

# Xerophytes right at home in desert

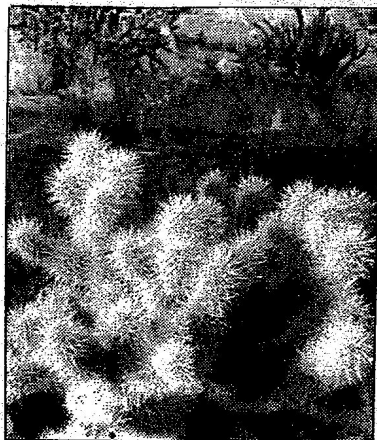
## Desert Place ©

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The desert branch of the cactus family represents the most advanced form of a highly specialized group of desert plants called Xerophytes, meaning "dry plants." They are able to survive many months to several years of great heat and severe drought. This remarkable adjustment is the result of millions of years of evolutionary discipline and adaptation.

Cacti are succulents, but not all succulents are cacti. Confusion has arisen from the widespread, but mistaken notion, that any plant with spines on the tips or edges of its leaves or stem is a cactus. Century plants, yuccas and ocotillos are frequently called cactus but they are not.

The spines on cacti are modified leaves. The spines serve four purposes: they create shade for the plant as the sun passes by; they channel moisture from showers into the areolas at point of attachment to the plant; they afford protection against animals and, in the case of the chollas, spines are barbed so that they will attach themselves to passing animals and be transported to another area where it is brushed



off, falls to the ground and sends out new roots to establish itself in the new location.

Part of the evolvement of the cacti is the heavy outer cuticle coatings of wax to prevent entrance of the sun's heat rays. The ribs, flutes and nipples formed to allow the cacti to expand and contract in order to store food and moisture and provide shade for itself.

From the exposed skeleton of fallen saguaros we note the framework which withstands the strongest winds, holding an upright position, while the thick, resin-covered layers of the outer walls expand and shrink accordion-like in adjusting to the inner quantity of water.

The moisture that is stored in

the plant for growth and survival in periods of drought would evaporate rapidly in the heat of our deserts if it were simply in the form of water, so the plant chemically changes all water coming into the plant through its roots into a sticky mucilaginous juice able to withstand low humidity and high temperatures.

The cactus grows and survives because it is not affected by the problems faced by other plant forms. It has no leaves and doesn't require them. The desert cacti cannot afford to transpire; so they live by hoarding the available and limited water.

They are conditioned to make the best of the worst. Moisture is frugally budgeted for a long term survival; a remarkable case of self discipline. A 50-foot giant cactus transpires no more than a small thimbleful a day as its vast reservoir holds enough moisture to survive several years of drought. By comparison, a multi-leaved stalk of corn transpires more than a gallon a day.

In times of excessive rains, such as we have experienced this winter, these giant saguaro cacti can sometimes split their sides from over absorption. This can often be the beginning of the end as they become vulnerable to insects, birds or decay.