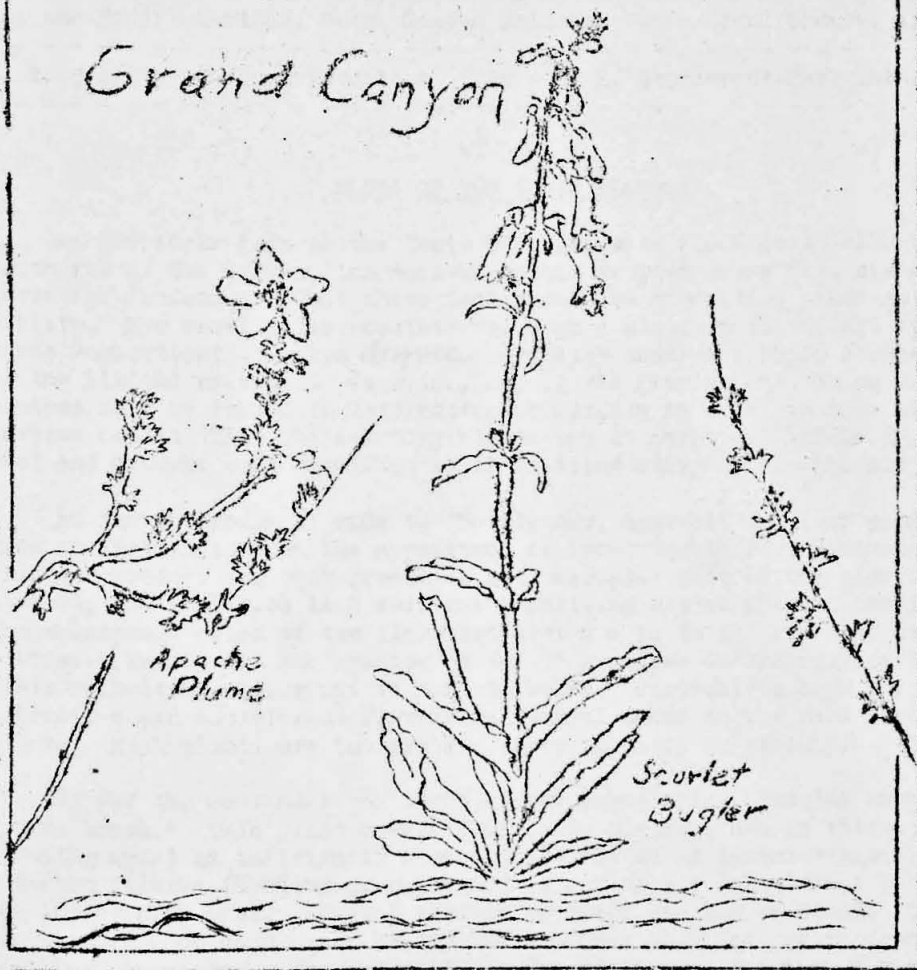


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GRAND CANYON NATIONAL PARK

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.

M. R. Tillotson - Superintendent. By - G. E. Sturdevant-Park Naturalist.

FLORA OF THE TONTO PLATFORM.

As one looks down on the Tonto plateau, some 3,000 feet below the south rim of the Canyon, innumerable somber grayish-green dots are seen to cover the landscape. That these dots should be vegetation seems an improbability. How would it be possible for such a platform to support even scant vegetation? The low *degree* humidity insures a rapid evaporation of the limited rainfall. Certainly any plants growing on such an arid plateau must be forced to interesting expedients in order to cope with such adverse conditions. The existing plants are in perpetual battle against heat and drought each revealing an interesting story of special adaption.

As the approach is made to the plateau, however, the dots gradually grow until they take on the appearance of low-lying thorny, perennial shrubs. Profuse and rank growth is not present. Most of the plants appear stunted, their reduced leaf surfaces permitting but slight evaporation. The synonymous color of the flora deceives one as to the richness of the species. Nearly all the species of the flora agree in one respect i.e. their uninviting appearance to man and beast. Curiously enough the most attractive and conspicuous flowers in general occur on the most forbidding plants. Such plants are invariably either aromatic or prickly.

By far the most numerous is *Coleogyne ramosissima*, locally known as "burro brush." This plant covers the entire plateau, not as thickets but standing apart as individuals - so characteristic of desert vegetation. Red-stem filaree (*Erodium cicutarium*) is making a faint attempt to carpet the intervening area. Several species of cacti are now in bloom; the flowers being of such beauty and delicacy that one deters from plucking them only by the proximity to the flowers of the barb-tipped spines. Mormon tea (*Ephedra viridis coville*) is inconspicuous due to the absence of

leaves. It seems odd that this, one of the few remaining members of the ancient joint-fir family, should choose such an environment to perpetuate itself. The solitary stalks of the century plant "mescal" (*Agave utahensis* Engl.) are widely scattered over the plateau. The stalks, some twelve feet in height, remain standing like so many sentinels several years after the plant has seeded and died. Two species of yucca (*Yucca baccata* and *Yucca Harrimaniae*) are common, both thriving on this arid plateau. The "soapweed" (*Yucca baccata*) is used extensively by the Supai Indians as substitute for soap.

In order that color should not be entirely lacking, Dame Nature has sifted several annuals around the somber gray perennial plants. These are extremely short lived; pushing up to bloom and seed early in the spring and then die down - their seasonal activities completed. Fortunate indeed is he who visits the plateau at this time. To see the frail sego lily (*Calochortus Nuttallii*), Whiplash fleabane (*Erigeron flagellaris*), *Xylorrhiza* (*X. tortifolia*), and the *Psilostrophe tagetina* var. *sparsiflora* along with many more, all in bloom, causes one to wonder in amazement at seeing the improbable.

By following along the plateau one may trace the subterranean water seeps by the presence of cats claw (*Acacia greggi*). Invariably the cats claw continues along definite lines suggesting the presence of water a few feet beneath the surface.

Occasionally a live stream is crossed and the vegetation changes abruptly. Tall cottonwoods (*Populus deltoides*) give adequate shade from the piercing rays of Old Sol and the limited area takes on the appearance of a real oasis. In fact such a place is an oasis or haven of rest to the too-ambitious tourist who has attempted to journey along the Tonto plateau with insufficient water.

Massive clumps of Apache plume (*Fallugia paradoxa*) occupy areas bordering the stream. The cliff rose (*Cowania Stansburyana*) and Service-berry (*Amelanchier alnifolia*) that have descended some 3,000 feet from their normal range, take on a more luxuriant growth. Red-bud (*Cercis arizonica*) appears for the first time. Finally the scarlet bugler (*Penstemon barbatus*) and thistle poppy (*Argemone hispida*) appear in all of their beauty.

Such is the marked contrast of the flora of the lower Sonoran zone, some 3,000 feet below the south rim of the Grand Canyon.

ANTELOPE HAPPENINGS.

The past month has witnessed some interesting happenings in the small antelope band within the Grand Canyon National Park.

"Crooked Horn," as he is known, is the out-standing buck of the band. During the past year he has ruled the other members with an iron hand. Each of the other members would stand aside as he passed in due respect to

their recognized leader. Crooked horn fairly swaggered along the Tonto plateau apparently aware of his own importance. Perhaps it may have been dissatisfaction with the small world over which he ruled so majestically or again it may have been due to his own egotism. At any rate uneasiness was manifested in crooked horn and finally brought to a climax.

"Shorty" Welch, the trail caretaker, has acted the part of the good shepherd for the small band during the past year. Each evening found the members congregating around his tent for protection, while every morning the band would follow him along on the trail, browsing on the vegetation of the plateau. Welch little suspected any animosity towards him on the part of crooked horn and his clan. That he was mistaken in his belief was soon apparent.

Welch was working on the trail when the thunderbolt, in the form of a powerful charge from "crooked Horn", struck him. Welch was taken completely unaware. He picked himself up several feet below the trail in time to meet another charge. The second charge failed to have the same gravitational effect upon Welch that accompanied the former. By some miraculous means he was able to step aside and obtain a good grip on the animals horns. A struggle ensued between man and animal, with the remaining nine members of the band acting as spectators. At last the violent plunges of the animal ceased and Welch released his grip. A third charge was not forthcoming for crooked horn beat a hasty retreat leaving Welch undisputed victor of the day.

Crooked horn undoubtedly lost the respect of some of his followers for his poor showing as is evidenced by later developments.

In order to permit the animals access to a greater browsing area, the gate shutting off passage to the east was removed. This act was the incentive that caused a split in the band.

Three of the bucks, accompanied by three does, immediately passed beyond the former barrier and took up their haven at Indian Garden; a distance of 17 miles from their former home. Abundance of forage is present at this place.

Crooked horn and three does remain at Hermit Camp. Here he rules without opposition over his dwindled following apparently sobered to the realization that man is even greater than himself.

MOUNTAIN SHEEP VISITS STUDIO.

Although mountain sheep (*Ovis canadensis*) are seen occasionally by parties on all of the trails leading into the Canyon, yet it is a unique sight to see one of these sure-footed animals away from the crags of his home. Such an event took place a short time ago when a large ewe left her Canyon home to explore the top.

On two successive days this incident occurred. The first day she arrived at the head of Bright Angel trail and spent a short time looking in the windows of Kolb Bros. Studio. It is certain she did not want her picture taken for she refused to pose and retreated down the trail. The following day she appeared again to continue her explorations. She espied a garbage can in the local post-master's back yard and edged up to it. The interested human spectators, however, seemed to cause her so much chagrin that she returned to the Canyon without even tasting the ingredients of the can.

No explanation is advanced for this action. The mountain sheep is generally content to remain among the jutting rocks of his home, permitting but a fleeting glimpse as he disappears from view, or again he may remain like a statue peering down on unsuspecting human beings below.

ARIZONA RED-BUD

Arizona Red-bud (*Cercis arizonica*) is to be the name attached to the red-bud or Judas tree found growing within the Grand Canyon.

Samples of this shrub were collected and forwarded to Dr. J. N. Rose of the U.S. National Museum. Dr. Rose reports it to be an undescribed species rather than *Cercis occidentalis*, the species so common on the Pacific Coast.

A complete description of this new species of red-bud must necessarily await Dr. Rose's final investigations.