

Espinas y Flores

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

Volume XXV, Number 10

October 13, 1990

OCTOBER MEETING

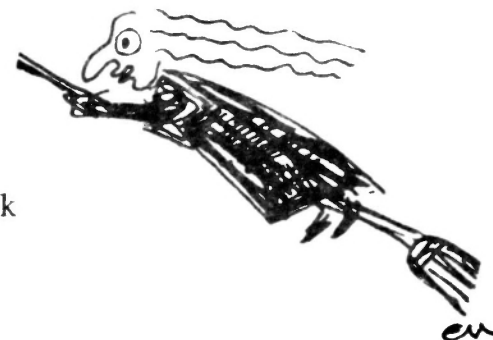
Saturday October 13, 1990

1:30

Casa del Prado, Room 101, Balboa Park

PROGRAM

Plants of Madagascar
with Gary James



Gary James is head of the math department at Orange Coast College in Costa Mesa. Mr. James is a world traveler and has worked in Kenya. This will be a slide presentation of the plants and the country. This program is sure to be interesting and educational. Mr. James has given the program for us before.

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Deadline for the November Issue - October 27, 1990 - Thanks, Mary
Remember the December meeting is a week earlier than usual -----

NEWS NEWS NEWS -----

Just a reminder....



October meeting in Casa del Prado.

November meeting at Rainbow Gardens in Vista (there will be a map in next month's Espinas y Flores).

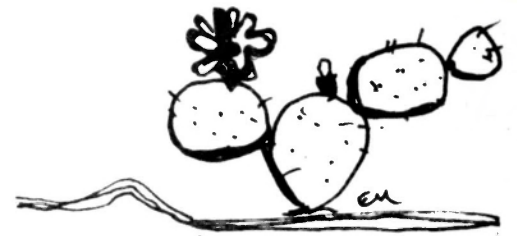
December meeting in Casa del Prado on December 1st, the first Saturday of the month.

BRAGGING TABLE FOR SEPTEMBER

First place was won by Elibet Marshall for her miniature succulent dish garden

Second place was won by Beverly Kirkegaard for her Pachycormus discolor

Third place was won by Phyllis Flechsig for her Piararthus cf. punctatus



WELCOME TO NEW MEMBERS -----

Connie Chappell - El Cajon	Julianne Riel - San Diego
Jan Tobiska - San Diego	Theresa Freese - San Diego
Johnny Arenas - Chula Vista	David Rivera - Imperial Beach

OCTOBER REFRESHMENT COMMITTEE -----

Sarah Jervey	Paul & Marylyn Henderson
Virginia Innis	Curt Hammel
Gloria D. Alexanderson	Reed C Pierce
Rose Robiloltz	Ethel Standish

This list is rather short so if you feel like bringing something, it would be appreciated. Thanks

I received notice of the death of Ethel M. Scott on July 27, 1990

NATURE'S FREAKS

CRISTATION, MONSTROSITY, AND VARIEGATION IN SUCCULENT PLANTS

Of all the bizarre manifestations exhibited by an already somewhat outlandish group of plants, cristate and monstrose growth and variegated pigmentation in cacti and succulents are without a doubt the most outrageous and provocative. Although all collectors of these plants are fascinated by them, reactions to them are varied, ranging from the incredulous to enthralled to shocked revulsion. There are those who think they are among Nature's most beautiful and intriguing creations, and those who think they are ugly, grotesque, repulsive malformations. It's almost impossible to be indifferent to them.

To add to the mystery and controversy surrounding them, although scientists, botanists and collectors have been studying the phenomenon of cristate and monstrose growth in plants for many decades no one has yet come up with any conclusive answers to: WHAT CAUSES THESE PLANTS TO DO THIS? Everything from lightning to hailstorms to woodpeckers to radioactive sources in the ground has been suggested. But the incontrovertible fact remains that, to this day, no one has ever been able to deliberately force a plant to crest or produce monstrose growth, despite extensive experimentation in the past. "Unspeakable atrocities" were committed in the name of science; plants were attacked with everything from knives to X-rays to acids in futile efforts to force plants to produce crested or monstrose growth.

Succulent plants may develop several kinds of abnormal growth, including: (a) fasciation or cristation, (b) monstrose growth, (c) proliferation, (d) carunculation, (e) variegation or chimera, and (f) loss of normal pubescence (hair). Only cristation, monstrose growth, and variegation are presented here.

Crests can be found in almost all plant families, and are quite common in cacti and other succulents. The terms cristation and fasciation frequently are used somewhat interchangeably in the literature. One authority says that any malformation on top of a plant is a fasciation, and if it follows a symmetrical pattern it is crested. Although cristatin may appear in different forms, it always consists of multiple buds instead of a single bud. Almost any part of a plant may be affected - stem, flowers, fruit, or leaf, and sometimes even aerial roots. George Lindsay explains it as follows: "The growing apex of a plant is composed of a group of dividing cells called the meristem. The meristematic cells divide and supply the new cells which differentiate into the specialized tissue systems of the stem. In normal plants the apical meristem is a growing point, and the new tissues are built up around and under it in a symmetrical manner. In a crested plant the apical meristem is a "line" rather than a "point", and new tissues are not produced evenly on all sides, resulting in fan-shaped stems."

Much confusion exists as to the actual differences between crested and monstrose growth. According to Claude Chidamian: "The cristate plant differs from the normal because its growing tip, in-

stead of continuing its usual symmetrical form, develops laterally, producing a flattened growth like a cockscomb which may in time become twisted and convoluted. A monstrose plant, on the other hand, develops multiple centers at its growing tip, from which irregular growth springs." Mostrose growth is usually somewhat dwarfed, with both leaves and stems being foreshortened and possibly gnarled and twisted. A.D. Houghton presented this concise definition: "A normal plant has two axes of symmetry; a cristate has one plane of symmetry; a monstrose plant has no planes of symmetry."

Variegation is the bicolor (or sometimes tricolor) effect resulting from a localized failure of pigment to develop. This is often a temporary condition caused by nutritional deficiencies, and many variegated plants must be grown from cuttings rather than leaves if the variegation is to be retained. There are several kinds of chimeras (plants composed of a mixture of two or more genetically different tissues), and in some kinds the abnormal appearance is limited to the surface cells and buds. If an adventitious bud is formed from the inner cambium layer of cells which are not changed, then the new growth reverts to the normal form or to the normal green where color is involved. Some variegated plants contain so little chlorophyll that they cannot survive on their own roots and can only exist on a graft.

Although many experts have theorized as to the possible causes of these abnormal types of growth, heredity is the causative factor most favored by writers and investigators. Several authorities are of the opinion that many cacti have an inherent tendency to crest and that various external stimuli can trigger this tendency into expression. Some succulents with crested growth produce a good percentage of crested seedlings. Others believe that environment is a major factor. Houghton thought that external conditions such as soil type and temperature have a profound influence on the growth of cristates, and that under poor conditions they show a tendency to revert to the normal type of growth. Harry Butterfield, on the other hand, said that reversion occurs when growing conditions are optimum. Others believe that diseases and viruses play some part in the occurrence of abnormal growth, and E.C. Hummel believed that the larvae of certain insects might excrete chemicals inside the plants, causing them to crest.

Those who speculated that injury or damage to a plant might be an important factor in cristate or monstrose growth subjected plants to some unbelievably cruel and inhumane treatment in their efforts to prove their point. Wolthuy, in 1938, subjected young plants of the genus Echinopsis to the following "stimuli" in an attempt to induce cresting: Cutting across the center of the growing tip; cutting away the top; sticking rusty nails into the plant; stabbing the plant all over with a knife; striking heavy blows with a steel brush; inflicting similar blows on decapitated plants; pouring salt, soda, and other irritating materials into wounds; injecting lactic acid,

oxalic acid, formic acid, various other chemicals and pure water into the plant; and planting in various types of soils with different degrees of moisture. Houghton tried: cutting through the growing center; crushing the plant; slow crushing by increasing the weight; needling; puncture by electro-cautery; injury by electric sparks and chemicals. Others have experimented with drugs and the application of X-rays. All kinds of peculiarly malformed plants resulted, but not a single crest.

It would appear that so far the plants have triumphed over man and his science, and through all the theorizing, experimentation, and torture have refused to divulge their secret. No one knows why plants crest, and no one has ever been able, through any artificial means, to make a plant crest. Their fortitude and resistance deserve our respect.

- References cited: Cactus and Succulent Journal of America,
various issues
Chidamian, Claude: The Book of Cacti and Other Succulents
Rowley, Gordon: The Illustrated Encyclopedia of Succulents

By Dorothy Dunn



CHRISTMAS PLANT EXCHANGE

Every year at our December meeting we have a Christmas Plant Exchange. Any member may participate; all you do is bring a cactus or other succulent plant. It should be in good condition and nicely potted. Include a label that identifies the plant on one side, with your name on the other side. The best plant is selected to be auctioned off at the end of the meeting. The person who brought that plant gets the first choice of all the remaining plants. Whenever a plant is selected, the person who brought it gets the next choice, so the better the plant you bring the earlier you will get your chance. Sorry, only one plant per person. The Christmas Plant Exchange is in addition to the distribution of gift plants.

REFLECTIONS

-by Joan E. Fleer-

95° again? No way, I am not going today, I decided. But after thinking of all the planning that goes into each meeting -program arranging, plants brought in for discussions and, yes, the refreshments- I changed my mind. Still I dreaded the frustration finding a parking space. And so I went to the park early and at 12 noon I found a space right away and then went on a walk.

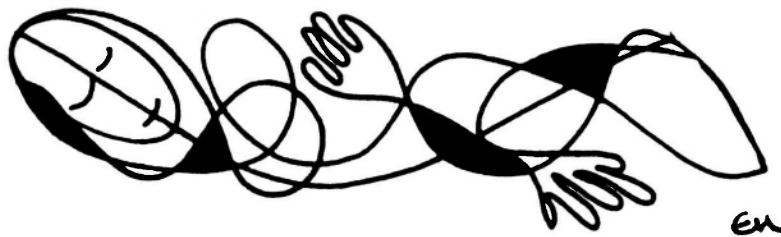
Unfortunately I don't do that often anymore. It's really too bad, there is so much to enjoy every time. Today the African Tulip-Tree in front of the Natural History Museum was in full bloom. What a sight! Near the Organ Pavillion the doors to the new Japanese Friendship Garden were open. Though not quite finished, the garden is already a wonderful addition to the rest of the park. There is much more to be done and it ought to be beautiful when the trees and azaleas are blooming in Spring.

I sat for a while on the lawn in front of the cottages at the House of Pacific Relations and enjoyed the quiet surrounding them. Tomorrow there will be hundreds of people watching the lawn program as always on Sundays.

Finally I walked back via the Lily Pond, full of colorful waterlilies at this time, and the Lathhouse to our meeting.

Was I glad, I had come! Besides seeing my old friends and many familiar faces again, the program and slides by Dr. Roberto Kleisling about "Plants of Argentina" were excellent. How fortunate I feel when someone travels and shares his or her experiences with us. We have seen many different countries and their flora at our monthly meetings.

I hate to miss them!



SUCCULENT OF THE MONTH

DIOSCOREA

by Phyllis Flechsig

The yam family, the Dioscoreaceae, has six to ten genera, of which only one is in cultivation, but that one is the huge genus Dioscorea. It contains about 600 species, many of which are the edible yams, and is therefore very important economically. In addition to being a major source of food, some are also a source of medicines. Yams should not be confused with sweet potatoes, which are completely unrelated, though both have tubers that grow underground. Dioscorea includes not just food plants but some with above-ground bases, that is, caudiciforms. (Caudiciforms are plants with quite separate parts for photosynthesizing and for storage of food and water; a large, fat base that is not jointed or ribbed; and branches and leaves that are thin and not succulent.) The caudiciform Dioscoreas are beautiful plants deservedly popular with collectors.

Dioscorea (formerly known as Testudinaria) is in the single-seed-leaved group, the Monocotyledons. Most plants in this group, such as Aloes and Agaves, have parallel veins in the leaves, but Dioscorea leaves have palmate venation. The plants that we grow have annual vines, male or female flowers on separate plants, and large woody bases, sometimes irregularly lobed, sometimes with large angular tubercles. The tiny flowers are borne in racemes. The genus occurs around the world in warm regions.

The plants in collections of succulents are mostly African in origin, with one species, D. macrostachya, from Mexico. This plant seems to go dormant at irregular intervals, but the African species have more definite growing and resting periods. Some go dormant in summer, some in winter. None will stand very cold weather, and all seem to be easily damaged by systemic insecticides. The best of all species (in my opinion) is D. elephantipes, the "elephant's foot" or "turtleback plant." It is easily grown from seed, and, given regular feeding, watering, and re-potting, will make a nice specimen in just a few years. It goes dormant during summer. Another interesting species is D. hemi-crypta, whose name means "half hidden," an accurate description of the caudex, which is partly above ground and partly buried; the whole thing may grow to huge dimensions. In the wild, the base of a plant may be very irregular in shape owing to the rocks that it pushes against; and the dead annual vines persist, making the whole thing an ugly tangle but protecting the precious base--which may be up to 97% water--from predators (and incidentally, from people intent on digging it up, who are apt to walk right past a "rock" with a tangle of dead twigs on top).

Propagation of caudiciform Dioscoreas is from seed. Occasionally collected plants of D. macrostachya are offered for sale, but often they lack a root system and are difficult to re-establish.

Plants should be grown with the base in the shade, as it would be in the wild. Being outdoors (except in the coldest weather) seems to suit the plants well, as they tend to be a target for whiteflies when in a greenhouse. They should be fed and watered regularly while growing, and may be watered just occasionally while dormant so as to keep the roots healthy.

LITERATURE CONSULTED

- Jacobsen, H. 1974. *Lexicon of Succulent Plants*. Blandford: London.
- Rowley, G. D. 1987. *Caudiciform & Pachycaul Succulents*. Strawberry Press: Mill Valley, California.
- Staff of the L.H. Bailey Hortorium, Cornell University. 1976. *Hortus Third*. Macmillan, N.Y.



DIOSCOREA macrostachya
Dioscoreaceae



CHRISTMAS GIFT PLANTS

For many years the Society has given each member in attendance at the December meeting a high quality cactus or succulent plant at no charge. The only stipulations are that you must be a member, you must have paid to attend the December meeting, and you must attend the meeting. Because we serve a catered Christmas dinner at this meeting, you must send in your reservation form and payment in advance. We need to know how many will attend the meeting in order to finalize our arrangements with the caterer and to ensure we have enough plants for all who will be in attendance. Members who actively participate in the work needed to run the Society throughout the year are given first preference in the plant drawing. For additional information on how to earn a preferred ticket see How to Earn a Preferred Ticket.

SHOW SCHEDULE

Oct. 6 & 7	Balboa Park African Violet Soc. Fall Show	Sat:10am-4:00pm	Sun:10am-4:00pm
Oct. 20 & 21	San Diego Co. Orchid Soc. Fall "Mini" Show	Sat:12pm-5:00pm	Sun:10am-4:30pm
Oct. 27 & 28	Ichiyo School of Ikebana, San Diego Chap.	Sat:11am-4:30pm	Sun:11am-4:30pm
Nov. 3 & 4	San Diego Tropical Fish Soc. 33rd Show	Sat:12pm-6:00pm	Sun: 9am-4:30pm
Nov. 18	Suni-e Painting & Ikebana 15th Annual Show		Sun:11am-4:00pm
Nov. 30 & Dec.1	San Diego Floral Assoc. Christmas Show	Fri: 5pm-9:00pm	
	(Christmas on the Prado)	Sat:11am-9:00pm	

REMEMBER THE GATES CACTUS & SUCCULENT SOCIETY "PLANT AUCTION"
 November 9, 1990 -- See last months E y F for details

A REMINDER *****

Dues and payment for the Christmas party will be due soon. More in the next issue.
 This is a yearly dues and all must be paid by this first of the year.



SAN DIEGO CACTUS & SUCCULENT SOCIETY

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Madelyn Lee, Rudy Lime, Mark St. Clair

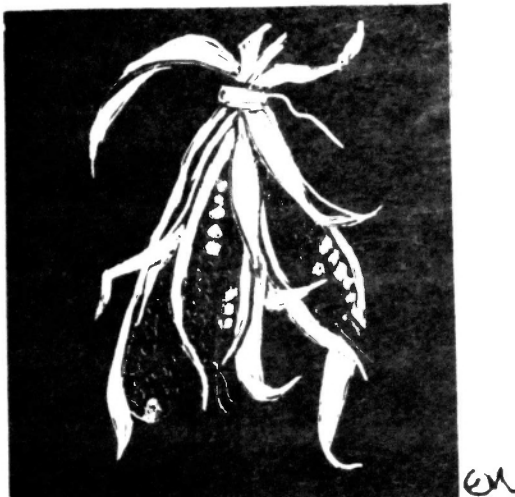
COMMITTEES

Bragging Table - Madelyn Lee
CSSA Affiliate Rep - Cathy & Sandy Frost
Education: Cacti - Phyllis Flechsig
Succulents - Dorothy Dunn
Historian - Rick Latimer
Membership - Dana Adams
Plant Exchange Table - Mmes. Lemrow & Larburg
Plants & Supplies Table - John Pasek
Show - Rick Latimer

Publications - Mary Aubuchon 427-3388
Reception - Perlso Lewis & Ethel Standish
Regalement - Diane & Bill Crowley
Representatives:
Balboa Park Desert Garden - John Pasek
Quail Botanical Garden - Phyllis Flechsig
S.D. Botanical Garden Foundation - Kathy Van Arum
S.D. Floral Association - Elizabeth Glover
Program - Joe Clements

The San Diego Cactus & Succulent Society is open to all persons interested in growing cacti or other succulent and exotic plants. Meetings are held the second Saturday of each month at 1:30 p.m. in Room 101, Casa del Prado, Balboa Park. Board of Directors meetings are held after the general meetings. Annual dues are \$8.00 per single member per year, and \$2.00 for each additional member of a household within the family. Single copies of Espinas y Flores are 60¢.

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