the Canadian Life Zone, and be-

neath the trees the dainty bell-flowered Pyrola (Pyrola picta). Close along the road encircling the meadow were the gooseberries (Ribes roezli), the prickly fruit beginning to turn color. This plant, slated by man for extinction in certain areas because of its function as an alternate host for the blister rust, was innocent of any potential harm in this area devoid of sugar pines.

Biledo with its rustic log cabins set in an unrivaled wildflower garden is indeed a meadow as lovely as its name.

THE VOYAGE OF A DRY-LAND SUBMARINE

By Ranger-Naturalist A. Lee Haines

Rare is a day in July when one can see a live mole, let alone see a mole actually swimming; yet, this was the experience of a group of forty people who were passing by Mirror Lake on their way to Snow Creek Falls.

At 2:20 p. m. on July 19, 1940, one of our party of hikers cried, "Why! there's a mole swimming in the lake." By the time that everyone had reached a vantage point on top of the large granite boulders that lined the lake, the mole had stopped swimming and had climbed completely out of the water onto a piece of talus which sloped into the water at an angle of thirty-five degrees.

David Dunn, a member of the Yosemite School of Field Natural History, climbed down upon the rock and captured this curious little mammal by grasping it by the back of the neck. The mole was then held aloft by the tail so that each of us could get a good look at its long pointed nose with its covering of numerous fine sensory bristles and its two large spade-like fore feet. The pelage of silky-plush-like hairs was slightly matted by its recent bath.

Grinnell and Storer record in their **Animal Life in the Yosemite,** pp. 43-46, that the Yosemite Mole (Scapanus latimanus) habitually stays below the surface of the ground and that even when it is making its burrows there is never any direct opening to the exterior. It was indeed a rare sight for us to see this particular Yosemite mole swimming in two feet of water. Since the northeast corner of Mirror Lake is lined by large boulders that are partially submerged, it is probable that the mole had traversed thirty to thirty-five feet of open water before coming to rest. How did the mole get into the water? How did it know there was only one particular rock in the immediate vicinity with a gentle enough slope to allow its emergence from the water? The answers to these and many other facinating questions will have to wait until further observations and study can be made upon these seclusive "Dry-land-submarines."

YOSEMITE ANIMALS

FAWN OBSERVED ABOVE TIMBERLINE

By Ranger-Naturalist George A. Petrides

On August 1, 1939, it was the unusual experience of several members of the Yosemite School of Field Natural History to discover a young spotted fawn in its hiding place among huge boulders at an altitude of approximately 11,500 feet on Shepherd's Crest. Immediately upon its discovery the surprised animal, which was probably only two or three weeks old, dashed down the steep slope at a great speed, twisting and dodging among the boulders.

Inasmuch as adult deer are but rarely seen at an elevation above the tree line, it was a distinct surprise to encounter a fawn in such a location. At the altitude at which the fawn was first seen, no trees were present and but a few widely scattered specimens of Shrubby Cinquefoil (Potentilla fruticosa) and a high mountain Penstemon (Penstemon menziesii) were apparent. This location was more than a thousand feet above the trees, shrubs, and habitat. No reason was apparent for the presence of the spotted youngster in such an unusual situation.

OBSERVATIONS ON A PAIR OF FAWNS

By Ranger Naturalist Vincent Mowbray

While driving through the Tuolumne Grove of Big Trees on July 8, 1940, I was surprised to come upon two very small fawns in the center of the road. The doe was up a short distance above the road, and as my car approached the fawns, she came down and apparently tried to get them off of the road. The fawns refused to get off the road, so she finally went back up above the road and kept up a continual bleating sound which I could hear from a distance of at least 50 feet. This seemed to have no effect on the fawns as they remained in the middle of the road. I managed to herd the two of them off the road without touching them. They were barely able to walk and one of them appeared to be still

wet, which would indicate that they had been born only a short time before. I estimated them to be about 12 inches in height at the shoulder and about 24 inches in length. Their weights should not have been over six pounds each, but I can give no accurate estimate on that point. One of the fawns was a much darker brown than the other and was probably a male, while the lighter colored one was a female (Dixon).

A forested region, such as this area, is not the usual place for fawns to be born. The mother generally chooses a grassy meadow where she can hide the fawns as soon as they are born.

SIERRA MARMOT

By Ranger-Naturalist Russel L. Lewis

Some interesting observations on the Sierra Marmot, also called the woodchuck and ground hog, were reported by Mr. and Mrs. Henry Hall of San Diego. Late in June, they were camped above Yosemite Creek along the Tioga Road at an elevation of about 7,000 feet. Assistant Park Naturalist Beatty saw four marmots in the same vicinity a few weeks previous.

The marmots are more often found at Tuolumne Meadows and at higher elevations. More significant is the fact that the Halls made friends with one of the marmots which made regular appearances for food. It became almost as tame as some of the chipmunks in the Glacier Point vicinity. Between feedings the marmot sunned itself on a large rock, a trait which is characteristic for this largest representative of the squirrel family in Yosemite. In resting it seemed to be sprawled out on the rock, and appeared to be comfortably resting on its elbows.

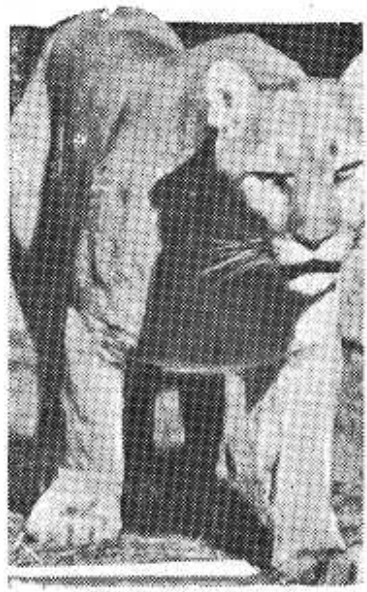
The fact that the marmot was so tame is quite unusual. Ranger-Naturalist Payne in the February, 1938, issue of Yosemite Nature Notes told how tame some of the half-grown individuals were. Apparently the older ones kept at some distance from the Yosemite visitors just as two did that I observed near Virginia Pass last summer where the altitude was about 10,500. These two characteristically stood up on their hind legs in the same manner as the "picket pin" and then disappeared into their burrows when we got within fifty yards.

The Tioga Road and the campgrounds along the Tioga Road offer the Yosemite visitor a splendid opportunity to see flowers, trees, and animals that are not ordinarily found in the Valley due to the various altitudes represented on the road.

MOUNTAIN LION IN YOSEMITE VALLEY

By Ranger Robert Fitzgerald

While on my night patrol through the evening of July 3 and the morning of July 4, I drove in to turn off the lights at the bear feeding area two miles below the Old Village at 12:30 a. m. As I got out of the car and approached the light switch box, I saw a Mountain Lion emerging from the trees across the river at the bear feeding platform. There were no bears or other animals present. I was sure it was a Mountain Lion because in size it appeared to be more than 6 feet long from nose to tip of tail. The tail impressed me as being larger than my arm, and reminded me of a kangaroo's tail held to a slightly curved position. It's head was held high, and it had all appearances of a stealthy cat. It did not stop to feed, but proceeded up the valley at what appeared a fast walk, and disappeared behind the bushes. It was in view approximately one-fourth minute. On the Fourth of July at a time when there



was approximately 10,000 people on the valley floor, it was indeed a surprise to see a Mountain Lion prowling around.

MY FRIEND THE MARIPOSA CHIPMUNK

By Charles W. Michael

The Chipmunk is a nice little fellow and he is a friend of mine. I like the touch of his little paws as he reaches up to receive a piece of walnut from my hand. As I sit at the writing desk he will scamper up on the screen door to attract my attention. If it were not for the mosquitoes I would leave the door open so that he could come and go as he pleased. Chipmunk used to be glad to see me come home, but since he has learned where the good things come from he has become adept in getting in and out of the tent when I am away and now he rather resents my homecoming.

I don't mind Chipmunk having all he can eat, yet I do not like to encourage his overly thrifty habits. If he had free access to the food supply he would soon store away more

food than any chipmunk could eat. Most of the things that Chipmunk likes are kept in closed tins, but Chipmunk is a resourceful fellow and he discovered that by throwing the tins onto the floor they sometimes popped open. If Chipmunk was not such a cute little beast, I would declare war, but as it is I just arrange the tins so that he can't shove them off from the shelves.

To illustrate the cleverness of Chipmunk: the other day I came home from a walk, hung my coat over a chair and went out for a pitcher of water and when I came back I found Chipmunk sitting in my chair eating chocolates that he had taken from my pocket.

GROUND SQUIRREL KILLS CHIPMUNK

By Ranger Russell S. Miller

On the afternoon of Saturday, July 13, there was the usual crowd of week-end visitors at Glacier Point, and also as usual there was the ever-present group behind the hotel and on the porch feeding peanuts to the jays and the four species of rodents common there.

Then before our very eyes there was a sudden rush, a short struggle, and a California Ground Squirrel had a chipmunk firmly between its jaws, which it slowly carried off into the brush.

Many times I have watched the California Ground Squirrel chase the smaller Golden-mantled Ground Squirrel and Chipmunk, and in turn the Golden-mantled Ground Squirrel chase the Chipmunk. In every case the smaller animal was so infinitely quicker, that the larger animal seemed to have no chance at catching the smaller. This was especially true whenever the sluggish Ground Squirrel made an attempt at a Chipmunk; it hardly amounted to a "chase" for the lightning quick Chipmunk was always easily out of the way.

Some speculations on this incident immediately come to mind. Was the Chipmunk a young and inexperienced one? To my eyes it seemed as large as the other adults. To check this I carefully questioned the group of people on the porch as to whether or not it seemed to them to be a full-grown one or somewhat smaller. All said that it was the same size as the other adults which checked with my observation. Also this incident would have had little likelihood of occurring if a somewhat artificial animal community had not been built up by much peanut feeding which brought the different species together and tended to break down the natural wariness of the smaller animals for the larger.

This may be another expression of the casualties that occur when man upsets conditions commonly known as the balance of nature. . . .

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