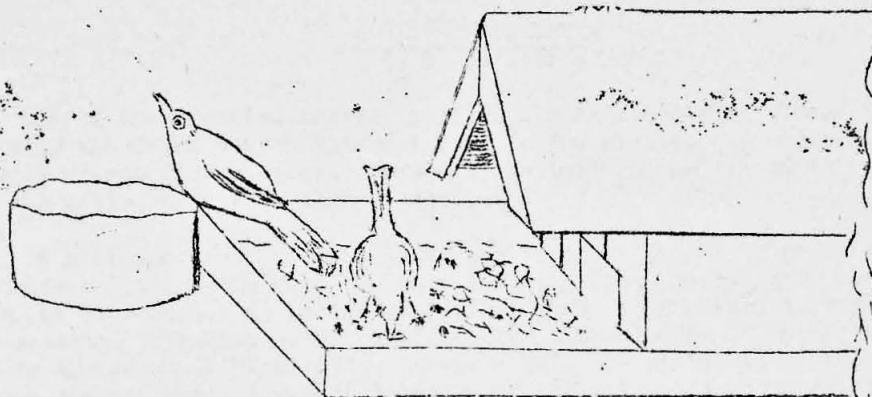


GRAND CANYON NATIONAL PARK



Nature Notes
of
Grand Canyon

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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.

J. R. Eakin - Superintendent.

G. E. Sturdevant - Park Naturalist.

A WINTER RESIDENT.

By G. E. Sturdevant.

One of the greatest treats in store for nature-loving winter tourists visiting the Grand Canyon National Park is the presence of western robins (*Merula migratoria propinqua*) around the hotels on the rim of the canyon, and the cottages in the village area.

In most sections of the country one is accustomed to viewing the departure of the robin with the approach of cold weather. From the various opinions expressed, one is led to believe that it is absurd to associate the presence of robins with a region where a few inches of snow occasionally covers the ground. Those of us, however, who are residents of the Grand Canyon can see but the normal reaction of the bird to a given stimulus.

What causes the robin to remain away from his warm southern home during the winter. Some suggest, that the ones remaining are old birds inured to cold and privation, and prefer to cast their lot in the great struggle for existence by remaining at the place of their summer home rather than making a long flight to a more mild place to winter, only to repeat the flight in the spring. Whether the robin is so logical in his reasoning is doubtful.

Probably the presence of robins upon the rim of the canyon during the winter time has been largely fostered by the advent of white man into this area. Perhaps the greatest inducement that causes him to deter from his southern migration is the abundance of bread crumbs and scraps quite appealing to the gastronomical bliss of robin red-breast. When sufficient food is put in convenient places, such as provided by the hotels and residents of the park, it serves to induce the robins to become permanent residents.

The robin is wise in his home selection even if a severe winter should visit this section of the country. In such an event he would not need to waste energy on a long flight. He could volplane nearly a mile downward to the great depths of the canyon where the summer atmosphere is present throughout the entire year.

Undoubtedly some members of this species do migrate, for the western robin is one of the most numerous summer residents of the park.

WILD GOOSE

By G. E. Sturdevant.

Was it a will goose chase that caused Park Engineer M. R. Tillotson to make a recent trip into the Canyon? Engineer Tillotson avers not. Nevertheless a will goose probably gave him a greater thrill than inspecting the construction of the new Kaibab trail to the north rim of the Grand Canyon; which will serve as the only means of crossing the Colorado River by bridge in a distance of 755 miles.

"Tilly" was following the completed section of the trail along Bright Angel Creek. A loud flapping of wings accompanied by a resounding honk caused Tilly's eyes to swerve from the trail only to focus on a large Canadian goose. Continuing along the trail Tillotson found himself flushing the goose seven times in the course of a mile.

Although wild ducks have been observed on several occasions along Bright Angel Creek, this is the first authentic record of a will goose within the park boundaries.

THEORIES RELATING TO ORIGIN OF THE CANYON.

By G. E. Sturdevant.

Upon viewing one of the major works of nature, such as the Grand Canyon of Arizona, the question, "How was it formed?" presents itself to the onlooker. That the human mind is ever seeking to explain the seemingly un-real of the realities of nature is evidenced by the theories advanced for the presence of such a mighty chasm. Some of the theories show the tendency to explain in some fantastic manner. Such explanations as a cataclysm or great convulsion of nature are generally advanced when the true explanation is lacking.

One of the oldest theories explaining the origin of the Grand Canyon comes from the Navajo Indians whose home is on the Painted Desert. According to the Indians, their home at one time was on the edge of a great inland sea. During a period of great rainfall and flood, the sea rose to great heights and finally found an outlet by cutting itself a gigantic channel extending into the very depths of the earth. This account parallels the Biblical account of the flood except that the Indians carry it still further. They believe that all of their ancestors were swept away in the great flood that cut the Canyon. They do not believe that their ancestors perished, however, but were turned into fish. With due respect to their ancestors, the Indians refuse to eat fish to the present time; the only exception being canned salmon when the label is removed.

One of the most common theories advanced by the tourist is that a volcano was responsible. A volcano suddenly burst into eruption and blew the Canyon apart. The difficulty in accepting this explanation is the lack of evidence of volcanism playing even a minor part in its origin.

Another theory quite commonly suggested is that an earthquake split the Canyon open. A certain religious sect claims that this took place at the Crucifixion of Christ. Some earthquakes undoubtedly visited the

Grand Canyon during the uplift of the plateau region. The earthquakes in general, however, followed the fault or fracture zones transverse to rather than parallel with the river.

A novel explanation was advanced during the past year for the formation of the Canyon. A party was viewing the Canyon from the south rim. In looking across to the north rim, a jutting temple was sighted that appeared to fit perfectly in a canyon on the south side. The most natural explanation followed; "The Canyon was formed by the north side being pulled away from the south side by some unknown force."

A rather persistent theory ascribes the Canyon's origin to contraction. All of the rocks forming the walls of the Canyon were at one time very hot. When this area was cooling off a great crack or fissure developed forming the Grand Canyon. This theory might be acceptable if the rocks of the Grand Canyon were at one time molten. Since most of the rocks are sediments and reveal no evidence of having been subjected to heat, the theory is groundless.

One of the pioneers of this region accounts for the origin of the Grand Canyon by the presence at one time of a subterranean river. The river was flowing underground at approximately its present level. An ever-enlarging cavern was being developed. Portions of the roof were breaking off and dropping into the river. Finally the cavern became so large that the top fell in revealing the Grand Canyon. This explanation was undoubtedly passed on to thousands of gullible persons who visited the Canyon in the early days. Probably the explanation is as erroneous as the one told by another pioneer; the latter repeatedly told the public how he spent many long years in digging it.

From the numerous theories, it is seen that many persons are prone to explain any of the major works of nature, especially those on the magnitude and scale of the Grand Canyon, as being made by some cataclysm or great convulsion of nature. In general the element of time is neglected in the explanation. Minutes rather than millions of years are used as a working criterion. No undue amount of violence such as earthquake, volcanism, or flood made the Grand Canyon area untenable while the masterpiece was being carved. Earthquakes undoubtedly occurred at infrequent intervals during the uplift of the region. The same beds of sedimentary rocks, present on both sides of the river, appear remarkably horizontal, dipping very gently to the southwest about one hundred feet to the mile.

The accepted theory governing the origin of the Grand Canyon is erosion in all of its phases such as; wind, rain, heat, cold, and running water. Other factors are; time, uplift of the region, semi-aridity of this area, water coming in a strong volume from a region of great rainfall, and finally the course of the river probably being related to lines of structure.

RANGER SMITH ENTERTAINS.

Leo Smith, ranger at the park entrance checking station, acted as host to a porcupine a few days ago. The porcupine remained in the yard and on the back porch acting the part of the contented guest. Apparently he ate his fill of cabbage leaves and potatoes for unceremoniously he took his departure after a couple of days visit. Perhaps the smell of the pine coupled with the departing snow, that facilitated travel, were strong factors that enticed "porky" away from his temporary life of ease and plenty.

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NOTE. The above notes were written with the intention of mailing them out March 1st. However, the absence of the Park Naturalist from the Park, from the latter part of February until April 16th, prevented their issue until this time.