

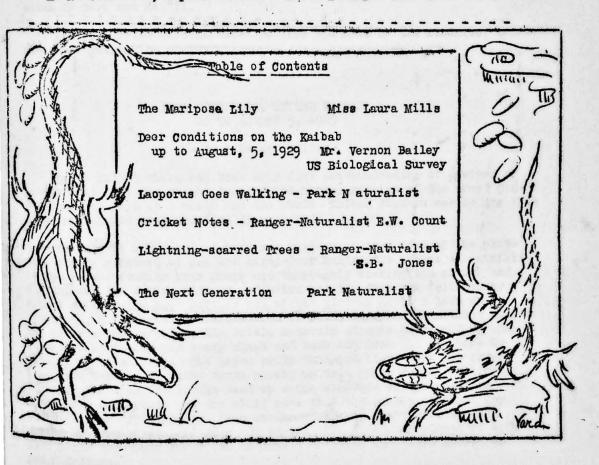
U. S. DEPARTIENT OF THE INTERIOR NATIONAL PARK SERVICE GRAND CANYON NATIONAL PARK

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This Bulletin is issued monthly for the purpose of giving information to those interested in the natural history and scientific featwes of the Grand Canyon National Park. Additional copies of these Bulletins may be obtained free of charge by those who can make use of them, by addressing the Superintendent, Grand Canyon National Park, Grand Canyon, Arizona.

(Publications using these notes please credit Nature Notes from Grand Canyon National Park and author.)

M. R. Tillotson. Superintendent - Edwin D. McKee Park Naturalist



MARIPOSA LILY

By - Miss Laura Mills

Along the roadside among the sagebrush or scattered under the yellow pines, nods the dainty white Mariposa Lily, (Calochortus mutalli), variously called Mariposa Lily, butterfly tulip, and Sego lily. In the dryer sections, where it springs up under the sheltering sagebrush, its slender stems and very narrow leaves pass unnoticed until crowned by the flower, with its brownish purple markings inside the bases of the petals. Nor does all of its beauty fade with the passing of the blossom. The erect three-sided seed-pods, two or three inches in length, retains the same daintiness in its delicate green and white markings.

One wonders how such a fragile appearing member of the lily family can survive the dry seasons and the ravages of animals. Several inches deep in the soil, the plant stores its energy in a solid little starchy bulb. In many places in the West this bulb was sought by the Indians as a desirable food. It is a favorite food of rodents; and the tops are eaten by deer and cattle.

Ned on, little Calochortus: We like you best by the readside; or under the whispering pines.

DEER CONDITIONS ON THE KAIBAB UP TO AUGUST 5, 1929

By - Vernon Bailey

Up to July 9 there had been only five one-hundredths of an inch of precipitation at the Bright Angel Point Ranger Station of the Grand Canyon National Park in a month and the whole Kaibab Plateau was so dry that plant growth had been practically arrested.

On July 10 a torrent of rain and hail swept over most of the plateau, giving a record of one and sixty-four hundredths inches of rainfall in the ranger station rain gauge and thoroughly scaking the ground and filling all the lakes, streams and water holes. This was followed by almost daily rains over part or all of the plateau until I left on August 5. A wonderful transformation of plant life had then taken place. The grasses grew rapidly, the little mountain clovers thickened up and blossomed profusely and every plant and bush and tree did its best to make up for lost time. The aspen seeds that had blown over the ground like snow before the rains began sprang up in a green carpet of tiny plants. The caks and locust sent up dense clusters of sprouts from apparently dead roots and the cliff rose that had seemed dead and dry sprouted from dry stems and from unseen roots and bases left in the ground by over-grazing of deer and stock. The flowering plants of both open parks and woods burst out in masses of color and dense growth of green foliage.

on July 16 the first mushrooms were found and a week later they were becoming numerous in both species and individuals, and the deer were hunting for them in the forest and open country and feasting upon almost every kind they found. Even the big red-topped Amonita muscaria was eagerly eaten, as also two other species of Amonitas, three or more species of Russula, three species of Boletus, two of Agaricus and several Clavaria, Copriums, Pleurotus and numerous other groups and species.

On August 5 as I drove from Bright Angel Point to Jacobs Lake and thence east to Houserock Valley, there was a ceaseless profusion of mushrooms all the way for about 40 miles until the spruce and yellow pine forests were left behind, but none lower down.

The stomach of a large buck killed by an automobile on July 29 was carefully examined and found to contain a great variety of plants chosen from a profusion of available food. It contained a high percentage of leaves and twigs of aspen and white fir, wild clover, knotgrass, (polygonum of two species), pig weeds, lupines, letus, and a smaller percentage of other herbaceous and shrubbery plants, a little grass and about two per cent of mushrooms. Later I saw dder eat in a few minutes enogh mushrooms to make a much higher percentage of the contents of a full stomach and assume that this one had not been fortunate in finding a fair share of the available fungus growth.

The buck killed by the automobile was an adult with fullgrown horns in the velvet but with soft tips and wholly covered with live skin. He was estimated as weighing about 200 pounds but looked as thin as all adult deer do at this season, either bucks with growing horns or does nursing fawns.

When cut open for examination however, the body was found to have a good half inch of tallow over the breast and rump and the kidneys were almost covered by a layer of fat.

With three more months of abundant food of the best quality including plenty of mushrooms, there seems every assurance of fat deer before the autumn migration to lower levels begins. This means fat venison for the hunters and a good winter for the rest of the deer after the carefully determined surplus of the herd is removed by hunting and capture for re-stocking other ranges. With proper management the present and future of the splendid herd of Kaibab deer seems assured. If four to six thousand are moved this year, the range should carry the remainder without losses or suffering of the deer and we hope without more injury to the young forest growth or menace to their own future subsistence.

LAOPORUS GOES WALKING

By - The Park Naturalist

The mysterious Coconino Sandstone, which extends as a sheer wall and a mighty white band around the upper reaches of the Grand Canyon, which is the most conspicuous stratum in the canyon, and which has baffled the world's greatest geologists for years, has once again disclosed one of its records of ancient history.

Whether the white sands of the Coconino represent huge wind-formed dunes of days long past or whether on the other hand, they were formed as the sloping foreset bods of ancient deltas, we can not at present definitely say. The fact remains, nevertheless, that when the sand was soft and unconsolidated some hundreds of millions of years ago, animal life - prehistoric reptiles or amphibians, walked over its surface. Although these creatures have themselves completely disappeared, we know not where, their tracks, their footprints, still remain to tell and to show us the undeniable story. Some are small, some are large - all sorts and varieties are there, and already, over a period of only a few years, some twenty eight species of footprints have been found and described from the Coconino Sandstone of Grand canyon.

One of the most characteristic and abundant of the ichnite fauna of this history possesses the striking and distinguished name of Inoporus noblei. Inoporus was an animal probably of lizard From C.W. Gilmore lide proportions. Dr. Lull, the namer, gave the following description of it - "The creatures which made the footprints were quadrupeds of moderate size, with broad, stumpy feet, apparently clawed, and having at least four toes in front and five behind. The hindfoot which is somewhat larger, bore a proportionately larger share of the creature's weight, especially in the smaller species. The limbs were apparently short, with a wide trackway, implying a bulky body. No trace of a dragging tail is discernible on any of the specimens, and the body was carried clear of the ground."

Dr. Schuchert says in the American Journal of Science, 1918, that the reason for finding no organic remains is probably that the original sands were loose and reworked, a most unfavorable habitat for animals. He continues by speaking of these ichnites as "amphibians of the group Protopoda." In a later paper (Footprints from the Grand Canyon, by Dr. C.W. Gilmore), however, the statement is made that at that time he could see no way of definitely determining whether the impressions were amphibian or reptilian in origin. Animals of the same genus, though a different species (Coloradoensis) have been described from Lyons Colorado,

Lapporus noblei About 13 not size while some bearing a different name though according to Gilmore, very similar and perhaps the same have been found in the British Permian.

Lacporus noblei first received recognition because of its great abundance about 150 feet above the base of the Coconino Sandstone in the Hermit Basin, Grand Canyon. It has since been found also along the Yoki Trail some nine or ten miles to the East. Animal tracks - though which kind I do not know, have been noticed in the Coconine along the grandview Trail by two compotent observers. This is some 20 miles east of the nearest known fessil feetprint locality, and thus considerably extends their previously recorded range", according to Dr. Gilmore. It is with considerable interest, therefore, that the writer observed a large, beautifully preserved set of tracks of Laoperus noblei on the Tanner Trail - oleven miles still further east and at the extreme east orn boundary of the Park. The tracks were distinct and numerous, and were preserved in a huge block of sindstone in the talus slope way below the criginal location somewhere under posert view Point. Evidently on the day that they were formed, Insporus had been out for quite a stroll:

CRICKET NOTES

By - Ranger-naturalist E.W. Count

I had just put out the benfire at the tourist camp after the evening lecture, and was walking home, when neare no, beside the gravel path, I heard a fiddle. With flashlight and a very little persistence I located the musician in a crack between two rocks that lined the path.

Imagine a porsen standing on his head, and bracing himself against a wall while sawing one costail with the other, and you can picture the bizarre attitude the musician - a little cricket, was in. The light disturbed the nocturnenot in the least, the two semi-transparent wings, raised from the back, crossed each other slightly, the right one being on top. The motion was similar to the spreading of a fan; the wings spread, never quite separated, and then slid together again. Every time they spread, they trembled violently, and this produced the rasp. When they slid together there was no sound nor trembling.

Brrr - Brrr - Brrr: At this time of the year the fiddling is rapid and steady.

I wanted to see the position of the wings; but they moved too rapidly. The flashlight was within a few inches of the cricket, but did not disturb it, so I tapped the ground gently. Brrr - Brrr - Brrr: No letup. But I was insistent. I tapped and moved a little gravel. Brrr? - inquiringly.

Still more taps.

Brr? - hesitantly. Then he ceased. The wings rested, still raised, but the right largely covered the left. Otherwise, he did not change position. I now could watch even better the pulsing of his abdomen, as his spiracles breathed.

But the irrepressible fiddler, reassured, after but a few seconds resumed his necturne. However, I could not wait for the end of the program, so I left - quietly. And still as I moved down the path, there followed that wierd little tune.

Brrr - Brrr - Brrr.

LIGHTNING-SCARRED TREES

Ry - Ranger-naturalist S.B. Jones

This is the season of thunderstorms in the Grand Canyon region, and if there were such a thing as life insurance for yellow pine trees, the rates would surely rise. According to local opinion, yellow pines are more frequently struck by lightning than the other trees of the Kaibab. The foresters agree that more fires are started by lightning in the yollow pine belt of the Kaibab Forest than in the spruce belt. Lightningscarred pines are common. One visitor who spent two weeks in the Park estimated that he saw three hundred lightning-marked trees. Sometimes' there is only a narrow spiral groove down the bark to show that the tree has been struck. In many such cases the troo is still sound and flourishing. Often, however, the effect of lightning is to literally explode the tree. It has been suggested that this may be due to the sudden turning of the sap to steam, but so little is known about lightning that it is hazardous to guess just what does happen to an object struck. Pines violently shattered by lightning appear to have been dynamited. Splinters as big as an airplane propellor are thrown down, often striking into the ground twenty or thirty feet away. Some are driven so firmly into the ground that they are still standing a year later, often supporting the snow of a Kaibab winter. Although lightning is the principal cause of forest fires in the Park, few of these lightning-blasted trees show any sign of charring. According to one of the forest rangers, lightning fires are generally started by the ignition of dry needles and "duff" on the ground and not by the ignition of the green tree by lightning.

THE NEXT GENERATION

By - The Park Naturalist

Upon Mr. Dean Tillotson - the museum assistant at Yavapai Point - falls the care of the "wild lizard herd," Maassortment of lizards which is maintained for observation and experimental purposes. It was on a warm July day that he suddenly discovered one of his charges to be apparently sick so here was an exceptional opportunity to observe. The individual in question was a large, plump fence lizard known as sceloporus gracelis. The treatment for this lizard was simply its removal upon a comfortable tree in the great out-of-doors. There the lizard remained, a sluggish, inert, and very indifferent creature, so little thought was given it for some time.

Upon a later visit, Mr. Tillotson discovered with pleasant surprise that his patient had laid a small, white oval egg about the size of a little bean. With a triumphant air, he collected both lizard and egg and carefully placed them in a candy box - a private ward, so to speak. Here in about six hours time another egg was deposited and about two days later, still another. Between the second and third the sceloporus appeared to liven up considerably and to become active once more, unfortunately, however, after the third egg, a relapse was suffered which ended in death.

