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SAGUARO !

by George Olin.

Saguaro Nat'l Park
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Saguaro, Sahuaro, Suguaro, or Suwarro: Spell it as you like, but pronounce it "Sa-war-ro" and the meaning is clear. This is the giant cactus, largest of its clan in the United States. Although it also grows in Mexico, its range north of the border is so closely confined to southern Arizona that it is often called the Arizona Giant. Its waxy white flowers have been selected as the state flower. This recognition can only be considered its due. In the Lower Sonoran Zone, which it inhabits, it is the most prominent form of plant life. With no two plants alike, but all of a sameness, they march across the wide valleys in great armies with their sentinels standing guard on the barren hill tops. They would seem to be invincible from sheer weight of numbers. Yet like countless other armies, these legions have met their master. This one is civilization, an efficient impersonal Nemesis that eliminates the Saguaros so that farmlands and cities may take their place.

Tucson is situated on the eastern edge of the Saguaro belt. Just a little more than a century ago it was a sleepy little Mexican village, its poor habitations surrounded by an adobe wall. With the Gadsden Purchase of 1854 it came into

the possession of the United States. The impact of this change in nationality was soon felt in the leisurely life of the Old Pueblo. Gringos were no novelty in the Southwest; soldiers, miners, and adventurers had frequently entered the region, but they shunned the hot dry climate of southern Arizona and were only too glad to be on their way. After the Purchase a new breed of Americano came into the walled city. He was the American business man, and he came to stay.

The effect of this new entity was soon apparent. The mud wall that was built to hold out the Indians was soon unable to hold in the inhabitants. Breached in a dozen places, it settled back into the earth of which it was made, its usefulness outlived. New houses appeared where none had dared to build before, roads reached out into the desert to outlying ranches, and finally in 1880 the steel of the Southern Pacific Railroad linked the infant metropolis to the outside world. From that point Tucson has advanced at an ever-accelerating rate to become one of the leading cities of the Southwest. With its climatic advantages, business opportunities and industrial possibilities, there seems to be no limit to its future growth.

In many ways the area which now comprises Saguaro National Monument has paralleled the rise of the Old Pueblo. Situated in the foothills and mountains east of Tucson, it was once a remote hinterland where the dread Apaches lurked, waiting to swoop down on any unwary traveller who ventured too close to their domain. By 1880 when their depredations had been halted, civilization marched steadily in that direction. Ranches

sprang up in the foothills and by 1904 the area was so well known that L.H. Manning, an early Tucson industrialist, built a hunting lodge in the very heart of the mountains. As the years went on and Tucson began spreading eastward, it became apparent that eventually all the land to the base of the mountains would be taken up. This was a matter of grave concern to many people who realized the unique character of the threatened area. A movement headed by Homer L. Schantz, president of the University of Arizona, and Frank H. Hitchcock, local publisher, brought the matter to the attention of Washington and on March 1, 1933 President Hoover by presidential proclamation set aside an area to be known as the Saguaro National Monument. This ushered in a new era--one dedicated to wise use rather than wasteful use, and one for the good of the most people rather than for a privileged few. Before the means used to accomplish this end can be discussed, it is necessary to know something of the location, size, and natural features of the Monument.

Saguaro, as many Tucsonans refer to the Monument, lies 17 miles directly east of the center of Tucson. It may be most conveniently reached by following a well-marked route out east Broadway and turning right on a winding scenic drive known as the Old Spanish Trail. Far from being a trail, this paved highway passes through a suburban area liberally sprinkled with inconspicuous but expensive desert homes. At the end of the pavement, turn left through a handsome stone entrance to the Administration Building which lies just inside.

The Monument covers over 63,000 acres. It is one of the largest Monuments in Arizona and one of a very few in the United States named for, and dedicated to the preservation of, an outstanding plant species. Yet while it is true that the Saguaros are the focal point for the visitor, they are but one of the many hundreds of plant and animal species protected within the Monument. The 100 square mile area enclosed within its irregular boundary line contains an altitudinal range in which four life zones are represented. This is an important feature of Saguaro National Monument that will multiply its usefulness as time goes on and enable it to keep pace with the ever-growing needs of an increasing population.

A brief description of the life zones and some of their plant and animal inhabitants will illustrate just how much Saguaro has in reserve. The floor of the Monument, so to speak, is taken up by the Lower Sonoran Zone. Incidentally, this is the only portion readily accessible to visitors at the present time. This is the cactus zone that covers much of southwestern Arizona. Here grow the plants which have adapted themselves to the dry climate in many ways. Annuals spring up after the rains, bloom, and die in but a few short weeks. Yet during that time they cover the desert floor with a blanket of color and cast out countless seeds to lie dormant until conditions are again suitable for their growth. Some shrubs have leathery or coated leaves to reduce transpiration. Other shrubs throw out leaves after periods of moisture and cast them off when dry periods prevail. The foothill Palo Verde depends very little at all on its tiny leaves, but relies on the chlorophyll in

its bright green bark to convert its food.

Master strategists of them all are the cacti which store water in their stems and roots against time of drought. They grow in great profusion in this desert area. Cane cactus, staghorn, hedgehog, prickly pear, barrel, and pincushion--all of these and more dot the floor of the Monument. Towering over them in true lordly fashion are those monarchs of the cactus world, the Saguaros. This is truly a cactus forest, the huge columnar giants dominate the scene even more completely than would a forest of trees. Plants of 30 to 40 feet in height dwarf the visitor as he wanders among the fantastic growth. Stark, bizarre, gigantic, they seem a forest of unreality. Actually the Saguaros represent a highly specialized form of adaptation to the harsh environment in which they live. These huge plants (many of them estimated to be between 200 and 300 years old) have weathered many a parching drought and fierce desert storm. The moisture-storing functions of the accordian pleated trunk and branches are well known, but they are not more important to the plant than the unseen root system. The tap root of the Saguaro is small; it serves more to bear the weight of the plant than to hold it erect. The radial roots perform the latter task. Striking out horizontally but a short depth below the surface of the ground, they may extend to a distance equal to the height of the plant. Strong and contorted by their passage around and between the stones, they are veritable anchors which hold the plant erect no matter from which quarter the wind may come. They serve also to carry water to the reservoirs above ground. When the ground is wet

after a rain, thousands of tiny rootlets sprout out from the laterals and gather the life-giving moisture. This takes place in a matter of hours. When the soil again becomes dry the rootlets wither, their function completed. With adaptations such as these, the Saguaros are usually able to put on their white crowns of blossoms year after year.

In this world of spines and thorns live the animals of the Lower Sonoran Zone. They too are adapted to withstand the rigors of a land of little water. In addition, most of them avoid the heat of the midday sun. Thus morning or late afternoon are the most favorable times to see the surprising number of species associated with the cactus forest. Among the mammals most frequently observed are the Harris and round-tailed ground squirrels, cottontail and jack rabbits, foxes, coyotes, desert mule deer, and peccary. Other mammals such as ringtail cats, wildcats, skunks, and many species of small rodents are nocturnal in their habits and are not ordinarily seen during daylight hours. The Monument has a rich and varied bird population, ranging from the tiny humming bird to the golden eagle. Of the 112 species recorded in the area, about one-third live in the Lower Sonoran Zone. Cardinals, ^{pyrrhuloxias} ~~pyrrhuloxias~~, phainopeplas, and many smaller species nest in the mesquites and palo verdes. Others choose more protected surroundings. Thrashers, cactus wrens, towhees, and even doves commonly build their nests among the spiny defenses of the chollas. A considerable number of species are closely associated with the Saguaro. Flickers and Gila woodpeckers dig deep into the center of the plants and raise their broods in the cool interior of these living apartment

houses. When abandoned by the original owners, these comfortable quarters are often taken over by screech owls, elf owls, sparrow hawks, martins, and fly catchers. Other large birds such as hawks and great horned owls build bulky nests of small sticks among the upraised arms of the friendly Giants. These are not the only services rendered by this remarkable plant to its desert neighbors. The fruits are relished by many of the birds and most of the mammals, including man.

Eastward from the cactus forest rise the Tanque Verde Mountains, and about half-way up their rocky slopes the Upper Sonoran Zone begins. Unlike a man-made boundary, the line of demarcation is rather a gradual change from one type of plant life to another. Here are found species that require more moisture and cooler temperatures than the low desert dwellers. This is the zone of the manzanita, buckbrush, and barberry; of the juniper, oak, and pinon pine. Succulent plants are still in evidence, however; mountain yuccas, century plants, and sotols grow on the southern exposures, and at this altitude the Arizona rainbow cactus is found.

Among these plants a different group of animals make their appearance. The rock squirrel and raccoon are common residents. Acorn woodpeckers, Arizona jays, and the rare Mearns quail are closely associated with the oak trees of this zone. In addition to the permanent species there are many which might be termed transient; mammals like the peccary which move into the Upper Sonoran Zone during the summer to escape the heat of the low desert. The whitetail deer is another; it spends its winters

in this zone but usually ranges at higher altitudes in the summer.

The Tanque Verdes are a stepping stone to the high range of the Rincon Mountains that towers above them still farther to the east. The deep green mantle of Ponderosa pines that covers their rugged shoulders marks the appearance of the Transition Zone. This is a zone of abundant rainfall, of cool summers and cold winters. Under these conditions, plant life is much like that of the northern United States. Though the pines are the dominant species, there is a generous mingling of Gambel oak scattered through the forest and in the shady canyons Douglas firs grow as tall as those in the northern woods. The undergrowth boasts such large shrubs as the rose locust, chokecherry, and cascara. Oregon grape and columbines grow luxuriantly in the shade, and brakes stand tall around the mountain meadows. During the summer these open places are gay with the vivid tints of penstemon, Indian paintbrush, mint, larkspur, and monkshood. In fall the mountain sunflowers take over with a bright yellow that mocks the prospect of frosty nights in the near future.

In this mountain fastness little is yet known of man. Chipmunks and squirrels play undisturbed among the trees. An occasional mountain lion and black bear are still seen by a sharp-eyed ranger. The bird life is exceptionally tame and confiding. Chickadees, Stellar jays, and nuthatches pay little attention to the infrequent visitor. Many of the species are as brightly colored as the flowers that surround them. Tanagers and hummers flash like living jewels across the brilliant meadows.

The Canadian Zone, fourth and last of Saguaro's life zones, is represented at 8,000 feet on the north side of Mica Mountain. The quaking aspen, famous for its brilliant fall coloring, is a well-known indicator of this zone. At this altitude a marked decrease in both plant and animal life is evident. This area is interesting chiefly in its relation to the life zones below it. With its high annual snowfall and short summer season it is in direct contrast with the Lower Sonoran Zone which lies some 5,000 feet almost directly beneath it. Here in a virtually undisturbed condition is a great outdoor laboratory where all men have an opportunity to observe the complex relationship that Nature's children bear to one another.

It is inevitable that in the course of civilization the day will soon come when but a small part of our once splendid heritage of natural resources will remain. The national parks and monument will represent a considerable part of this remnant. It is mandatory that development of these areas shall go hand in hand with conservation and preservation. This standard can only be maintained through the cooperation of the public. John G. Lewis, superintendent of Saguaro National Monument, believes that gaining this cooperation is comparatively simple. A keen, alert veteran of twenty years in the Park Service, he has found that when people learn about the natural wonders that surround them, this in itself is an effective deterrent against vandalism and carelessness. "Conservation through interpretation" is a slogan at this Monument.

The short course in conservation as offered at Saguaro is as painless as it is effective. At the entrance parking lot a ranger politely requests the visitors to step into the Administration Building to see the exhibits. All rangers wear the full National Park Service uniform with the distinctive patch on the left shoulder. Inside the building, the tremendous view presented by the picture windows in the north wall gives the visitor his first impression of the Monument. Literally framed by the building, for the wall is constructed almost completely of glass, is the view of a rocky, Saguaro-studded canyon leading down to the cactus forest. The other three walls are lined with display cases. These contain interpretive exhibits: the construction of a Saguaro and the associations of the huge plant with mammals, birds, other plants, and Indians are explained in concise, easy-to-understand terms. One large case outlines the life zones of the Monument and shows typical plants and animals indicative of the zones. Another contains lifelike replicas of reptiles of the area; still another, insects, and so on. In one corner an automatic projector shows colored slides of flowers of the desert. Next to it stands a diorama showing a miniature band of javalinas in characteristic activities. Of great interest to visitors is the living display centered around a pool outside the picture window. Here, comfortably seated in an air-conditioned room, the armchair naturalist may see most of the birds and many of the mammals of the desert. Should he desire specialized information on any subject of natural history, he may question a ranger or consult one of a number of publications which are offered for

sale at the office. At the same desk, visitors are given guide leaflets that indicate the various points of interest along the loop road.

Outside again the visitor's attention is directed to a nature trail that winds through a garden planted with cacti and shrubs, all labelled for his information. The newly-paved 9-mile loop is a road of contrasts. It winds through desert washes and over hills, with frequent turnouts where the visitor may admire the view or see one of the exhibits indicated in the guide leaflet. Desert shrubs, cristate Saguaro, geologic strata, javalina dens--all these and many more are marked by posts bearing numbers corresponding to those on the map. Consciously or otherwise, the visitor learns much about Nature, and he and Saguaro are both the better for it. Vandalism has been held to a minimum; even the picnic grounds show better than average consideration on the part of the public.

There can be no doubt that this interpretive program has also been largely responsible for the mounting attendance at Saguaro. When the Monument was first established, comparatively few visitors braved the dusty, jolting trip from Tucson to the base of the Tanque Verdes. In 1948 when the first real development was started 20,000 people took the same trip to see the modest beginnings. During 1954 over 77,000 visitors made the rounds of the Fantastic Forest and came away with a better understanding, not only of the Saguaro, but of its environment as well. This is truly the realization of a prime National Park Service objective.

Plans for the future of Saguaro are under consideration. As the public need increases, new areas must be developed for their use. Eventually this expansion may reach to the very top of the mountains. X The ultimate development of Saguaro National Monument rests with generations yet unborn. There is no reason to believe that they will not guard this priceless heritage more jealously than we. To the people of that time to come, the National Parks and Monuments will be of incalculable value in terms of recreation, relaxation, and that return to Nature which all humans instinctively require. Saguaro is big enough and varied enough to meet these needs beyond our present imagination. *

George Olin

(approx. 3,000 words)