



# Espinas y Flores

BULLETIN OF THE SAN DIEGO CACTUS AND SUCCULENT SOCIETY  
*Affiliate of the Cactus and Succulent Society of America, Inc.*

## JANUARY MEETING

Saturday, January 9, 1982

1:30 pm

Casa del Prado, Room 101, Balboa Park

### PROPAGATION BY SEED

A Panel of experts will discuss how they raise cactus & succulents from seeds. This is an opportunity for the layman to learn and to ask questions concerning this seldom talked about phase of our hobby.

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Congratulations to our newly elected Board of Directors - - - -A two year term

Warren Buckner

Dorothy Dunn

Phyllis Flechsig

Madelyn Lee

Dr. Ronald Monroe

Dr. Leroy Phelps

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Deadline for the February Issue is February 2. Contributions are appreciated.



## Succulent-of-the-Mouth

### AGAVES

(Amaryllidaceae Family)

Dorothy Dunn

Although it may be somewhat difficult to believe, the ferocious Agaves are the succulent relatives of the Amaryllis bulb, both belonging to the large Amaryllidaceae family (however, some authorities now place Agaves in a separate family, Agavaceae). The genus Agave was first described by Linnaeus in 1753 and contains more than 300 species. The first species known to science -- and possibly still the best-known (or notorious, depending upon the point of view) -- is A. americana, described in 1753. The genus is divided into two natural subgenera; Litsea, having a spiked inflorescence, and Agave, having a branched inflorescence. The name Agave means "noble" in Greek.

Agaves are indigenous to North America and are widely distributed, ranging from Utah in the north to Central America and the West Indies in the south, with the bulk of the population centering in Mexico. They occur from sea level to the tops of the higher mountains, at elevations of 7,000 to 8,000 feet. In the desert areas they may receive only about five inches of rain annually, while the mountainous varieties may get as much as thirty inches of precipitation per year. In Sonora they grow mainly on the rocky slopes of hills and mountains; they prefer a limestone soil, but seem to grow equally well in almost any well-drained soil. They thrive in full sun.

They range in size from the choice, diminutive A. pumila and A. filifera var. compacta to the massive A. atrovirens and A. americana, with the larger species producing an inflorescence which may reach 35 feet in height. Agave plants require a number of years to store up sufficient plant food for the production of the spectacular flower stalk which grows with amazing rapidity once it emerges from the center of the plant. With the exception of A. parviflora, the blooming of an Agave plant signals its approaching demise. Under favorable conditions the average life cycle of an Agave is 10 to 15 years, contrary to the popular myth that one may live 100 years before flowering and dying (hence the common name "Century Plant"). In most cases this is no irretrievable loss since the parent plant usually puts out dozens of offsets or suckers before this occurs. However, some Agaves remain solitary (such as A. vilmoriniana and usually A. victoria-reginae), and in these instances propagation must be from seed or from the hundreds of bulbils in the inflorescence. The flowers are generally various shades of yellow, although they may also be green, and occasionally purple or red. Bats and hummingbirds are among the possible pollinators.

In hardiness Agaves range from the tender, tropical species of the West Indies and Central America to those withstanding the subzero temperatures of the high plateaus of Mexico and the more northern latitudes of the United States. Because of their tender, tropical nature few, if any, of the Agaves native to the West Indies are cultivated in California.

Agaves are among the most ferocious of all succulent plants, most of them being armed with needle-sharp teeth along the leaf margins and a vicious terminal spine at the tip. However, there are a few soft leaved and relatively harmless varieties such as the familiar A. attenuata and the somewhat less familiar A. vilmoriniana, and a group having highly-decorative curly threads or hairs along the leaf margins as well as attractive white markings (A. schidigera, A. filifera, A. parviflora, A. toumeyana, etc.). In addition, there are several species such as A. falcata, A. striata, and A. stricta which have extremely narrow leaves and lack teeth along the margins but possess a highly-dangerous spine at the tip.

Although it is easy to confuse Agaves with the Aloe genus belonging to the Liliaceae family, the resemblance is actually only superficial. The tough, fibrous leaves of the Agaves are quite distinct from the soft, pulpy, highly-succulent leaves of the Aloes, and of course the inflorescences are totally different. This is yet another example of parallel development; the Agaves are to the Western Hemisphere what the Aloes are to the Old World.

Much has been written about the economic and practical utilizations of Agaves, which include the production of food, drink, soap, clothing, brushes, rope and other fibers, needles; thread, paper, glue, weapons, military instruments, medicines, red dyes, and animal forage. (For more detailed information on this facet of Agaves, please refer to Howard S. Gentry's The Agave Family in Sonora). Some of the larger Agaves are called mescal because of a potent **alcoholic beverage** of that name which is distilled from the fermented sap of the bud stalks. Tequila, the famous native drink of Mexico, is also distilled from fermented Agave juices, and the beer-like pulque has a similar derivation. In 1971 the Department of Health, Education and Welfare conducted a survey exploring cancer-inhibiting constituents in various plants, including Agaves.

Many animals get food, drink, and shelter from Agaves. They are generally beneficial to wildlife (although their vicious teeth and bitter toxins repel most animals) and in many places their presence may be crucial to the survival of some animal populations such as bighorn sheep, deer, pack rats, kangaroo rats, and ground squirrels.

Pests and diseases are few, but in the wild pocket gophers can be very damaging to Agaves; they tunnel up through the bases of the plants and eat out the central meristematic tissue. Borers may also damage the plants in much the same manner, eventually killing them, and I have recently discovered that Agaves are not immune to scale. However, they are remarkably free of the usual plant diseases, with the exception of a fungus disease which may attack them in very humid climates.

Related genera include Yucca, Nolina, Dasyilirion, Manfreda, and Hesperaloe.

#### References used:

- |                     |  |
|---------------------|--|
| Breitung, August J. | The Agaves                             |
| Chidamian, Claude   | The Book of Cacti and Other Succulents |
| Dodge, Nat N.       | Flowers of the Southwest Deserts       |
| Gentry, Howard S.   | The Agave Family in Sonora             |
| Gentry, Howard S.   | The Agaves of Baja California          |

## Cactus-of-the-Month

Gymnocalycium Pfeiffer

F. C. Thrombley

Gymnocalycium (jĭm'-nō-kā-lĭs'-i-ŭm)

Group: Echinocactus

In South America, Glocular cacti evolved which are distinctly different from those which evolved in North America. One group of these gave rise to the present-day Lobivias, Rebutias, Notocacti, Gymnocalyciums, as well as others. With the exception of Opuntia and Rhipsalis, Gymnocalycium is the most wide-spread cactus genus in South America. They range from Southern Patagonia through Argentina, Uruguay, Paraguay, Brazil and Southern Bolivia. The natural habitats of these plants also vary greatly. Some species are found among grasses and shrubs on low ground, others occur in rocky locations on mountain sides. A few species survive in the salt-caked soil of the arid waste lands of South Eastern Bolivia.

The first Gymnocalycium described was in 1828 by Link and Otto under the name Echinocactus denudatus. Karl Pfeiffer, a German physician, in 1845, proposed that all known South American cacti with similar features to Echinocactus denudatus should be grouped in a new genus Gymnocalycium. It was not until 1920, when Britton and Rose accepted Pfeiffers proposal and published the new genus in their great work, that it was given any credibility. Britton and Rose also established Gymnocalycium denudatus as the type species.

The species vary greatly in size, some being minute, others quite large - up to 20" diameter for Gymnocalycium pflanzii. Flower size is equally variable, ranging from 3/4" (G. bruchi) to 3" (G. multiflorum). The flowers are simple in structure, from bell shaped to funnel form, and have smooth scaly tubes. The color can be white, yellow, pink, red or purple-red. They are long lasting, from five to twelve days. Very hot bright weather shortens the life of individual flowers and pollination leads to early wilting. The fruits are colorful and scaly, most are elongated, and they ripen fairly quickly, splitting to reveal the seeds.

All of the species are spherical cacti, with prominent ribs that are mostly tuberculate. As a result of the ribs being "formed" or "made-up" of blunt tubercles, and they being very distinct, this genus is referred to as the "chin" cactus. A horizontal cleft is plainly seen below the tubercles in most species, which makes them appear as chins. The spines are generally small and non-descript, although in a few species they can grow to 3 inches long. A description for over a hundred named species could then read as follows: a genus of spherical cacti, having tuberculate ribs ranging in size from 2 inches to 20 inches in diameter.

As can be seen by that simplified description, the identification of these plants can be, and indeed is, very difficult. To further complicate identification, they hybridize very easily in cultivation and many nurseries have sold species with invented names, or identified as Gymnocalycium species. Moreover, nature does not grow plants to rigid specifications. In locations where species will overlap in habitat, there are many variables. Curt Backeberg, in describing

Gymnocalycium damsii, stated that this specie was very variable, and then listed four varieties describing the wide variations. He further stated that the varieties represented the clear variants, but there are many intermediate forms. Backeberg described 97 species in his publication, Cactus Lexicon, and 58 varieties. For the layman, like myself, who enjoys growing these plants, it is best to purchase them from a well known reputable grower, and do not mix or lose the labels on your plants.

Cultivation of these plants is trouble free with little or no problems. In spite of the wide geographical range, they all do well in the soil used for your cacti. Different growers have different preferences, but all the various soil mixtures seem to produce equally good results. All Gymnocalyciums need good lighting and fresh air circulating. All species from Paraguay, such as G. mihanovichii, and G. damsii, require partial shade and a warm location. Further, they are not frost resistant, these then require care in the frost areas. Gymnocalyciums have relatively thick, tough skins, which are not easily damaged by the sun or by insect pests. A hazard can arise with dead flowers or fruiting remnants left on the plants. Under damp conditions, these can be nurseries for various moulds which can bring on rotting of the plant body.

Why do I grow them? Because of the long lasting flowers that start in early spring in some species, and does not stop until December, in other species. Because of the clean plump bodies in most species, and because they are easily grown.

#### References used:

- |                 |                      |  |
|-----------------|----------------------|--|
| Backeberg, Curt | 1977, Cactus Lexicon | Blandford Press, England                           |
| Putman, E. W.   | 1978 Gymnocalyciums  | National Cactus & Succulent Society Handbook No. 5 |

#### NEWS OF INTEREST

##### VOLUNTEER WANTED

The Botany Department of the San Diego Natural History Museum is looking for a volunteer to help with the watering and maintenance of its succulent plant collection. The Museum has a large collection of echeverias, pachyphytums, sedums, dudleyas, and graptopetalums, as well as a number of Mexican cacti. If you have some spare time and would be interested in volunteering, please contact Dr. Reid Moran at 232-3821 (Mon.-Fri., 9 a.m.-4 p.m.) or Jim Dice at 278-0326 (Weekends Only)

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The following members have signed up for refreshments for January:  
Gail Clark, Carl Zanker, Frances Johnson, Elizabeth Glover, Floretta Warner,  
Helen Hegyi, Henrietta Jensen, Verna Pasek, Doris Rake, Beverly Kent, Alana Rillo  
The refreshments and serving for the December meeting were outstanding!!

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Our new members for last month were:

Joe and Susan Clements

Jenny Colgate

Dr. Glenn Harrison

We welcome you---

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#### IMPORTANT!!!

##### 1982 DUES

PLEASE SEND/HAND ME A PRE-PRINTED CHECK FOR \$7.00 AT THE JANUARY MEETING.

JOAN JOHNSON

DEADLINE FOR DUES----JANUARY 31, 1982

# SAN DIEGO CACTUS & SUCCULENT SOCIETY

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The San Diego Cactus & Succulent Society is open to all persons interested in growing cacti, other succulents and exotic plants. Meeting are held the second Saturday of each month at 1:30 pm in Room 101, Casa del Prado, Balboa Park. Board of Directors meetings are held after the general meetings. Annual dues are \$7.00 per family. Single copies of Espinas y Flores are 60 Cents.

Editor

Mary Aubuchon

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