

Espinas y Flores

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

Volume XVII, Number 10

October 9, 1982



OCTOBER MEETING

Saturday, October 9, 1982

1:30 pm

MOMBASA PAVILLION

San Diego Wild Animal Park

PROGRAM

Jim Gibbons, Horticulturalist of the Wild Animal Park, will give a brief history of the landscaping of the park. His talk will cover the various geographic areas depicting the native plants of those countries that the park has developed to date.

After the meeting there will be refreshment and then time to visit the park itself. The park theme for this weekend is the BEAUTY AND THE BEAST. There will be a plant sale, a plant show and fun for all.

The refreshments are the usual snacks and drinks. If you want more of a lunch, please bring one or buy there. Also don't forget the tan flyer included in this issue. It will gain you and your families entrance to the park.



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Anyone who would like to have name tags may order them at the November meeting from Perlso Lewis. Price is \$2.50, paid in advance. They will be given to you in December.

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SHOW SCHEDULE FOR OCTOBER

- Oct. 2 & 3 Balboa Park African Violet "mini" Show Sat: 10am - 4:30 Sun: 10am - 4:30 pm
- Oct. 16 & 17 Arrangers Guild of San Diego
- Oct. 24 Convair Garden Club Fall Show Sun: 1:pm - 4:30 pm
Flowers & Vegetables
- Oct. 30 & 31 Sogetsu Chapter Show (Ikebana) Sat: & Sun: 11:am - 4:30 pm
- Nov. 6 & 7 San Diego Tropical Fish Aquarium Sat: 12pm - 7pm Sun: 9am - 4:30pm

Don't miss the wonderful garden classes held each Saturday morning in the Casa Del Prado Botanical Library, Room 104, from 10:30 to noon.

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The following members were the winners at the brag table in September.

|           |                    |                          |
|-----------|--------------------|--------------------------|
| 1st Place | Ruby Winters       | DIDIERIA MADAGASCARINSIS |
| 2nd Place | Dorothy Dunn       | CRASSULA PYRANIDALIS     |
| 3rd Place | Marianne Thrombley | CRASSULA PICTURATA       |

The program for October WILL NOT include the plant of the month - Members SHOULD NOT bring plants for plant-of-the-month or brag table.

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FROM THE BOARD

Suzann Taylor had broken her hip so flowers were sent in the name of the club.

Plans were discussed about the Christmas party in December- Date December 11

Approval to purchase of "Bluhende Kakteen" Volumes for the library (12 issues). was not acted upon. Most thought it was too expensive.

Board approved the purchase of L. Benson's "The Cacti of the united States and Canada"

We will be sending the Espinas y Flores to the Wild Animal Park on a continuing basis for inclusion in their library.

Rick Latimer noted that the Avco Community Developers, Inc. sent a letter to him asking if the club wished to salvage a quantity of Ferocactus viridescens . The plants were going to be destroyed as a result of a grading project. Avco had received approval from the proper channels, including the City of San Diego Environmental Quality Department. The letter was given to Frank Thrombley for action to be taken.

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DEADLINE FOR THE NOVEMBER ISSUE: MONDAY, NOVEMBER 1, 1982 - Remember if there are contributions or questions about the paper, let me know.

Mary

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CAUDICIFORM SUCCULENTS

Dorothy Dunn

Caudiciform plants are among the most outlandish of all Nature's inventions. Like avocados and anchovies, they are generally an acquired taste. Their beauty is unconventional, with much the same appeal as a Picasso or Dali painting, and they are grown primarily by collectors for their grotesque but strangely attractive forms.

A caudex (plural caudices) is probably most simply defined as a massive, swollen food and water storage organ, and this is its primary purpose. This storage organ may be all root, all stem, or root below ground and stem above. In "domesticated" plants it is generally located above ground (usually purposely staged this way by the proud owner), although plants in habitat are often found with their caudices at least partially, and sometimes completely, below soil level. Caudiciforms are not to be confused with stem succulents, such as most cacti and Euphorbias, in which the stems are green and serve as the main photosynthetic (food-making) and water storage organs of the plants. Caudiciform plants store food in these structures but they rarely manufacture it there.

All caudex plants produce leaves, but are deciduous during some portion of the year. A feature common to these plants is the need for alternate growing and resting seasons. This cycle is annual in cultivation, although in habitat the dormant periods may last longer and are determined to a large extent by the erratic intervals between rains.

Caudiciform plants are not necessarily related, even though they may look very much alike, particularly when leafless. According to Gordon Rowley "The caudiciform habit has evolved in varying degrees in many families of flowering plants, and is not typical of any one". By evolutionary coincidence these plants have adopted the same general "body plan" in order to cope with the unrelenting pressures of their extreme and demanding environments. Rowley goes on to say "This distinctive life form is characterized by a division of labor between the short-lived aerial photosynthesizing organs - thin leaves, shoots, or flowering stems (inflorescences) - and the perennial, non-photosynthesizing organ at or below ground level". (Rowley's definition of PHOTOSYNTHESIS: "the manufacture of plant food (carbohydrate) from carbon dioxide and water in the presence of light and the green pigment chlorophyll. Oxygen is given off".)

Because caudiciforms can occur in many diverse and unrelated plant families, they also have a very wide geographical distribution, from Arabia through Kenya, to Somalia, Burma, Peninsular India, Africa, Madagascar, Mexico, Baja California, and Texas. In **hardiness** they run the complete range from tropical and tender (Adenium, Bombax ellipticum, etc.) to the most cold-resistant and northerly of all succulents, Sedum rosea, which is practically an alpine. "Caudiciformity" seems to be a peculiarity limited almost entirely to members of succulent plant families other than cacti; however, it could possibly be extended to include genera of cacti such as Lophophora, Pterocactus, Peniocereus, and Wilcoxia, which have large, tuberous tap-roots.

When they are growing and producing leaves and flowers caudex plants require regular and even generous watering. They may shrink somewhat during their rest period because during this time they are living off stored food and water, and they may start to rot if over-watered while dormant. They need a very porous, but fairly rich, soil mix that drains easily, and most require some warmth during the winter months.

Much controversy exists among authorities as to just exactly what qualifies a plant as a caudiciform. It is very difficult to know just where to draw the line since the transition from "stem" to "caudiciform" succulents is a very gradual one. Because the group is so large and varied, this article will cover only those plants most generally accepted as caudiciform.

One of the most overwhelmingly obvious of these is Adansonia digitata, the "Baobab", "Bottle Tree", or "Cream of Tartar" tree of Africa and Madagascar. This genus consists of 6 or 7 species belonging to the Bombacaceae family; A. digitata is the best-known. These are the largest succulent plants and the largest caudiciforms known. Some of the oldest plants in the wild are thought to be about 2,000 years old. It is not unusual for the trunk circumference of a mature specimen to exceed 75 feet. The trunk is composed of very soft spongy wood, and the tree produces very spectacular white flowers which are unpleasantly scented. The trees are distributed sporadically over a distance of approximately 5,000 miles from Senegal to Eritrea, Abyssinia, and south through Mozambique into the northern Transvaal in South Africa. They occur mainly in regions of extreme aridity, although those in southern Africa inhabit an area which receives between 10 and 20 inches of rain per year.

At the other end of the scale, Anacampseros alstonii may very possibly be the smallest of all caudiciform plants, a mature and relatively ancient specimen fitting very comfortably into a two-and-one-half inch pot. This is a moderately large genus of very small plants, belonging to the Portulacaceae family and, except for one species (A. australiana, from southern Australia) native to Africa.

In between these two extremes there are many sizes and shapes of caudex plants, including the monotypic Pachycormus discolor of central and southern Baja California. This is one of Baja's "Elephant Trees" - so called because of its gnarled, grotesque branches and swollen subterranean caudex. The descriptive Mexican name "Torote Blanco" means "big white bull". P. discolor belongs to the Anacardiaceae, or Cashew, family, which also includes the sumacs.

Although some 40 tree-like species of Bursera are known, only a few of these show any characteristics of stem succulence, and one of these is B. microphylla, Baja's other "Elephant Tree". Like its counterpart P. discolor, B. microphylla has soft, spongy wood and contains a milky, pungent sap. All parts of the plant are very aromatic. These trees have been known since about 1760 on the dry plains and hillsides of Sonora and Baja California, and in the 1930's a huge grove of about 1,000 trees was discovered in San Diego County. Although Burseras sometimes reach a height of 30 feet, 8 to 12 is more normal. The Indians had many uses for the sap, bark, and branches of this plant. The specific name "microphylla" means "little leaf".

Idria columnaris ("Cirio" or "Boojum Tree") is native to Baja California and to a very restricted region in Sonora, mainland Mexico. It is another monotypic genus, although many authorities now refer it to Fouquieria, to which it is closely related. This is without a doubt the most distinctive and bizarre plant in Baja (possibly on the face of the earth!). It is also the tallest - at least one specimen over 76 feet in height has been recorded. The classic description of a mature tree usually runs the gamut from "shaggy upside-down parsnip" to "inverted carrot" to "telegraph pole", but after observing thousands of Idrias in habitat, I could add quite a few more! Idrias come in all sizes and shapes imaginable (all weird), and very few are as tame as a telegraph pole!

The Fouquierias are small trees and shrubs native to arid regions of Mexico, Baja California, and the southwestern United States. The genus currently consists of 11 recognized species, most of them having very restricted distribution. While F. splendens ("ocotillo") is the most wide-ranging and well-known species, it cannot be classed as a caudiciform. Others in the genus, such as F. fasciculata and F. purpusii, exhibit a much greater degree of "caudiciformity".

Calibanus hookeri is another monotypic genus from Mexico, belonging to the Agavaceae family. The genus was named for Caliban, the ugly monster in Shakespeare's "The Tempest", and the native name is "sacamecate". Grass-like tufts of leaves are produced from an immense caudex (there are reports of plants as big as a Volkswagon in the wild); each of these tufts is monocarpic, dying after it flowers. The leaves contain a soap-like substance which the natives used for scouring dishes. Propagation is from seed - the seedlings grow rapidly, and in the ground produce a very satisfactory caudex with several tufts of leaves in a relatively short time.

The genus Beaucarnea consists of only a few species, all from Mexico, and also belonging to the Agavaceae. These are succulent trees resembling Nolinas, and many authorities now consider them to be synonymous with Nolinas. Although often called "Bottle Palms" or "Pony Tail Palms", these plants aren't palms at all; they are more closely related to the stiff, spiky Yuccas and Agaves.

Jatrophas are distantly related to Euphorbias and may come from Mexico, Baja California, Central America, Africa, Madagascar, or Texas. Although there are about 150 species known (mostly tropical shrubs), only about one-quarter of these qualify as caudiciforms. The most familiar of these are probably J. podagrica and J. cathartica (berlandieri).

Dioscoreas and Testudinarias are now generally accepted as being synonymous, and belong to the Yam family. Although there are over 600 species native to Africa and Mexico, only about four of these are of serious interest to the succulent collector. Even small plants of D. macrostachya, D. elephantipes, and D. sylvatica produce a distinctive spherical caudex which, as it enlarges and ages, develops corky polygonal warts. This thick corky brown bark is built up in many layers over a long period of time. In nature the caudex may eventually attain a diameter of over 40 inches, and the plants sometimes survive well over 100 years. The caudex reportedly manufactures a precursor of cortisone.

The Adeniums, belonging to the Apocynaceae (Oleander) family, are probably the most conventionally beautiful of the caudiciforms, with a bulbous but shapely base, dark green leaves, and some of the showiest flowers outside of the Cactaceae. The flowers range from intense red through pink to white and boast such exotic common names as "Desert Rose", "Mock Azalea", or "Impala Lily". There is either one widespread and variable species or a few separate species, depending on which authority you choose to believe, and the genus spans Africa from the southwest through Kenya to Arabia. Adeniums are very frost-tender, and their milky sap is very poisonous.

Ibervilleas belong to the Cucurbitaceae (Cucumber) family, and there are only three species, coming from the southwestern United States, Mexico, and Baja California. This is a grotesque lump of a plant with a ridiculously flimsy vine which grows rampantly over everything around it, and tiny yellow flowers. You will often find them classified as Maximowiczias.

Bombax ellipticum is a monotypic genus, belonging to the Bombacaceae, and native to Mexico. The flowers, which are large and spectacular, are often likened to a "shaving brush". The plants grow rapidly from seed and soon form a miniature swollen caudex topped with tropical-looking green leaves.

Other interesting plants usually considered as caudiciforms, and much too numerous to discuss here include the Pachypodiums, Cyphostemmas, Fockeas, Kedrotis, Brachystelmas, Trichodiademas, many Euphorbias, some Pelargoniums, and some Cotyledons, Senecios, Othonnas, and Sedums.

References cited:

<u>Cactus and Succulent Journal of America</u> , various issues	
Coyle, Jeanette, and Roberts, Norman C.	A Field Guide to the Common and Interesting Plants of Baja California
Jacobsen, H.	Lexicon of Succulent Plants
Johnson, Peter H.	Caudex Plants (<u>House Plants and Porch Gardens</u> , Nov., 1979)
Rowley, Gordon:	The Illustrated Encyclopedia of Succulents
Rowley, Gordon:	Name That Succulent
Wiggins, Ira, and Shreve, Forrest:	Vegetation and Flora of the Sonoran Desert



Thanks to Wilna Johnson for donating plants to the Sale Table



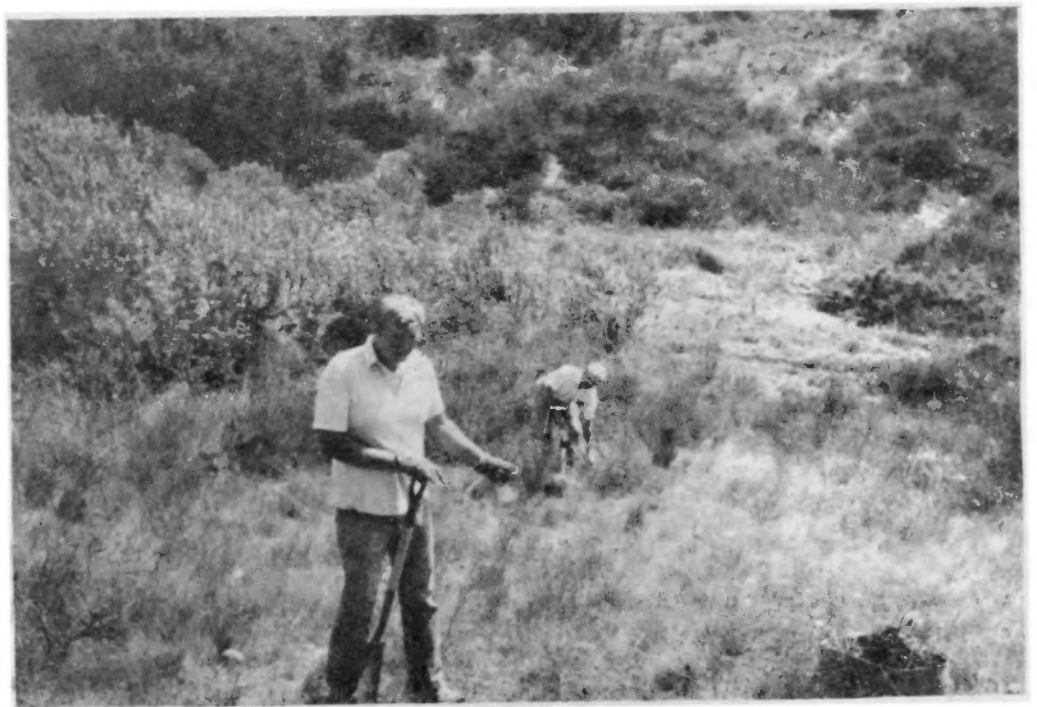
Remember there are always extra copies of the Espinas y Flores at the monthly meetings.





At the October meeting
Madelyn Lee talking on
the Genus Euphorbia.

Frank Thrombley and
Bud Aubuchon collecting
the endangered species
Ferocactus Viridescens.



Frank Thrombley taking
pictures of the cacti
in their natural habitat.

WGASA BUSH LINE
 Monorail
 Boarding area
 Tours depart
 9:30 a.m. -
 10 p.m.



Administration
 Lost & Found
 Information
 First aid



VILLAGE AMPHITHEATER
CATS AND DOGS
 Show times
 11 a.m., 2, 4,
 6 & 8 p.m.

AVIARY



CARIBBEAN SHOW
 Mon-Thur. 8:45 p.m.

EXIT

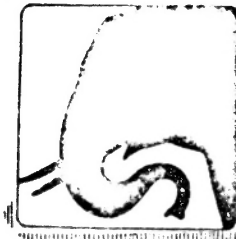
ENTRANCE

PARKING

ELEPHANTS

ELEPHANT SHOW

Show times:
 12, 3 & 7 p.m.



CHEETAHS

PICNIC GROVE

Kilima Point

Pumzika
 Lookout

HIKING TRAIL

C

E

H

B

D

F

LAGOON

ANIMAL
 RIDES

A

GORILLA GROTTTO

MOMBASA
 PAVILLIAN

BIRD SHOW

Show times:
 1, 3, 5,
 7 & 9 p.m.



A Foster '82

San Diego Wild Animal Park

SAN DIEGO WILD ANIMAL PARK


INVITES

SAN DIEGO CACTUS & SUCCULENT SOCIETY


TO USE THE MOMBASA PAVILLIAN

ON OCTOBER 9, 1982 FOR THEIR

MONTHLY MEETING



JIM GIBBONS
HORTICULTURALIST
WILL BE YOUR HOST



BEAUTY AND THE BEAST
WEEK END, ALSO
SEMI ANNUAL PLANT SALE
SEE THE EXHIBITS
ALONG THE COVERED WALK

BRING THIS
INVITATION
FOR
FREE
ENTRANCE
TO THE
PARK



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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.

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