

# Nature Notes of the Grand Canyon



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Bird Bath

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

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

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## FEATHERED FRIENDS

By - Park Naturalist

To Mrs. J.P. Brooks, wife of our Chief Ranger, goes much credit for the great foresight and to her husband for his splendid work, in making and placing bird baths, bird feeding stations, and bird houses in various places of vantage throughout the Park. Mr. Brooks began this work over a year ago by having bird baths or drinking stations - necessities rather than luxuries to the birds of this dry, semi-arid region, - carved out of large flat slabs of limestone. Such receptacles have since proved to be entirely practical and not the least bid obnoxious to the eye.

In his own yard Mr. Brooks has best "reaped the fruit of his labors" from the pleasure which he has garnered from intimate association and constant companionship with the feathered folk and other wild life. He keeps his bird bath full continuously, puts out food, chiefly corn bread, nuts and cereals, early every morning, and attracts the birds and animals in every possible way until now he has established a regular mecca or paradise for these lovely little creatures.

I quote the following observations made by Mr. Brooks as being of particular interest.

"The robins are fond of bathing. I have seen them in the pools late and early, and have occasionally found them wallowing around in slush ice."

"The bluebirds come second, flocks of them often disputing for their place in the pool."

"The jays are not so fond of the water though they do bathe."

"Woodpeckers bathe occasionally - approaching the water like a timid person going into a cold pool."

"Nearly all of the birds that I have observed have a preference for nuts over any other kind of food. The woodpeckers and robins feed their young on cracked nuts."

"Crested jays watch the squirrels bury the nuts, then dig them up and either eat them or carry off to a new cache."

"A Clark's Nutcracker was seen covering a cache of pinon nuts by rolling and placing small pebbles over the opening."

The following birds have been noted by Mr. Brooks at his feed boxes and bird baths.

1. Mourning Dove - a summer resident, an occasional visitor at the bird baths.
2. Woodpeckers - year-round, three species
3. Flicker - year round, uncommon.
4. Crested Jay - year round, common.

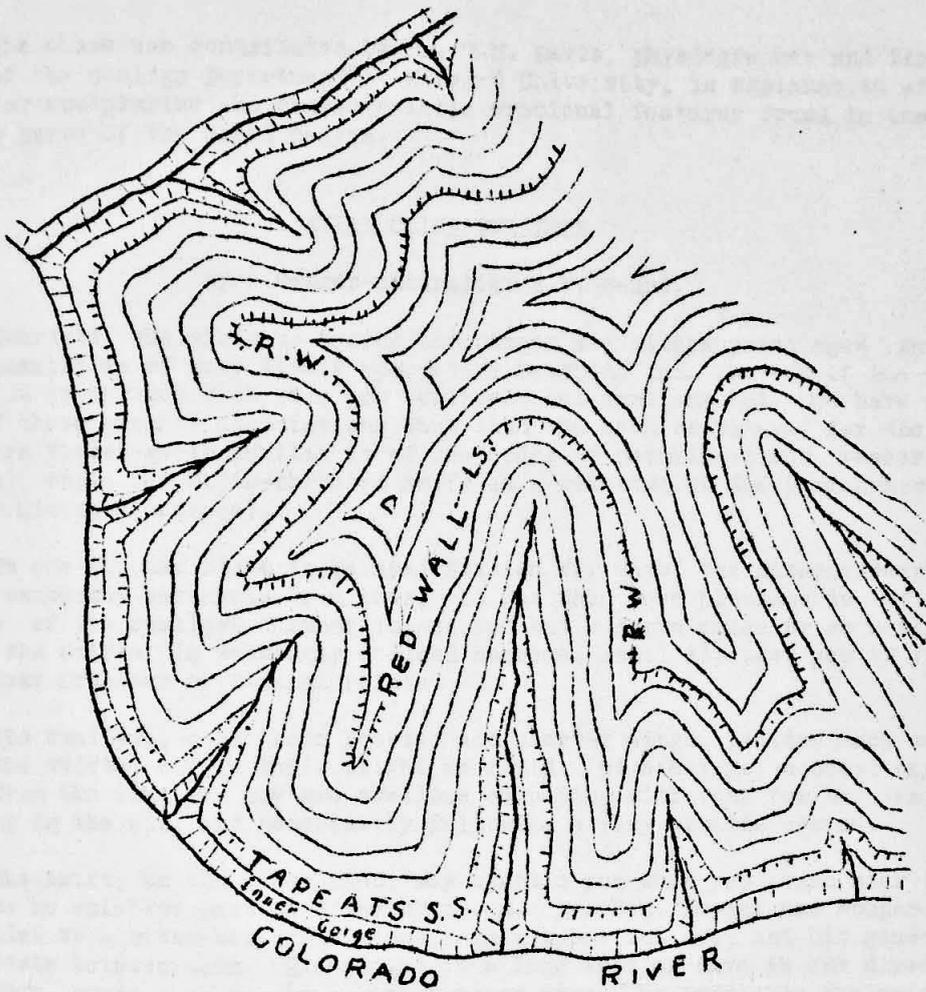
5. Woodhouse Jay - year-round, uncommon
6. Raven - year-round, an occasional visitor to yard in winter months.
7. Clark's Nutcracker - year-round, uncommon.
8. Pinon Jay - year-round, an occasional visitor at the feed boxes during the winter months
9. Black-headed Grosbeak - summer resident
10. Crossbill - summer resident, common in late fall migration
11. English Sparrow - year-round
12. Chipping Sparrow - summer resident
13. Lark sparrow " "
14. Junco - three species noted.
15. Slender-billed Nuthatch - year-round, numerous
16. Pigmy Nuthatch " " "
17. Gray Titmouse " " "
18. Mountain Chickadee " " "
19. Western Robin - summer resident, occasionally one or more remain throughout winter months.
20. Western Bluebird - uncommon, summer resident
21. Chestnut-backed Bluebird - common, summer resident



Grosbeak -

# MIDDLE CANYON SCULPTURING

By - Dr. W.M. Davis, formerly Harvard Univ.



The drawing has two uses. It shows, first, the successive forms assumed by a single hard stratum, as it retreats in the valley of a deep curving canyon. It shows, second, the forms assumed after advanced erosion by a whole series of horizontal strata from bottom to top. The lower lines show the broad and blunt spurs separated by narrow canyons - the Tapeats. The mid lines show the amphitheaters and spines of the Red Wall - e.g. opposite Pima Point. The top lines show the plateau view with larger amphitheaters and blunt cusps. An infinite variety of outlines is possible, according to the pattern of branch streams; but all the patterns obey the general scheme of the diagram. Where weather acts alone, the cliffs recede slowest; where a small stream cuts, the recession is faster, and where a

large stream cuts, the recession is fastest. When a cliff recedes to the head of a stream then further erosion is done by weather alone.

Note:

The above was contributed by Dr. W.M. Davis, physiographer and former head of the Geology Department at Harvard University, in explanation of the peculiar sculpturing and characteristic erosional features found in the middle parts of the Grand Canyon.

### AVIAN CLIFF-DWELLERS

By - Ranger-naturalist E.W. Gount.

Tourists who visit us during the summer are always privileged to view quantities of very lively speedsters swooping from the rim of the Canyon. It is obvious that some are swallows; but some are not. We have here one of those strange associations that stud the book of nature; for the Northern Violet-green Swallow is of the order of perching-birds (passeriformes), while the White-throated Swift is a relative of the Hummingbird (Order Micropodiiformes).

To one who has stood in Yavapai Station for days, the disappearance of these exuberant aeronauts is a loss. It has then been pleasant to locate flocks of the swallows farther inland and but a dozen miles or so west; while the swifts, in seemingly reduced numbers, still zip past you if you walk near Grandeur or Yavapai Points.

The swallows, with their broader and shorter wings, flutter much more than the swifts; nor is their flight as rapid. Of evenings, a short way back from the rim, you may see swallows competing with bats for the insects dancing in the air, and necessarily following a very erratic course.

The swift, on the other hand, may startle you when you stand near the rim, as he whistles past at dizzying speed. Dr. H.C. Bryant has compared this bird to a cross-bow. His wings form a beautiful arc, and his gondola-body rests between them. His flight is a long shot or dive in one direction; then comes a sharp wheel, and another dive. He possesses the unique trick of beating his wings alternately instead of together; which causes a not ungraceful "wobble" in the flight.

You may, if lucky, see the bottle-green on back and wings of the Violet-green swallow; if still more lucky, you may see the bronzy hue on crown and neck, or a violet collar-band on the nape; and the white of the rump almost meets on the back. The swift has to make up in spectacular flight for a lack of protective color: he is blackish on upper parts and sides, white on throat and breast, and has white patches on wings and rump.

To find a nest of these folk you would have to search long and usually unavailingly; for somewhere, in hidden and inaccessible crags, on the cliffs of the canyon, it has been tucked away. The nest of the swift, if anything, is even harder to find than that of the swallow, though the birds, themselves, especially the swifts, will fly boldly before your eyes.

## "Perky"

By - Ranger-naturalist S.B. Jones

Perky was captured out in the Kaibab woods in July, and was given to me on the last day of the month. I promptly named him Ebenezer, but in the few weeks that have passed I have gotten better acquainted, and I believe I will call him Grace.

The first day or two I kept Grace in a barrel in my cabin. She was a well-behaved little percupine during the daylight hours, sleeping soundly on her bed of boughs, but she showed an unfortunate taste for night life. All night long she would scratch at the sides of the barrel. I was on the high road towards becoming a nervous wreck, so, out of heterogeneous materials, I made a roomy cage for her, and put it outdoors. (I have since learned that when Grace scratches at the walls of her cage, it is my fault. She is either hungry or thirsty, generally the latter.)

Whatever Grace's faults, she would not pet, and three weeks coaxing has scarcely broken down her reserve. At first she spent her days with her head in a corner. Her quills (not very stiff or numerous, for she is very young) always bristled at my approach. But gradually she lost her shyness. Instead of sleeping curled up, a nervous, bristling ball, she now stretches out contentedly in the sunny corner of her cage. Often she sprawls out on her side, limbs outstretched, like a colt, buries her nose in the pine needles, heaves a sigh, and slumbers.

Grace has made three public appearances on the Grand Canyon Lodge stage. She has learned that it is a long drop from the table to the floor, and stays on her pedestal quite peacefully. On her second appearance she obligingly ate a piece of melon-rind. The audience was delighted to see her take it in her fore-paws, sit up, and eat. (I starved her all day to get her to do it) Next time, however, I offered her a piece of bread. Grace was thirsty, and the bread was dry. The audience was crowding around the table. Grace made the circuit, looking at each one in turn. Then she came to me. A familiar face and suit of forestry green must have spelled "melons" to Grace. She reached out a fore-foot and clawed at my sleeve, looking at me as if to say, "Give me something juicy, instead of this dry bread."

I gave Grace water every night, sometimes in a tin cup and sometimes in the top of a shoe-polish box. In the morning I would find these empty and generally upside down. I supposed that she drank them dry, and then played with them. But one day I saw her drinking. She would try to pick up the cup in her claws, invariably spilling all the water, so that all she got to drink was the few drops that clung to the bottom. A percupine has a pretty face, but, judging by human standards, the mouth is in the wrong place. It opens down instead of forward. Consequently a percupine cannot drink out of a deep receptacle. So I found a shallow tin can, and nailed it down, and now Grace gets all the water she wants.

Grace is, I admit, a bit untidy about drinking, usually spilling a good deal of water down the outside of her throat. But she is more than dainty about eating. Though blessed with a good appetite, she never overeats, and will leave food untouched when she has had enough. She always finished one carrot before starting another. Carrots are the mainstay of her diet. She seems fondest, however, of locust leaves, which she rips off the branches I give her. Oak and aspen leaves she will also eat, but not so readily. She eats green peas, pods and all, and nibbled a bit at corn on the cob. Melon rind she likes when thirsty, sometimes eating the whole works, and sometimes leaving the thin outer rind. When she has water, or if the melons are a bit green, she is apt to refuse them. Peaches and oranges were not much admired, but she would eat them when thirsty. She also ate a tomato. Raw potatoes she will merely sample, but she ate potato salad with considerable relish. A pickled beet, however, she would not touch. Other things that she has eaten are clover, crackers, pine tips, and loaf sugar. On her Index Expurgatoricus are onions, radishes, cheese, milk, and hard-boiled eggs. Bread she likes, unless she is thirsty. On the whole, a diet of leaves and carrots seems to be what she likes. Once, turned loose to roam about in front of the cabin, she browsed on grass, clover, and almost everything green.

Grace takes to baths as readily as a kitten. The nearest I have come to losing her was once when I tried to bathe her. I took off the top of her cage, and turned in a hose (a necessary periodical operation). Grace was half her length over the side of the cage before I had time to wink. I pushed her back and scizzled her. I have since quit bathing her. A more sorry sight than a wet porcupine is difficult to imagine. She shook herself, not as a dog does, but head and all. She seemed to have a whole row of ears and eyes as she wiggled.

Grace seems to make three noises. The first is merely a sigh, just a deep breath, as she soothes herself for slumber. The second is a little grunt, which usually means, "I'm hungry." Often she keeps up this little squeaking grunt as she munches the first carrot, and I imagine it is a little song of satisfaction. As a rule, when alarmed Grace merely puts her head in a corner and bristles. But once, when I tried to stroke her nose while she was eating (she probably thought I was going to take the food away) she gave what was almost a growl, and turned on me as though she really meant to bite me. I did not continue the experiment, though they say that porcupines won't bite. I have known her to do this on two or three other occasions, once when handled rather roughly by a stranger and once (I was nailing down the water-trough) when I pushed her aside with a hammer. She objects very little to being pushed around with a shingle.

Climbing is instinctive with a porcupine. Grace climbs all over the screen of her cage. Still, I can give her a good deal of liberty, if there are no trees nearby, for a porcupine is a pretty heavy animal and is not much at climbing smooth objects. I used to be able to leave Grace on the cabin porch, absolutely certain that she could not climb the peeled logs, and equally certain that she would not descent the steps. For, it is strange in an animal that climbs habitually, Grace seemed afraid to go down a six inch step. But lately she has overcome this fear, and goes down steps unconcernedly. Once, on the porch, she found

nothing to climb but the barrel in which I carry her. It was lying on its side, but straightway she began the ascent, and slipped and struggled and puffed like a small boy climbing an apple tree. Soon she was on the top, and then there was nothing to do but climb down again. She can just reach the rim of this barrel, when it is standing on end, and the most amusing view of Grace is when she has her fore-claws over the edge of the keg, struggling, as it were, to chin herself. Grace has never attempted to chew her way out of her cage. But once, when I left the top of her cage open and went a few steps away to gather locust leaves, I found her head and shoulders out between the slats. I impolitely gave the young lady a shove on the nose, so Grace is still with us at Grand Canyon Lodge.

### THE BRIGHT ANGEL FAULT

By - Park Naturalist

The famous Bright Angel Fault has long been held forth to the public as a classic example of that structural feature - the fault, familiar to the geologist, miner, and prospector alike. Extending in a general north-east, south-west direction directly across the Canyon, this tremendous fracture in the plateau surface has determined in a general way the course of the Bright Angel Creek, the valley down which the trail of the same name extends, and ultimately the valley followed by the Santa Fe Railway. The steep ascent from Bright Angel Camp to Maricopa Point is witness of its vertical displacement. The natural passageway provided and used first by the Indians, later the early prospectors, and today by hundreds of tourists is proof of its influence on erosion and Canyon recession.

Such an important influence on our scenery, our travels, and our history, therefore, is well deserving of a little attention and study. Mr. G.E. Sturdevant, former Park Naturalist, determined the vertical displacement of this fault as found along the Bright Angel trail to be 180 feet. Recent observations and measurements have disclosed a number of other interesting facts.

First, while the fault line was undoubtedly the main factor in determining the valley down which the Bright Angel trail descends, still the factors of erosion which are cutting inward in this vicinity do not in many places follow the exact fault line. The trail itself as it winds back and forth provides excellent opportunities for such observations. This feature may readily be noted in several places, though in the section of the Red Wall formation where the fault line passes several hundred feet east of the main valley cut, it is most conspicuous.

The extremities of this classic fault line are also of sufficient interest to be worthy of close observation. At the north-eastern extremity the line very evidently swings somewhat to the west as is shown by the curve of Bright Angel Creek valley, however in the vicinity of Roaring springs where apparently this curve begins - the fault appears to branch several times. The largest of these branches continues up the main creek valley, but two very sizeable side faults very evidently have determined the valley now followed by the Kaibat trail. From the section of the Coconino along this trail, the island formed by these displacements seems to be relatively higher by at least sixty feet.

At the opposite end of the fault line where it extends to the south-westward across the surface of the Coconino Plateau the limits and amount of displacement can not be so readily determined. By lithologic means such as sequences of Kaibat ledges and by palaeontological evidences, however, it was possible to determine the nature and location of the waning. The straight valley line of the fault continues beyond the southern park boundary and about a mile and a half below the fork of the Supai road, at which place the end trends may definitely be pointed out. The term "ends" is used because there the fault apparently divides in several parts varying in amount of vertical displacement between thirty and sixty feet. These parts apparently leave the valley and disappear as they cut into the ridges on the westward side.



Grace

