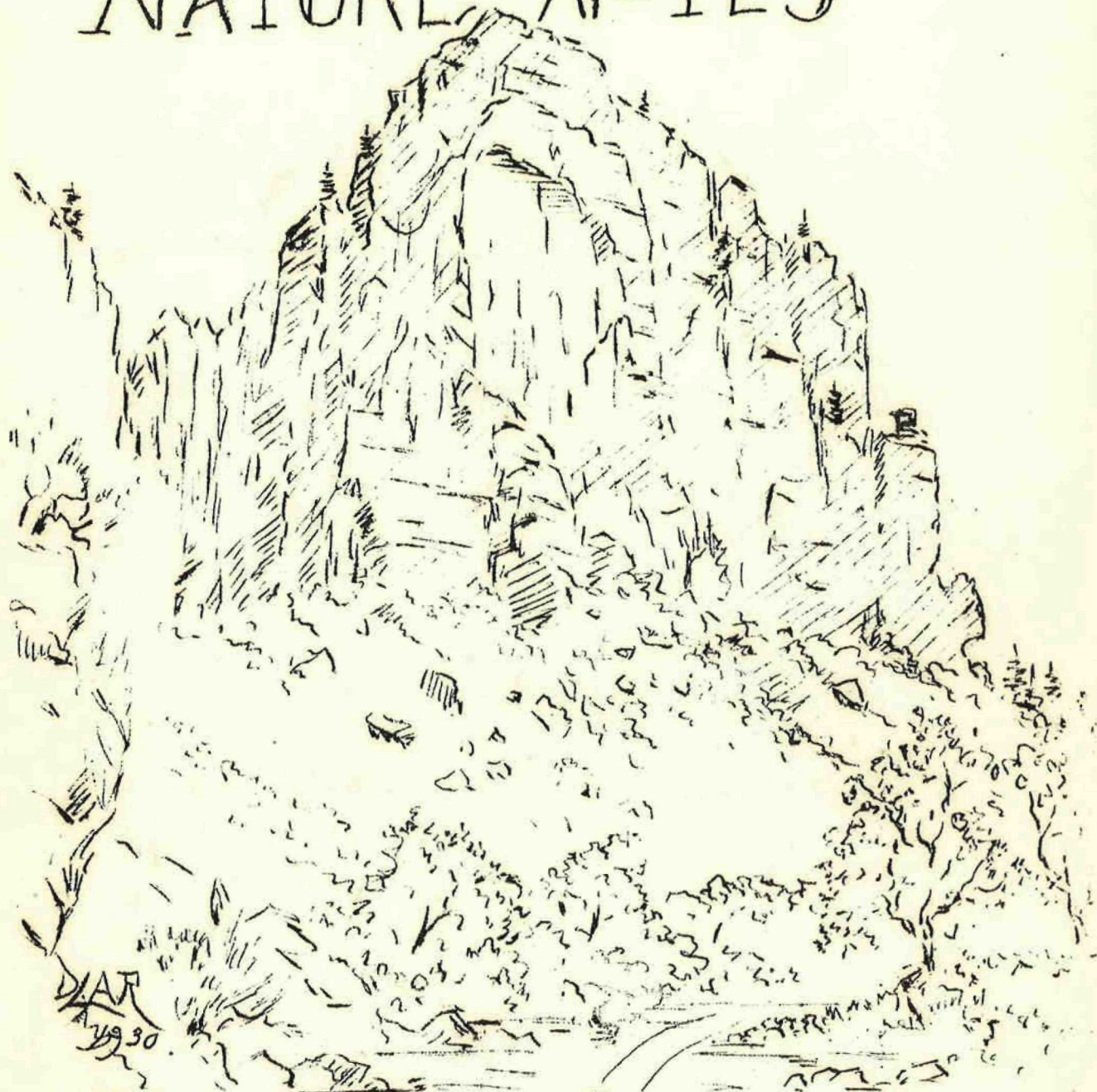


ZION - BRYCE NATURE NOTES



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National Park Service
Zion and Bryce Canyon National Parks, Utah

ZION-BRYCE NATURE NOTES

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This series of bulletins is issued from time to time during the summer for the information of those interested in the educational opportunities, the natural history, the scientific features, or the scenic beauties of the region. PUBLICATIONS USING THESE NOTES SHOULD GIVE CREDIT TO ZION-BRYCE NATURE NOTES AND AUTHOR.

E. T. Scoyen,
Superintendent.

A. M. Woodbury,
Park Naturalist

This issue of Zion-Bryce Nature Notes ends the series for this year (1930). The season has been a very successful one. Zion has increased its number of visitors in the Park better than 66 per cent over last year, and a greater proportion of the people entering the Park have received the educational service offered by the naturalists than ever before. Improvements in the Park, under the direction of our superintendent, E. T. Scoyen, have gone steadily on and all departments of the park service have functioned efficiently.

THIS HAS BEEN A GREAT YEAR FOR THE ZION AND BRYCE CANYON NATIONAL PARKS.

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FROM ONE OF OUR FRIENDS

You asked, when I had been to Bryce
To tell you if I thought it nice
As Zion. It is hard to say
For each is lovely in its way.
Now Zion, like Yosemite,
Impressed me by its size, you see,
Majestic peaks like Great White Throne
And Angel's Landing all alone
And Sinawava Temple grand
In vivid colors, made me stand
In awe. While Bryce with all its spires tall,
And pinnacles on castle wall,
And Windows large through which the sun
In all its glory shines upon
A fairyland of figures quaint,
Is beautiful. No oil or paint
By any artist could be used
To catch the varied tints and hues
Of Nature's brush. So I shall store
It all away. And more and more
I'll ponder on the grandeur fine
That I have seen at Bryce and Zion.

--Sadie Balkin,
1378 Shakespeare Ave.,
New York City.

RED ARCH MOUNTAIN

By J. W. Thornton, Ranger Naturalist.

We are greatly indebted to our good friend the artist L. A. Ramsey for the drawing on the front page of the Red Arch Mountain. That is a mountain with a past and a history.

Ralph, an early pioneer of Zion, built a house on the west side of the present Zion tourist camp ground, just north of where the Arch now is. When Ralph built this house the face of the mountain was unbroken. A canyon with a small stream and some yellow pine was located at the base. In 1880 or 1881 the wall of rock that formed the arch fell out. It filled the canyon up to and above the level of the ridges that existed on both sides. The splendid yellow pines were crushed, splintered, and covered and the small spring was lost under the many tons of sandstone that had fallen from the face of the cliff.

This is an interesting event in the known erosive history of this canyon. It is the biggest fall of rock from the canyon walls that has occurred. Others have slid down, but not of such magnitude as this one. It also tells a story of undermining by a type of erosion that is going on very much more rapidly at the base of the cliff than at any part of the wall higher up. In time when the supporting rock underneath is gone that above falls in. Thus the base of our canyon walls is kept worn back as far as the top and in many places there are rocks at the top of the cliff that extend farther into the canyon than those at the base.

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SUCCESSIONS IN ZION

By A. M. Woodbury, Park Naturalist

If a person could view Zion Canyon from an airplane continuously for vast ages, taking a movie picture, one every thousand years, he would at the end of a few million years have witnessed vast changes and have a movie that would show in "concentrated" form a record of the changes.

From a geological standpoint, the canyon would move upward toward the mountain. The cliffs would have remained perpendicular, but they would have shifted places. They would have occupied successive positions like a snow plow as it moves along, leaving a wide open plain behind, the difference being that the cliff recedes due to erosion of the face.

Biologically, nature abhors a bare spot. The bare rocks are attacked in an effort to populate them with plants. The first comers are hardy plants that can live on the bare face of the rock, when moisture is available from rain, and go into dormancy otherwise.

They attack the rock surface and eventually build up soil so that other plants can follow. As the rocks crumble and more and deeper soil accumulates, successively different plants establish themselves and crowd out their predecessors. Finally a stage is reached, when the existing plants cannot be displaced, under the climatic conditions existing, by any others. This is known as the climax.

As plants cover the bare areas, they furnish food for vegetarian animals. With the successive changes in type of plant life up to the climax, the type of vegetarian animals changes to keep pace. The presence of vegetarian animals on the area makes it possible for carnivorous forms to live, and the type of carnivore, of course, varies with the changing tide, depending upon the type of vegetarian available for food.

Such dynamic changes in the contour of the canyon and the plant and animal life of a particular area would undoubtedly be seen by the theoretical observer and recorded on the movie. These various steps, however, are represented now in various parts of the canyon, and we believe that by piecing them together, we can read the story just outlined that would take millions of years to follow in detail.

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ZION HONORED BY A VISIT FROM ITS OLDEST LIVING SETTLERS

By J. W. Thornton, Ranger Naturalist

Two of the youngest old people that I have ever known came to this park about August 15 for a camping trip. The whole canyon extended a cordial and glad welcome to them, when it was known who they were. Elijah C. Behunin and his sweetheart came in here on a second honeymoon, they had taken their first one in here sixty-two years before. Mr. Behunin came into this canyon in 1862 with his father, and helped to build the first house. After his marriage a few years later, he moved his young wife into the canyon and built a home near the one that his father owned.

This interesting couple radiated in their reminiscences and actions the spirit of the early west. They located with accuracy the spots where the first houses were built, where the farms were, where the old orchards were planted, where the roads were located, where the river used to run, and where the crossings were. Nothing seemed to have faded from their memory and the alertness and vivacity of the discussion had the certainty of the answers carried the conviction that every statement made was the truth. We knew that we had found a source of early history that was very much alive and thoroughly accurate. Hazy points regarding the early history were cleared up. Mr. Behunin's signed statement about many things of interest pertaining to the canyon is a much valued addition to the history files of our Park.

Our visitors drove into Zion in their own car with Mr. Behunin at the wheel. It had been fifty-seven years since they had seen the canyon the last time. They came in and camped under the trees, made their fire on the ground and cooked their meals just as they had done in the "sixties". Mr. Behunin sat on the ground and folded his legs under him like a boy of twelve despite his eighty-three years and his wife chored around the camp fire with the ease and grace of a young girl. Her gray hairs only told the story of her seventy-seven years.

"Nature does not change much", said Mr. Behunin, "The canyon is the same as it was fifty-seven years ago. The only changes that I see have been caused by man and the river. Zion is surely beautiful."

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HOW BREAD AND SKIRTS WERE MADE BY THE INDIANS

By Tobitha Jane Behunin, an early settler.

The Indians mixed the meal with water and made a batter. This they spread on a flat rock that had been heated. Before they spread the batter on the rock they always went over the surface with a piece of clay to keep the batter from sticking. The heat from the rock soon set the batter so that it would not run, and then the rock was set on edge near the fire so that the cake might be cooked on both sides. When the cake was done it was made into rolls and put away. They made as many of these rolls as was necessary to feed the group.

The squaws made skirts from rabbit skins. They would take strips of rabbit fur and sew the ends together with sinew thread. They would take a strip of buckskin or yucca fiber and roll the strip around it. They did this so that they might have the fur inside and out. They then took the long strips and sewed them together into a skirt that would reach about to the knees.

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THE STADIUM POOL

By A. M. Woodbury, Park Naturalist

Along the Narrows Trail, the view of the Stadium is screened by gigantic boulders and visitors entering through a narrow defile between the rocks, often exclaim in surprise at the bewitching scene that suddenly confronts them. The painted wall in the background with the successive archways above bearing columbine and maidenhair fern gives a massive graceful setting to the miniature pool with its bright green algae shining through the crystal clear water which passes through the diminutive pond on its way to the gentle tinkling leap which leads it over the edge of the stadium to the pool below.

But this serene and peaceful setting is not always thus. A hanging canyon from above pours its drainage water collected during heavy rainstorms from above into the stadium in the form of a gigantic waterfall. Such ephemeral waterfalls in the summers of 1925 and 1926 cleared out the stadium leaving a clean sandy floor in the bottom. The holes gouged by the waterfall were kept full of clear water by the springs that emerge from the cliff.

In August 1926, I watched a waterfall scour the Stadium floor clean of all vegetation and animal life. By September, the pool was beginning to show signs of green algae that had begun to grow in the mineral-laden water. Since that time, the floods have never scoured the pool out clean, and thus plants have accumulated from time to time and the succession can be clearly followed.

In 1927, two types of algae (*Spirogyra*, loose floating and *Chara*, attached) were present. During 1928, a cattail (*Typha*) made its appearance--just a few scattered blades. The next year, 1929, watercress (*Sisymbrium*) gained a foothold.

Likewise, animal life followed. The presence of algae furnished food for tadpoles of the Tree-frog (*Hyla arenicolor*) and a large crop has developed each year. A small water bug (*Ambyrus norman*) is also of common occurrence in the pool. On the surface, the water strider (*Gerris rufescutellaris*) skates his merry way, while the whirligig beetle (*Gyrinus plicifer*) is often found.

Someday another flood will come that will scour the floor clean again, and the attempt to cover the bare area will undoubtedly start over again, probably following a similar series of successions.

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THE ZION SNAIL--PETROPHYSA ZIONIS
By A. M. Woodbury, Park Naturalist

On the walls of Zion Canyon, where water trickles down the face of the cliff fostering a growth of algae that furnishes food, numerous small black specks about the size of a match head, denote the presence of many small snails known as the Zion Snail (*Petrophysa zionis* Pilsbry). These snails are interesting from several standpoints.

Zion Canyon appears to have a monopoly of them. They have not been reported from any other place, and they have probably developed and specialized as a species in this canyon. It is believed that they represent an outstanding example of the operation of the principle of natural selection.

It is peculiar in the proportions of various parts of the body, the spire which in most snails is plainly visible, being reduced in size until it is scarcely discernible with the naked eye, whereas the foot--the organ with which it clings to the wall--is developed to unusual proportions.

If we could reconstruct the history of this species, it might read something like this. Before Zion Canyon had been carved, the ancestors were living in the stream of water which later entrenched itself in the solid rock making the canyon. With the deepening of the canyon, springs seeped out from the sides trickling down the walls and furnishing ideal places for algae to grow. The snails finding better chance for food on the algae covered walls, left the sandswept river bed for the better pastures.

This exposed them to the danger of falling from the cliff or being swept away by floods running down the face. It is probable that those with the smaller spire were less often caught by debris of the floods and that those with the larger foot could cling on better so that as the ages went by with this sort of selection, those who survived tended to transmit their characters to the offspring thus gradually building up a larger proportion of those with larger foot and smaller spire in the population--thus gradually evolving to fit the conditions under which they were living.

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ZION DEER
By Harold Russell, Ranger

Of all the animals found in Zion National Park, I believe the deer are the most attractive. They are increasing each year; first, because they are protected, as is the case in all National Parks; second, because there is feed enough for several times the present number. Only recently, when returning from one of our nature trips, we saw fourteen head in one

group. Among them were three fawns and two bucks with widespread antlers, which were covered with a soft fur-like substance sometimes referred to as velvet. Many people are rather sceptical about the deer shedding their horns, but when you live around them, making observations as we have done, it will no longer be doubted, for they grow a new set of horns each year. As fall approaches the bony-like material gets hard and firmly set in the crown of their heads, then the so called velvet is rubbed off.

Deer have ranges over which they roam. They occasionally move from the valleys to plateaus during the summer, but can be found in the fall on their old range. There is some exception, however, in Zion Canyon for the deer seldom, if ever, leave the valley floor. Deep narrow canyons furnish them with temperatures found in higher elevations.

The mountain lion or cougar has no home in Zion Canyon, so with protection from man's high-powered rifle, they live a peaceful, contented life here.

During the state deer hunting season park rangers patrol all boundary lines. Nimrods often remark to the rangers that they have the deer trained, for the first shots fired in the mountains tells them their life is in jeopardy, so away they bound towards the park. They seem to know where the safety zone is for they will then feed with perfect contentment while Mr. Nimrod is figuring out some method to coax him outside. "What a shame," remarks the hunter. "So near, and yet so far away."

Why do we want to shoot this beautiful creature? For food? Nine times out of ten it is only for the sport. If it is sport we want we had better by far play golf, baseball, swim, or better still spend our time in riding or driving through our many beautiful canyons, viewing nature's grandeur. If you still desire to shoot them, use a camera.

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THE DOG GETS A CUSSING By J. W. Thornton, Ranger Naturalist

Among the Sagebrushers that come to Zion is an occasional dog. Sometimes they are left in camp tied at the end of a strap, and sometimes they are taken along the trails with a man, woman, or child on the other end of the strap. On this fine morning I was unraveling the mysteries of the Zion formations to a crowd of our splendid visitors who had gathered in the Temple of Sinawava, when my talk was interrupted by the angry and excited chatterings of a squirrel. We stopped everything to see what it was all about and espied the squirrel going thru all the maneuvers possible to let a loose dog farther down the hill know that he was an unbidden guest.

He called him all the names in the squirrel vocabulary. He ran around, sat up, switched his tail, rolled his eyes, twitched his whiskers, gesticulated with his front feet, threw dirt into the air and snuffed and smelled everything in sight. The dog was one of those butter-balls with a big head, short legs and a bobbed tail. I imagined that the squirrel language interpreted would run something like this: "You ugly galoot, you are neither woodchuck, porcupine, nor skunk, and a coyote would not speak to you on the street in the dark. You are bathed in a bath tub, and dried with a towel taken from the Lodge. You don't know "sick 'em" or any other part of the honest-to-goodness language of a real dog. You eat fried meat and candy and have your nails manicured and your fuzz combed out with an ivory comb. You sleep in the house and the blinking of one of our Zion stars would blind you. If you got one good meal of horse meat you would have acute indigestion for a month and likely your friends, if you have any, would have to gather flowers. Why do they raise things like you anyway, never name turn them loose. You are no earthly good from a squirrels point of view and for two cents I would turn you in to the chief ranger, for it is against the law for a good dog to run loose in the park; without having to put up with an unclassified thing like you. You ruin the flowers, and frighten the lizards, and scare the little birds, and chase my friends and playmates, and dig up the ground, and are in no way a law abiding citizen. You have a head on you like an ancient salamander and a tail like a petrified stump and I hate you."

Everybody in the crowd sympathized with the squirrel, but the owner of the dog.

The squirrel was right. There is no place in a park for a loose dog.

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