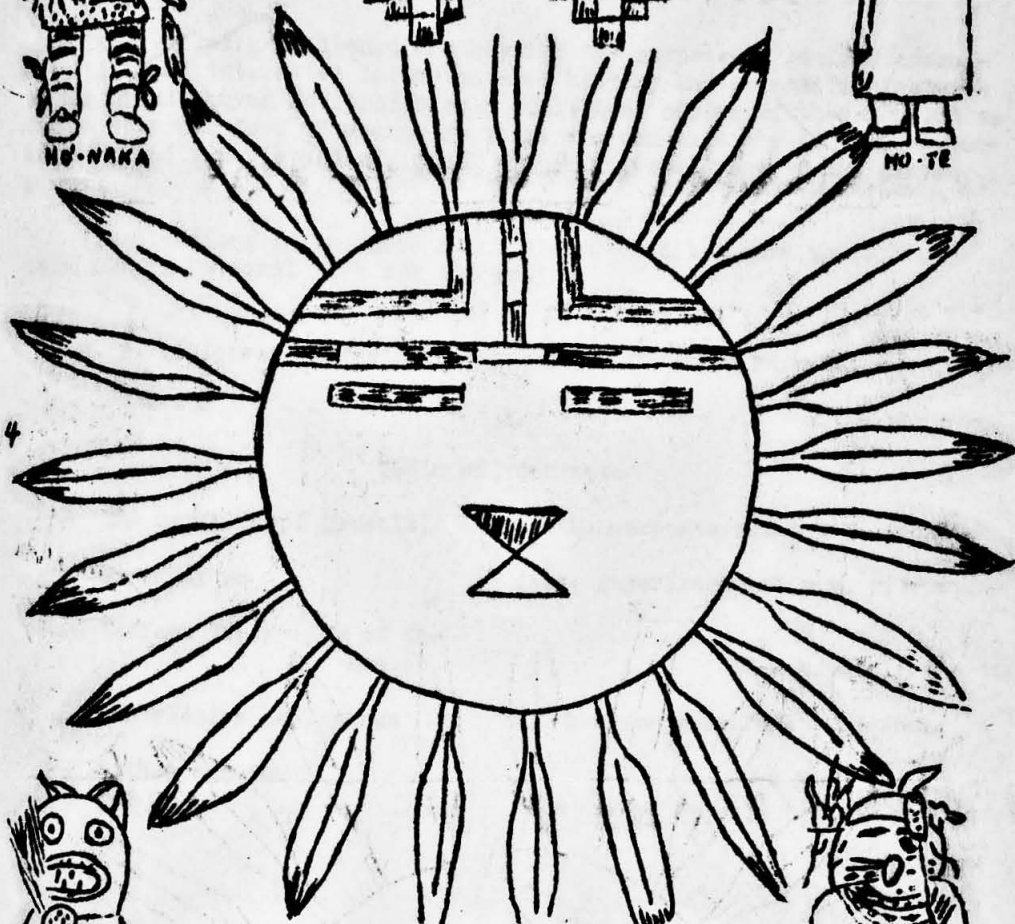
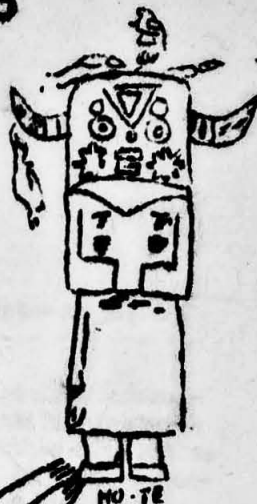
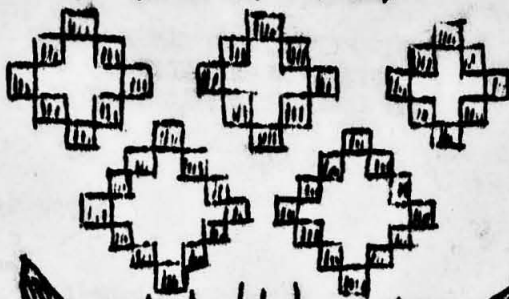
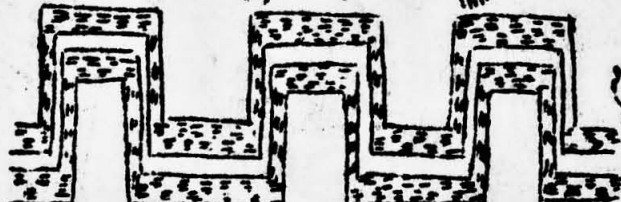


NATURE NOTES

(STARS OR CLOUDS)



N O. 2



(CLOUD TERRACES)



GRAND CANYON

DESAP' NATIONNA
(T-F)

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

Vol. 4
GRAND CANYON NATURE NOTES

No. 2
October 31, 1929

This Bulletin is issued monthly for the purpose of giving information to those interested in the natural history and scientific features 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

Table of Contents

The Cover (Hopi Symbols)	Ranger-naturalist E.W. Count
Flying Deer	Asst. Superintendent P.P. Patraw
Surface Topography of the Kaibab	Park Naturalist
The Elusive Sceloporus	Ranger-naturalist S.B. Jones
Hither and Yon	Park Naturalist



THE COVER - HOPI SYMBOLS

By - Ranger-naturalist E.W. Count

It is perhaps impossible for white men to grasp the exact character of a Hopi "Katchina" (pronounce "Kah-chee' -nah"), four of which decorate the cover. The nearest we can come is to call it the spirit-messenger, a sort of lesser god if you will. This spirit conducts the soul of the deceased to the spirit-villages that occupy the buttes of the Grand Canyon. The Hopi children play with effigies, or dolls, representing various Katchinas; and the ceremonial masks and costumes of the Hopi dances are donned when the dancer impersonates, or embodies perhaps, certain Katchinas.

The Hopi himself, his language and his customs, are a blending of several strains. It is thus that, as more clans tend to congregate and live together, they add their Katchinas to the roster of the tribe. The number and variety is constantly growing; while, as, some clans die out, they bequeath their ceremonial paraphernalia to the clan next of kin. Such materials are then stored away as heirlooms, are never used again, and their names and significance may in time be lost. On the other hand, a man traveling to a distant settlement may return with some new and exotic Katchina.

It is common knowledge that the Indian, like other primitives, does not generalize. He is an animist, and the individual phenomena of nature are possessed of spirits. It is probable that Katchinas had their origin in such a philosophy.

The four Katchinas of the cover, Ho-naka, Hote, Quo'oo-uh (Quou-ugh), and Desaf' - katchina, came from dolls in the magnificent museum collection of the "Hopi House." They are not limited to any specific seasonal ceremonies. A wise old Hopi told me that

"Ho-naka he play around when Ho-te dance; he make noise an' just play.

"Ho-te - when you want rain; then down in Kivas you make Ho-te katchina dance.

"Quo'oo-uh - when go kill wolf; then dance Quo'oo-uh katchina dance."

(Which, apparently, means that the Hopi pacifies the spirit of the wolf with this wolf-katchina.)

"Desaf'-Katchina is Navajo (i.e. probably imported and modified from the Navajos.) When you sick an' get well, then you want to give Desaf-Katchina dance."

Incidentally, "White man want us to put on katchina masks an' take pictures; but we won't do that. Man go blind if take picture with Katchina mask (i.e. the Indian wearing the mask would go blind)."

It is quite likely that many decorations on baskets are simply designs of convenience. When we remember the manner of building baskets, we realize that there are predetermined and very restricted channels of artistic expression; so that not every object is necessarily a true symbol. Thus the star or cloud symbols, and the cloud terraces, are conventional designs from baskets. To one woman a design may represent one thing; to another it means something else. The Hopi men here could not tell whether a symbol meant a

star or a cloud; yet they agreed on the "cloud terraces", which evidently is a true symbol.

The Sun-shield, after all, deservedly holds central position. The one on the cover is the type from Walpi; in some pueblos, such as Shumo'pave, only the upper triangle of the "mouth" appears; in other cases the design is noticeably different; yet a sun-shield is always obvious even to the layman.

At the time of the solstice comes the Soyal'una dance, presided over by the great religious Soyal fraternity. The dance is a prayer that the sun cease its southern retreat and return to the land of the Hopitu, that the crops may again flourish. It is in this dance that the Sun-shield figures so prominently.

The colors of the shield are yellow, green, red, white and black, representing, respectively, north, west, south, east, and above (i.e. the sky) In this connection it is of interest that the Zuni colors for the same directions are yellow, blue, red, white, and many-colored; the lower region is black, and the "middle" is made up of all these colors. On some Hopi shields, blue appears in place of green. On being questioned, one Hopi replied, "Blue is same as green."

The feathers around the shield, white with black tips, have been reduced in size for the sake of the drawing. There are twenty-four of them; this number designating a symmetry, a perfection; and they must be closely spaced.

The design in the upper portion of the shield shows much variation. Hopi Indians themselves have failed to explain this; though whether from lack of knowledge, or because there is no significance, remains undetermined.

FLYING DEER

By - Asst. Superintendent P.P. Patraw

On Sunday afternoon, September 29, eight fawns from the famous Kaibab deer herd took an airplane ride over the Grand Canyon as guests of Scenic Airways, Incorporated. So far as known, this is the first time that deer have taken to wings and invaded the domain of the eagle.

The Scenic Airways company used one of its tri-motor airships from which the passenger seats had been removed. The fawns, in specially made individual crates, were loaded into the cabin of the plane at Fredonia, Arizona, took off, and flew the 95 miles across desert, forest and canyon. to the airport at Red Butte, on the South Rim of the Grand Canyon. They had been brought from Pipe Springs to Fredonia, 16 miles, by truck, and were carried the 17 miles from Red Butte to Grand Canyon village by truck. Their transportation by truck-air-truck consumed exactly three hours. By truck alone they would have had to travel 240 miles, requiring 24 to 30 hours. No ill effects were noted from the air trip

The fawns were trapped early this summer in the Kaibab National Forest, except one which a Park ranger had taken away from a Paiute woman who was attempting to smuggle it out of the Park. They will be introduced to the South Rim at Grand Canyon village, to mingle with other deer brought here during the last two years. It will be necessary to feed and care for them through the winter, but by spring they will be able to shift for themselves and range the South Rim and the inner canyon country.

The question of the Kaibab deer herd outgrowing its limited range has long been disputed, but after careful study of conditions by Government biological experts, it is now generally accepted that the herd is too large for the carrying capacity of its range, is eating itself gradually out of house and home, and must be reduced. The National Park Service favors trapping and exportation to effect as much as possible by this means the reduction of the herd and its annual increase, and attempts to encourage this by annually importing a few fawns to the South Rim. Fawns are trapped under permits issued by the U.S. Forest Service, which also arranges for their disposal. They are captured by the use of specially trained dogs, which run them down and hold them with fore-paws until the hunters come up. They are taken to ranches where they are raised on diluted cow milk, hay and browse until they are three months old, and then shipped to fill orders which the Forest Service has received earlier in the year.

The fawns are sold at a price established by the Forest Service to cover actual expense of capturing, rearing and crating for shipment.

SURFACE TOPOGRAPHY OF THE KAIBAB

by - Park Naturalist

Because of its many peculiar and interesting topographic features, the map of the Kaibab plateau has frequently been chosen for class-room instruction in physical geography. This Kaibab region while comparatively flat and presenting an almost perfectly level skyline from the South Rim of Grand Canyon, is nevertheless characterized by an amazing display of sink-holes, maturely sculptured valleys, and valleys with steep, sharp sides. All these features must undoubtedly represent a wonderful yet complicated geological story.

The fact that the Kaibab Plateau is so deeply indented and scarred as compared with neighboring regions, notably the Kanab Plateau, has been explained by several leading geologists as the natural result of a longer period of erosion. Walcott points out that the east Kaibab must have been folded up before the total denudation of Mesozoic beds from its surface since this monocline is strikingly lacking in faults. W.M. Davis later

substantiates this statement, offering as additional proof the amount of recession of associated Mesozoic cliff. A stripped structural plain, and not a part of a once base-levelled surface afterwards uplifted, therefore, must be the story of this plateau, and a very long exposure to denudation the result. Dutton attributes the large faults which today form the eastern boundary of the Kaibab to a much more recent action, not older than Pliocene in age, and probably incidental "to the uplifting of the platform which took place about the time the present Grand Canyon began to cut." With this suggestion later writers seem agreed.

Probably the most conspicuous physical feature of the Kaibab is the long line of open country stretching through its center in a general north-south direction. Each part of this open country is popularly termed a park and these parks or meadows, occur as a succession of mature valleys with outlets to the east near their northern most ends. They have been noted and described by several of the early geologists to visit this region. Dutton ascribed their origin to the former existence of a south flowing stream whose bed had been deformed by the uplift of the Kaibab and whose waters had been lost in the climatic change from the moist Miocene to the dry Pliocene.

More recent investigations, however, combined with greater geological knowledge of the region as a whole, have enabled W. M. Davis to give quite a different interpretation to these so-called meadows. He points out in the first place the association of the summit valley depressions with the axis of the Kaibab uplift. Contending that the Mesozoic formations must have stretched partly if not entirely over the Kaibab arch when it was uplifted, and that the retreating of these Mesozoic strata formed depressions or troughs along the axis of uplift, he indicates that the origin of the valleys is the natural result of the consequent streams, ie, the water courses developed in harmony with the easterly slope, being fed at their headwaters by the natural north-south drainage. Furthermore, since the axis of uplift descends north, the consequent streams were greater to the north than to the south, but with the passing of the Mesozoic rocks they were robbed of their volume of water. With this same passing of Mesozoic rocks, however, the east flowing water courses, and to a less extent the west flowing ones (for the drop of the Kaibab arch to the east was much greater and steeper than that to the west) tended to be rejuvenated with sharp-sided, narrow canyons appearing as the result.

Correct as this theory may be, it still does not explain the origin of a number of certain other valleys which appear to run in a general north-south direction on the Kaibab. A visit to these youthful, steep-walled canyons, as for example Nail Canyon which is cut way down through the Coconino Sandstone to the Hermit Shale, will show at a glance that they are the result of faults. A natural widening out along fault lines, therefore, definitely accounts for the rather straight courses of these valleys.

The sink-holes of the Kaibab Plateau form another very interesting feature of its topography. While their significance is not entirely understood, still they present certain relationships which appear rather definite. In position, these bowl-like depressions of fifty and a hundred feet in depth, seem to line up along regular straight courses. A similar situation has been noted among the so-called "Bottomless Pits" - sink-holes of the Coconino Plateau near Flagstaff - but these seem to fall in line with a large fault, a part of which determines Walnut Canyon. While the location of the Kaibab sink-holes does not appear to be thus determined by faults, still it seems probable that they are the indicators of certain constant subterranean water channels and that they are an important means of feeding these underground waterways.

THE ELUSIVE SCELOPORUS

By - Ranger-Naturalist S.B. Jones

One summer day, with two companions, I went hunting the elusive sceloporus. Abundant as these little lizards are, we found it no easy task to capture them. We first went out armed with a specimen net, but the ledges of Bright Angel Point were too irregular to permit one to make a fair catch by this method. We caught not a one that way, though the horned toads that live in the forest were easy prey. We abandoned the use of the net for the more primitive method of catching lizards by hand. We caught several in this way, but succeeded in breaking the tails off of about half of those we caught. These we turned loose to grow new tails. Perhaps then we will try to catch them again.

Friends suggested that we try snaring the lizards, with a noose of thread. This sounded like April Fool advice to me, but my friends tried it. Within an hour they caught half a dozen lizards. Sceloporus seems not afraid of a bit of thread on the end of a stick and often, literally, walks right into the noose. A jerk, and the lizard is dangling in the air, neatly roped, his four legs waving frantically.

The following day we made a trip down into the Canyon to Roaring Springs, to see what we could see. There were very few lizards along the trail, but the country around the Union Pacific power house proved a happy hunting ground. Here we snared Sceloporus with ease, so much so that we developed a sort of sporting spirit, and said to each other, "You can catch the next one." Mountain Boomers, the large, scaly lizards, proved much more difficult game. We usually had to stun them with a switch before we could get them into our bags. We snared only one fairly and squarely. He was a scoting devil on the ground, but he made the mistake of climbing a juniper tree. There he seemed to think he was safe, for he stayed quite still while A.J. Cheatum tickled his nose with the noose. On the first attempt the noose slipped off. The Boomer was pulled to the ground, but ran right back up to his old place on the tree. On second trial a badly fooled Mountain Boomer was dangling from the string, doing his ineffectual best to bite everything within reach.

On our return to the rim we examined our catch at leisure, and, I blush to say, pickled most of them without mercy. We found that the sceloporus from the canyon differed greatly from those of the rim (the mountain boomer is not found on the rim). In size, shape, and general appearance they are similar, but the details of the coloration are quite different.

Those captured on the rim show, in general, a double row of dark spots down each side of the back. The broad stripe in the middle of the back is darker than the two narrow stripes that are between the rows of dots. Those captured in the canyon are dotted all over the back with white spots. We would guess that this difference is an adaptation to the kind of ground on which the lizard lives. The sombre rim variety dwells in a land of shrubbery and pine needles, while the white-spotted canyon sceloporus runs around on the bare sands of the lower canyon. A specimen taken at about the Hermit Shale level in Roaring Springs Canyon (perhaps 1,000 feet under the rim) was colored like the rim-dwelling lizards.

Underneath, the rim lizards (this does not refer to the human variety) are either white, or white with blue patches under the arm-pits and down the chest. The white-spotted lizards from the power house all have blue chins, and are of a washed-out blue under the body. Whether or not there are two, or a dozen species of Sceloporus in the canyon is a problem that will require expert study that is beyond the powers of a mere geologist.



Rim variety

Canyon variety is simply "salted" with little white spots

HITHER AND YON

The majestic American Bald Eagle was sighted recently in the Grand Canyon. Peering over a ledge way down in the narrow, lonely depths of Hance Canyon, I was thrilled with a view of this noble bird with head and tail of white. At a distance of scarcely a hundred yards, it splashed about in an isolated pool at the top of the Red Wall. Although Golden Eagles have been noted upon numerous occasions, this is the first definite record that we have of our National Bird in Grand Canyon.

The range of fossil footprints in the walls of Grand Canyon has once again been extended - this time to the west. In the Coconino Sandstone along the Bass Trail a set of distinct footprints was recently noted. The horizontal range is thus increased some 12 miles from its former western limit at Dripping Springs.

Big black and brown Tarantulas appear to be quite numerous all along the roads of the South Rim this fall

Ranger-naturalist Jones, stationed on the North Rim writes -

"I kept some horned toads in a "corral" for several weeks, and I was puzzled by the disappearance of several small ones. One day I saw a large horned toad bite a tiny one on the head, then swallow him in a couple of gulps. So horned toads will turn cannibal if there is nothing else to eat."



The End
