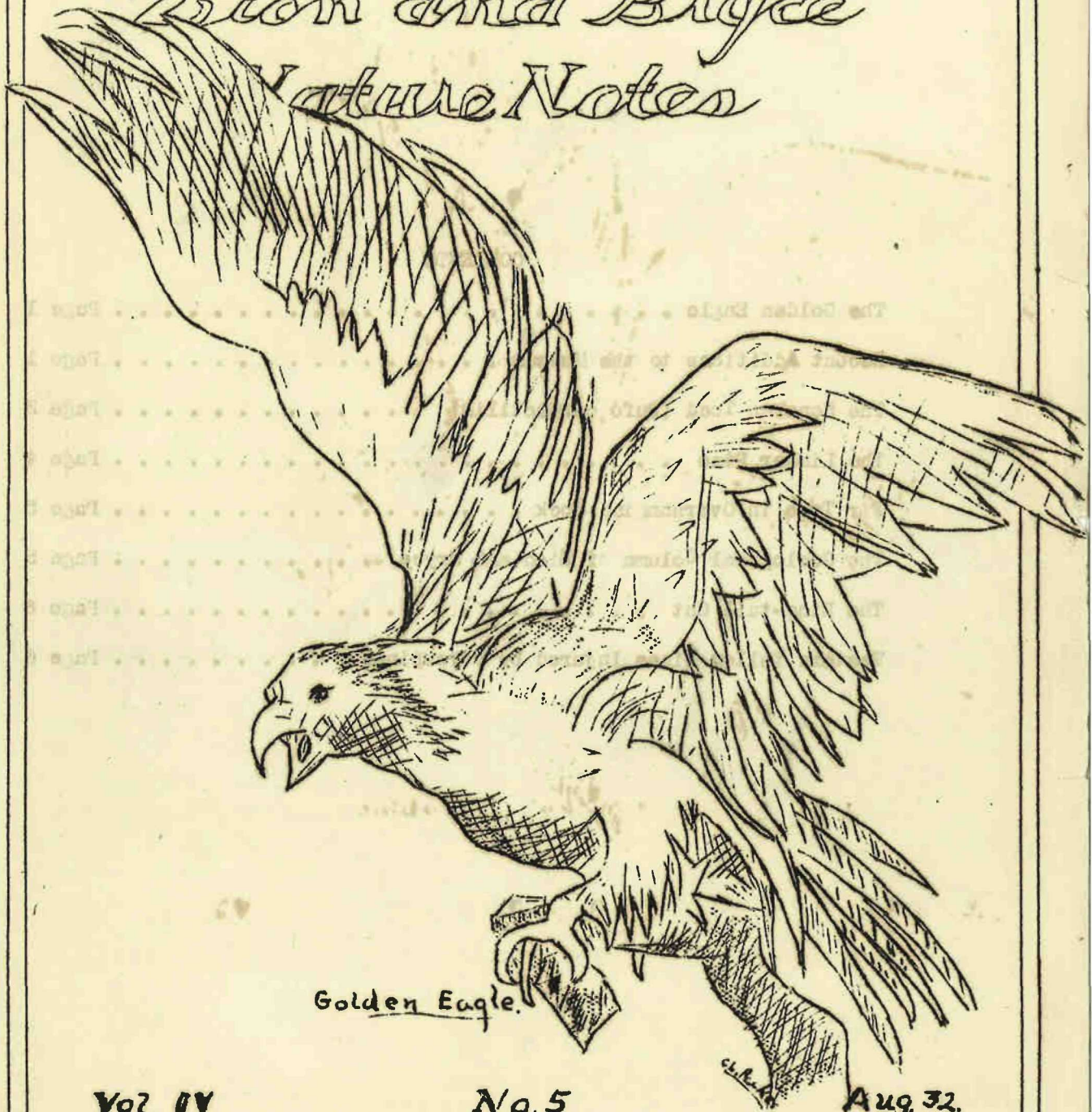


Zion and Bryce Nature Notes



Golden Eagle.

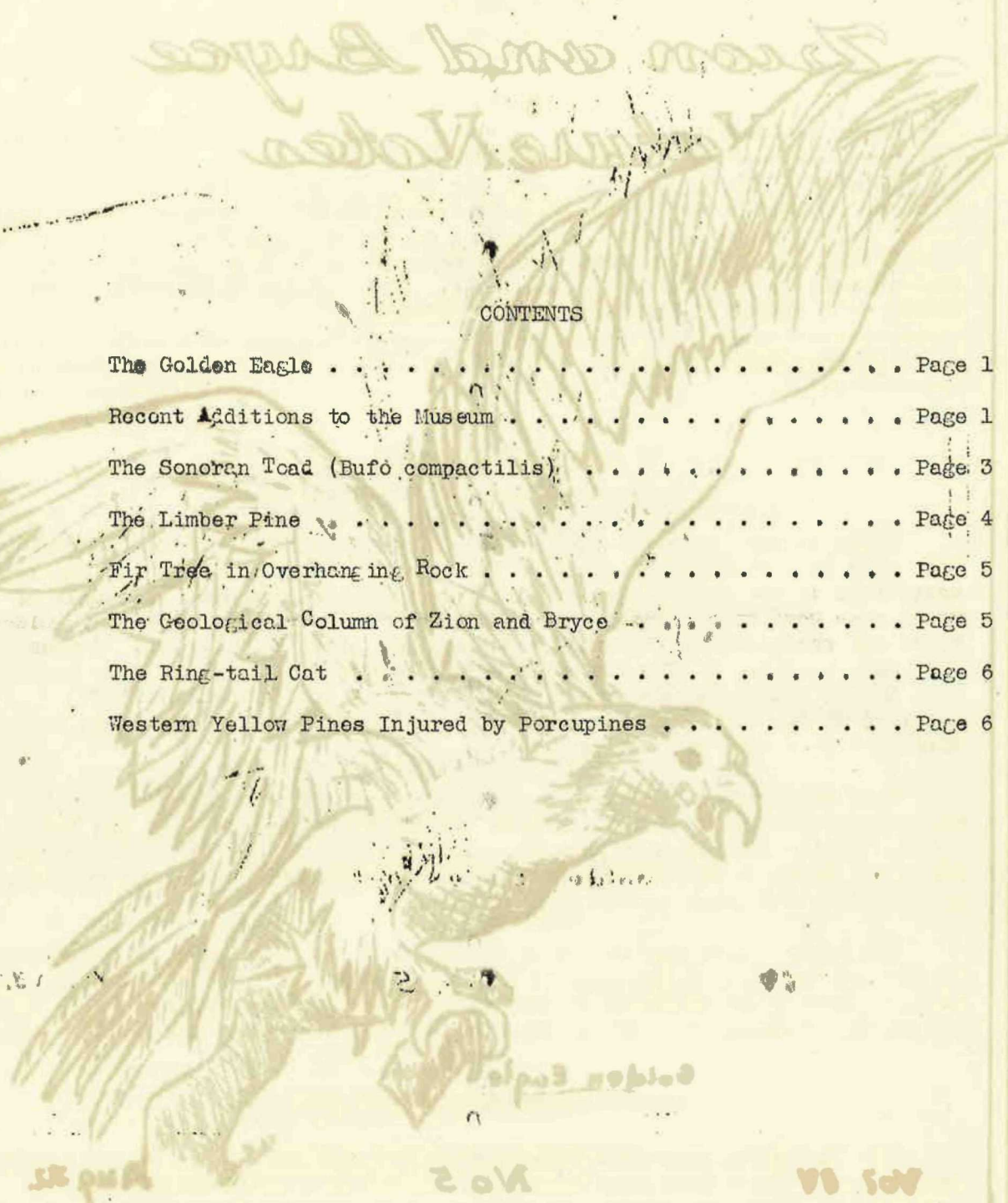
Vol. IV

No. 5

Aug. 32.

CONTENTS

The Golden Eagle	Page 1
Recent Additions to the Museum	Page 1
The Sonoran Toad (<i>Bufo compactilis</i>)	Page 3
The Limber Pine	Page 4
Fir Tree in Overhanging Rock	Page 5
The Geological Column of Zion and Bryce	Page 5
The Ring-tail Cat	Page 6
Western Yellow Pines Injured by Porcupines	Page 6



U. S. DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
ZION AND BRYCE CANYON NATIONAL PARKS, UTAH

Vol. 4
Zion-Bryce Nature Notes

No. 5
August, 1932

This bulletin is issued monthly for the purpose of giving information to those interested in the natural history and scientific features of Zion and Bryce Canyon National Parks. Additional copies of these bulletins may be obtained free of charge by those who can make use of them by addressing the Superintendent, Zion National Park, Utah. PUBLICATIONS USING THESE NOTES SHOULD GIVE CREDIT TO ZION-BRYCE NATURE NOTES.

P. P. Patraw, Superintendent

John Gray, Park Naturalist

THE GOLDEN EAGLE
A. M. Woodbury, Ranger-Naturalist

There is now installed in the Zion museum a mount of the golden eagle. This bird is a common inhabitant of this region. Its nests are usually inaccessible in the crags or cliffs that abound in this region. A couple of young ones were once sighted among the cliffs in Refrigerator Canyon. Older birds are occasionally sighted on the heights above Zion Canyon. A young bird just learning to fly was captured during the first week in July in the Pine Valley Mountains, just west of here, and is now on display at the junction of the Zion Park Highway and U. S. No. 91. It appears to be doing very well on a diet of jack rabbits.

This magnificent bird with a wing-spread of six to seven feet is the most outstanding bird of this region. It is primarily a bird of the mountains, feeding largely upon marmots, squirrels and grouse, but its powerful wings may carry it far afield into the valleys and deserts to hunt rabbits, prairie dogs and other medium sized animals.

The golden eagle may be distinguished from the bald eagle by the feathers on its leg reaching to the base of the toes instead of half way down, by the golden color of the feathers on the nape of the neck instead of a white head, and by the presence of a web at the base between the outer and middle toes.

RECENT ADDITIONS TO THE MUSEUM

The following mounted specimens have recently been added to the museum collection. These have been carefully mounted by a taxidermist and are arranged in life-like poses. As soon as space permits these will be set in habitat groups. All specimens are native to Zion National Park.

BIRDS

1. Arkansas Kingbird
(Tyrannus verticalis Say) 1 male; 1 female.
2. Common House Finch
(Corpodocus mexicanus frontalis) 1 female.

3. Western Meadow Lark
(Sturnella neglecta Audulon)
4. Gambel Quail
(Lophortyx gambeli gambeli Gambel) 1 male.
5. Western Lark Sparrow
(Chondestes grammacus strigatus Swains)
6. Spurred Towhee
(Pipils maculatus montemis Swarth) 1 young.
7. Red-naped Sapsucker
(Sphyrapicus varius michalis Baird) 1 male, 1 female.
8. Blue Grosbeak
(Guiraca caerulea lazula Less)
9. Long-tailed Chat
(Icteria virens longicauda) 1 male, 1 female.
10. Humming Bird
(1 species)
11. Western Robin
(Turdus migratorius propinquus Ridgway) 1 female, 1 young.
12. Lazuli Bunting
(Cyanospiza amoena Say) 1 male, 1 female.
13. Phainopepla
(Phainopepla nitens Swains)
14. Red-winged Blackbird
(Agelaius phoeniceus Linn) 1 male, 1 female.
15. Prairie Falcon
(Falco mexicanus Schlegel)
16. Swainson Hawk
(Butes swainson Bonap) 1 young, 1 female 4 yrs old, 1 male
17. Western Red-tail Hawk
(Butes borealis calurus Cass) 2 yrs old.
18. Golden Eagle
(Aquila chrysaetos Linn)
19. Vermilion Flycatcher
(Pyrocephalus rubineus mexicanus Sci.)

REPTILES

1. Chuckwalla
(Sauromalus obesus Baird) 2 specimens.
2. Desert Scaly Lizard
(Sceloporus magister)
3. Great Basin Rattlesnake
(Crotalus confluentus lutosus)
4. Great Basin Gopher Snake
(Pituophis catomfer deserticola)
5. Stojnoger Blue-bellied Lizards (2)

AMPHIBIANS

1. Sonoran Toad
(Bufo compatilis) 2 specimens.

MAMMALS

1. Rock Squirrel
(Otospermophilus grammurus grammurus Say) 1 male, 1 female.
2. Desert Mouse
(Peromyscus eremicus eremicus Baird) 3 specimens.
3. Antelope Ground Squirrel
(Ammospermophilus leucurus cinnamomeus)
4. Prairie-dog
(Cynomys parvidens Allen) 1 male, 1 female.
5. Muskrat
(Ondatra zibethica morganis Hollister)
6. Yellow-footed Marmot or Rockchuck
(Marmota flaviventris engelhardti) 1 female, 6 young.
7. Cottontail Rabbit
(Sylvilagus nuttali grangeri Allen)
8. Western Jack Rabbit
(2 specimens)
9. Badger
(Taxidea taxus berlandieri Baird)
10. Great Basin Skunk
(Mephitis occidentalis Major)

THE SONORAN TOAD (Bufo compactilis)

Harold Russell, Ranger

While walking up the lower canyon road one rainy morning, I counted forty-three toads, which had been killed during the previous night by passing motor vehicles, within a distance of one mile.

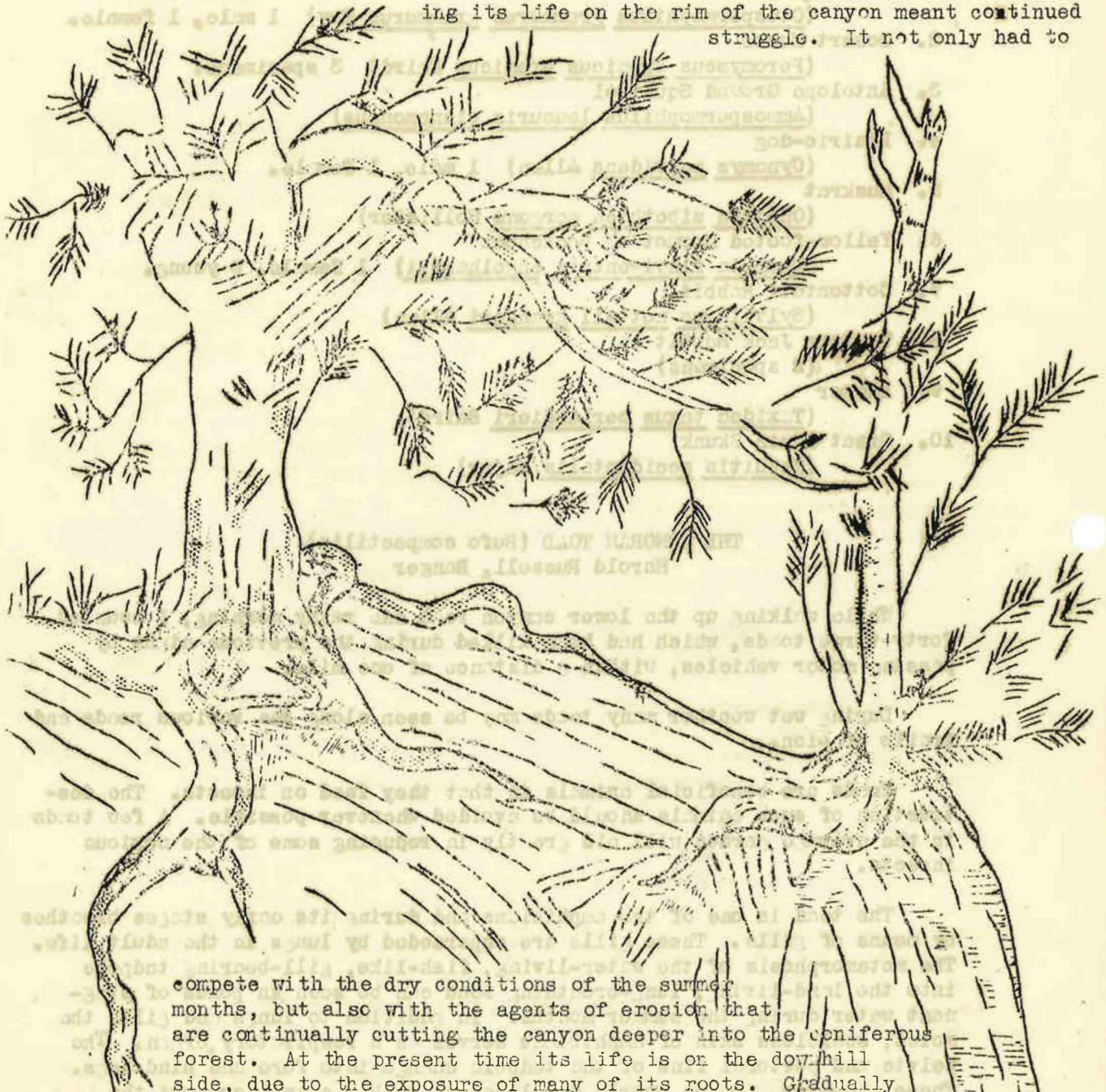
During wet weather many toads may be seen along the various roads and trails of Zion.

Toads are beneficial animals in that they feed on insects. The destruction of such animals should be avoided whenever possible. A few toads in the average garden will aid greatly in reducing some of the noxious insects.

The toad is one of the amphibians and during its early stages breathes by means of gills. These gills are superseded by lungs in the adult life. The metamorphosis of the water-living, fish-like, gill-bearing tadpole into the land-living, lung-breathing toad can be seen in ponds of stagnant water during the summer months. In addition to lungs and gills the moist, scaleless skin of amphibians serves as a respiratory organ. The pelvic and pectoral fins of the tadpole change into fore and hind legs. These, however, are so poorly developed that they cannot support the weight of the animal. Amphibians consequently crawl or hop over the ground.

THE LIMBER PINE
K. E. Weight, Ranger-Naturalist

Probably 125 years have passed since the tiny seed from a parent limber pine (*Pinus flexilis*) sailed to the rim of what we now call Bryce Canyon. The seed, locating in a favorable place, soon germinated, producing a little plant. Starting its life on the rim of the canyon meant continued struggle. It not only had to



compete with the dry conditions of the summer months, but also with the agents of erosion that are continually cutting the canyon deeper into the coniferous forest. At the present time its life is on the downhill side, due to the exposure of many of its roots. Gradually the soil has been removed from the roots on the canyon side until now they are in no position to function. No water can enter through these roots and they are not able to anchor or support it. Just how long this battle with Nature will last no one can tell, but surely the elements will reign supreme, and the limber pine will fall into the bottom of the canyon. Life will cease in apparent premature age, because of the seedling starting growth in such an insecure place.

FIR TREE IN OVERHANGING ROCK
A. M. Woodbury, Ranger-Naturalist

At the end of the Narrows Trail as one stands looking at the Mountain of Mystery, a tiny white fir tree (*Abies concolor*) may be seen by looking to the right and a little overhead. This fir tree, about 6 inches tall, is clinging in a small crevice under an overhanging rock. The rock is moist with seeping water, so the tree should encounter no trouble from drought. Other plants such as the brittle fern, Saksdorf cliffbrake fern, the mock orange, (*Philadelphus microphyllus*) and another member of the same family (*Edwinia americana*) are draped over the face of the cliff.

The little fir tree was first observed during the summer of 1930 when it was but a seedling. A large fir tree stands nearby beside the trail. In all probability a seed from the larger tree, blown by the wind, fell into the tiny crevice in the overhanging cliff, and finding soil and moisture conditions suitable to growth, proceeded to establish itself.

It is now in its third year of growth and is growing in a direction parallel with the face of the overhanging rock. At the present rate of growth it has been estimated that it will take about five years more before it will reach the edge of the rock and be able to turn directly upward.

As it grows upward and gets larger and heavier, one wonders what will happen to it. Will the roots penetrate the rock far enough to anchor it solidly and hold it in position through a long life-span, or will the growing weight finally become too great and topple it off into the river bed to be later washed away by some flood in the river?

THE GEOLOGICAL COLUMN
of Zion and Bryce
Gordon Y. Croft, Ranger-Naturalist

A complete series of rock sections starting with the Kaibab Limestone of the Permian Period from the rim of the Grand Canyon up to and including Bryce Canyon formations has been erected in the museum at Zion National Park. Each rock has been selected as a type specimen from the successive formations, the color and texture of each having been preserved so as to have an exact reproduction of the rocks found in this area.

Above the Kaibab Limestone is placed the Moenkopi with its weathered talus slopes reproduced so as to show the striking blend of colors which are so characteristic of that series. Next in order is placed the Shinarump conglomerate with its petrified wood. The pink and white cliffs which form the walls of Zion Canyon are reproduced by great blocks of colored sandstone with eroded perpendicular faces. Above this is placed the Carmel Limestone, Morrison Sandstone and the Dakota Sandstone.

The Cretaceous with its bands of coal alternating with layers of sandstone and shale is capped with a miniature reproduction of the pink cliffs of Bryce Canyon. On the very top is a cinder cone with lava rock flowing from it in all directions.

This geological column has caused considerable comment as it pictures the complete geological story of the relationship of Grand Canyon, Zion and Bryce Canyon, placed in such a way that everyone can understand it.



RING-TAIL CAT

Gordon Y. Croft, Ranger-Naturalist

One of the most common animals in Zion National Park, but very seldom seen, is the Ring-tail Cat. Only one has been reported this summer and that by a group of hikers on the Emerald Pool Trail. It is strictly nocturnal and is seldom seen during the day.

The Ring-tail (*Bassariscus astutus flavus*) is also known as the "Civit Cat", "Band-tail Cat", and Cacomixtle. It is about the size of a common house cat, but with a longer body, shorter legs and a much longer tail. The head is most striking, beautifully formed, with sharp ears, long nose, large, mild eyes, giving it a vivid expression of intelligence. The den is usually made in rocky cliffs, but sometimes in hollow logs and tree stumps. A few years ago one was found making its home in the furnace room of the Zion Park Lodge.

WESTERN YELLOW PINES INJURED BY PORCUPINES

K. E. Weight, Ranger-Naturalist

Porcupines (*Erethizon epixanthum*) are rather numerous at Bryce Canyon Park. It is not an uncommon sight to see one or more leisurely moving through the western yellow pine forest at nightfall or early evening. They are rather interesting creatures, weighing from 13 to 25 pounds when full grown, depending upon the sex - the females being considerably smaller than the males. In movement they are slow and deliberate, both in trees and on the ground. They appear to be confident of their ability to take care of themselves.

Quill-pigs, as they are sometimes called, have small, weak eyes, devoting a stupid expression. This characteristic is probably the result of the fine protection they possess in having hairs on their backs and sides that have developed into spiny quills. These quills are from one-half to three inches



in length. They are white with black tips and are very sharp. Being supplied with numerous barbs at the tip, when they enter the flesh of an enemy they continue forward, causing great pain to the victim.

Contrary to common belief, the quills are not thrown by the porcupine. In self defense he turns his back to the enemy, humps up into a little ball, and if contact is made by the enemy the quills are released.

Porcupines are not fastidious in their choice of food but consume succulent plants of many species and the buds, leaves

and inner bark and cambium of numerous kinds of trees, especially the Western Yellow Pine (Pinus ponderosa) and several species of juniper. The three junipers (Juniperus scherica), (Juniperus scopulorum), (Juniperus utahensis)

common to the park are not affected to any great extent. In their efforts to get to the inner layer of bark they often partly or completely girdle the main stem of the trees. Near the north boundary (Tropic Waterfalls) many of the small seedlings (up to five years of age) are completely consumed, while the larger ones frequently suffer injury serious enough to cause their death. The injury also results in a weakened, bushy-top or spike-top tree.

The heavy snowfall of the last winter no doubt forced many porcupines into the trees of the park. Porcupines have been known to remain in the same trees for periods of one to three months, depending upon the amount of snow on the ground. Here they feed upon the tender bark near the top of the tree. The injury to the coniferous forest that is so attractive at Bryce has resulted in war on the animals and they are now being brought under control by reduction in numbers.