

Espinas y Flores

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

Volume XXI, Number 11

November 8, 1986

NOVEMBER MEETING

Saturday, November 8, 1986

Room 101, Casa del Prado, Balboa Park

1:30 p.m.

CAUDICIFORMS: Plants with Middle-aged Spread

Joe Clements, horticulturist in charge of the Desert Garden at Huntington Botanical Gardens in San Marino, CA, will present an illustrated talk, using both slides and live plants, on the natural history and cultivation of this popular and very interesting group of succulent plants.

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Deadline for the December issue - November 29 -

Thanks Mary

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NEWS NEWS NEWS- - - - -

Your editor has lost the bragging plant information from October. I will get the information and have it in the next issue. If you were the winner would you please get in touch with me.

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Also I do not have the list of people who have volunteered to bring refreshments. Try to remember who you are Or bring something to fill this gap. Really sorry,

Mary

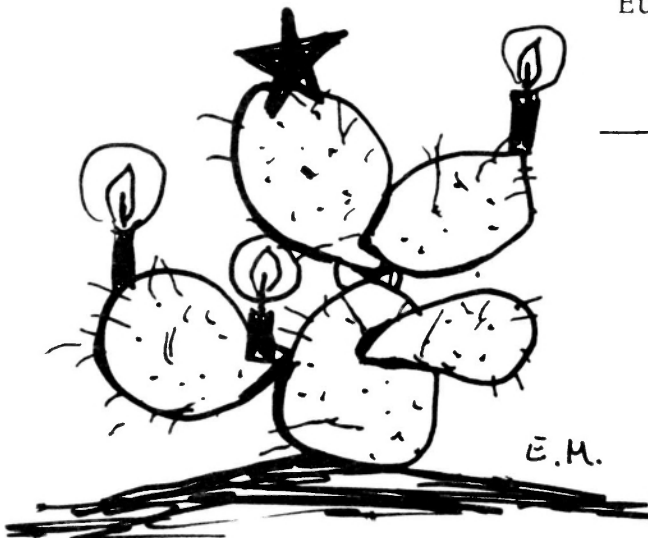
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WELCOME TO NEW MEMBERS - - - - -

Alberta Klinert - National City

Eugene & Donnis Grant - San Diego

Pat Hennicke - Escondido



DECEMBER PLANT EXCHANGE

For the past seven years our December plant exchange has proved to be a popular event at our Christmas meeting. For those of you who are new, or those who have forgotten here is how it works.

Each member who wishes to participate will bring in a good looking plant of some maturity in an attractive (or at least, clean) pot with the name of the plant on one side of the tag and the owner's name on the other. Please bring only one succulent plant for this event. Your plant will be put on the Christmas Plant Exchange Table. The person who starts it off (usually me) selects a plant he thinks is the best plant on the table, and the donor of that plant will be called up to select a plant for himself and call out the name of the donor found on the reverse of the tag. This continues until all plants are gone. You can see that the earlier the plant you brought is selected, the greater the chance you will have of picking a quality plant.

The plants brought in for this event should be cleanly potted and have some desirability. Good size specimens would be appropriate, and even a small plant of some maturity is welcome.

Even if you don't want to be involved in this exchange, come to our December meeting anyway, because there is a plant waiting for you (free) which is your annual gift for membership in our Club. These plants will be given only to members who have handed in their registration form for the Christmas party.

Shirley Berry

Message from the President

My thanks for responding to my pleas for help in cleaning the meeting room--good job! Also, there was more cooperation at the exchange table. Thanks again.

The Board of Directors went along with the will of the members to change each individual \$5.00 for the Christmas dinner. The balance of \$3.06 will be paid by the Society. You will find the particulars elsewhere in this issue. The Board also discussed the library, and what to do with the extra money. We will purchase additional copies of the most-used books, and probably will find it necessary to build an additional library cart.

The nominating committee is proceeding with it's work, and a report will be made at the November meeting.

Time for the 1987 dues is fast approaching. The Treasurer will begin accepting them shortly--look elsewhere in this issue. The February meeting will be the last date to pay dues if you want to receive Espinas y Flores continuously. Dues will remain the same next year--they are still high enough to pay for this newsletter (and that is how the level of the dues is determined--just enough to pay for it).

The Society is still growing--we may be over 300 by the time you get this issue of Espinas y Flores! We are a good Society, and now we are a really BIG Society.

Lee Phelps



SHOW SCHEDULE FOR THE REST OF THE YEAR

Oct. 4 & 5	Balboa Park African Violet Fall Show	Sat & Sun 10am - 4:00 pm
Oct. 18 & 19	San Diego Orchid Fall "mini" Show	Sat. 12-5pm Sun. 10am-4:30pm
Oct. 25 & 26	Ikenobo Chapter of San Diego Show	Sat. & Sun. 11am - 4:30 pm
Nov. 1 & 2	San Diego Tropical Fish Aquarium Show	Sat. 12-6pm Sun. 9am-4:30pm
Nov. 23	Sumi-e Painting & Ikebana Show	Sun. 11am - 4:00pm
Dec. 5,6,7	San Diego Floral Association Christmas Show (Christmas on the Prado)	Fri. 5: pm - 9:00pm Sat. 11am-9:00pm Sun. 11am-4 pm

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 phenomena 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).

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 cristation 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, flower, 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." Monstrose 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."

Proliferation occurs when a plant continues to split up and form offsets in an abnormal way. This is due to multiple bud formation, but not in a fasciated form. In extreme cases the plant may never flower.

Carunculation is associated mainly with Echeverias, and appears as raised "warty" excrescences on the upper leaf surfaces. It occurs naturally in some forms of E. gibbiflora, and is deliberately exaggerated and emphasized in such man-made hybrids as E. 'Paul Bunyan', E. 'Cameo', and E. 'Edna Spencer'. H.M. Butterfield, who, along with his protégé Dick Wright, did extensive work along this line, had this to say: "Such caruncles may appear on the upper leaf surface near the base during summer growth of several kinds of Echeverias but rarely persist long. Theories have been advanced to explain why such caruncles appear during the active growth of the leaves and may partially or entirely disappear from leaves formed during the winter months. One theory is that the upper epidermal layer of cells is thin, and with the pressure of rapid growth the cells are forced upward in the carunculate area much like popcorn pops. As the inner pressure is lessened when growth declines, the caruncles may not grow much or may not form at all."

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. 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 plant, causing it 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
Rowley, Gordon: The Illustrated Encyclopedia
of Succulents

By Dorothy Dunn
September, 1982

NOTES ON RARE EUPHORBIAS

Euphorbia handiensis Burchard

by Madelyn R. Lee

Eight hundred miles southwest of the Straits of Gibraltar, west of Morocco, the Canary Islands hold their place in the Atlantic Ocean.

You think of these islands as lush and tropical. Pine and laurel forest, daisies, senecios, palms, leafy euphorbias, dragon trees, and aeoniums, aeoniums, aeoniums.

This is true of many of the islands except the two nearest Africa, Fuerteventura and Lanzarote. These two islands are too low to capture moisture from the North Trade Winds and the dry, hot winds from the Sahara Desert dry up what little water does fall. Ten inches of rain might fall in a "wet" year. In a dry year, none.

The island of Fuerteventura was probably part of the African Continent long ago. It now consists of sand dunes and hilly plains cut by volcanic ridges. The southern peninsula, Jandia, is the highest point on the island and the higher ridges are rich in plant life. The steep ridges drop sharply to sandy beaches and along these desolate slopes Euphorbia handiensis is found.

The Canary Islands have been known since before the 1400's, but the first formal botanical work was not attempted until 1750. Many studies of the flora of the islands were made between 1800 and 1900; however, it was not until 1912 a German doctor, O. Burchard described this Euphorbia. The plant was no doubt hard to find in 1912. Today it is even harder to find, very rare, and endangered.

E. handiensis is a cactus-like, dark green shrub, 35 to 45 inches tall and densely branched, mostly from the base. The 2½ to 3½ inch thick branches have eight to fourteen angles with closely spaced white spine shields topped with about one inch long paired, straight spines. The flower is reddish and the seed capsule is brown or red.

Since the island of Fuerteventura at one time might have been part of the African Continent, it is possible E. handiensis and Euphorbia echinus either shared a common ancestor, or one or both plants have followed Darwin's theories of evolution. E. echinus is native to Morocco, the closest African country to the Canary Islands and the two plants are similar in growth patterns, flowers, and seed capsules.

E. handiensis does not seem difficult to grow. It does grow in a slightly different time pattern than most of the African euphorbias do. It seems to follow the Aeonium timing of dormant from May thru August, and growth from fall to early spring. I do not know yet if it will adapt to our growing seasons with time.

References: Bramwell; Wild Flowers of the Canary Islands.

Jacobsen; Lexicon of Succulent Plants.

** DON'T FORGET **

ONLY REGISTERED MEMBERS OF OUR CLUB ARE
INVITED TO THE CHRISTMAS PARTY

** NO GUESTS **

\$5.00 Registration each member for the
Christmas party 13 December 1986.

NAME: _____

NAME: _____

** NOTE **

Registration MUST be in by 1 Dec. 1986

** COMPLETE AND MAIL TO **

Martin L. Mooney, 97 K St. Chula Vista, Ca. 92011



SAN DIEGO CACTUS & SUCCULENT SOCIETY
MEMBERSHIP APPLICATION

\$8.00 - Single member per calendar year

\$2.00 - Each additional member of same household

** PLEASE PRINT **

NAME: _____

ADDRESS: _____ PHONE: _____

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PLEASE CHECK IF;

You are a new member

You subscribe to the Cactus & Succulent Journal

** COMPLETE AND MAIL TO **

Martin L. Mooney; Treasurer, 97 K St. Chula Vista, Ca. 92011

Additional members:

Name: _____ Name: _____

AMOUNT ENCLOSED \$ _____

There are no back issues of the Espinas y Flores available for late payment.

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The San Diego Cactus & Succulent Society is open to all persons interested in growing cacti, other succulents and exotic plants. Meetings 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 \$8.00 per single member per year, \$2.00 for each additional member of a household within a family. Single copies of Espinas y Flores are 60 cents.

Editor

Mary Aubuchon
1058 5th Avenue
Chula Vista, CA 92011

