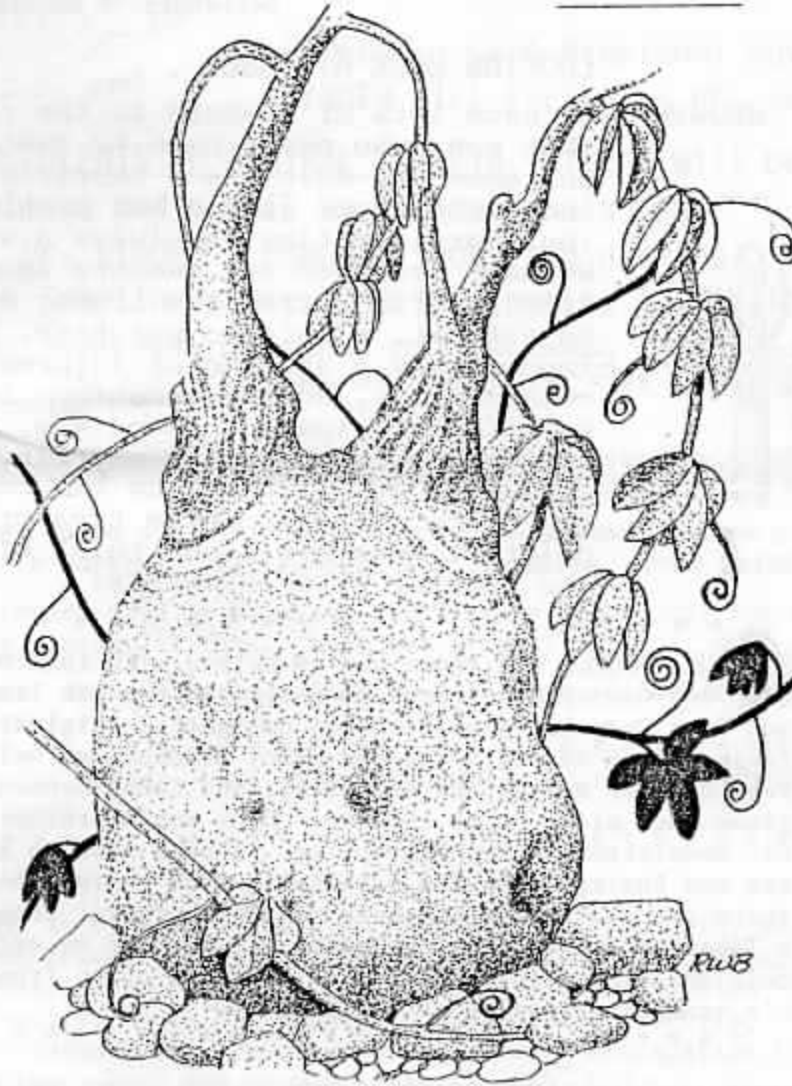


Newsletter

JANUARY 1987

CSSA PRESIDENT SEYMOUR LINDEN WILL SPEAK TO
US ON THE SUCCULENTS OF CENTRAL SOMALIA.

SPECIAL THIS SUNDAY:



South Coast Cactus and Succulent Society



1987 OFFICERS

- President -- Ed Hancock
- First VP -- Carol Kennedy
- Second VP -- Jim Hanna
- Treasurer -- Roz Hancock
- Secretary -- Dorothy MacArthur

EDITORIAL PAGE

LOOKING BACK AT 1986. . .

1986: GROWTH - We have lots of members in the roster, (but many who never come to meetings); Our show and sale was a terrific success, and our outdoor garden has progressed, (but participation is always a worry); We have provided our members again with fine programs, free bus trips, a chance to exhibit, plants to purchase, and most importantly a sharing of information, common goals, and friendship. But unless we all participate in some way, and also welcome new members, we may find we are shrinking as a society as has our meeting space. And from the treasurer's point of view, we might think of 1986 as the YEAR OF CLUB INSURANCE!

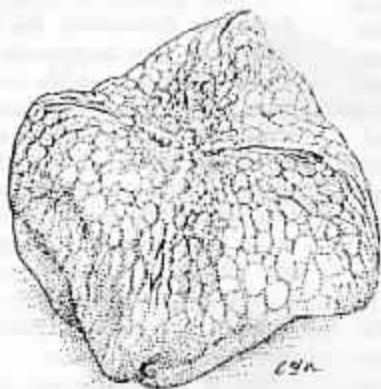


THE EDITOR THANKS all those who've helped with this Newsletter in 1986. Bob Causey has loaned me material from his library to use, and John Cody has submitted his delightful original poems. New drawings from Zanera Myers and Nancy Birnbaum as well as older ones from Eleanor Barker, Karen Holley, and Carol Kennedy's son have given much pleasure to the eye. Dick Kohlschreiber loaned me his Epi. Newsletters for photocopying. Thanks also to all our '86 officers and chairpersons who faithfully kept me informed all year. Then there are all the newsletters past and present from other societies I have borrowed from - especially the two we exchange with: St. Louis and Wisconsin. We've also borrowed often from Stan & Val Oleson's bromeliad newsletters. THANK YOU!

KEEP THOSE CONTRIBUTIONS COMING. YOUR EDITOR WANTS THE CHANCE TO EDIT!

NEWSLETTER EDITOR: Carol Anne Wujcik, 10860 El Mar Avenue, Fountain Valley, CA 92708, (714) 963-3146.

*South Coast Botanic Gardens
26300 Crenshaw Blvd.
Palos Verdes Peninsula*



JANUARY 1987 MEETING
Sunday, January 11 at 1:30 PM at
South Coast Botanic Gardens.

PROGRAM: CSSA President Seymour
LINDEN WILL PRESENT A PROGRAM ON

THE SUCCULENTS OF CENTRAL SOMALIA, There will be
fine slides and a talk by the man who's been
there, Dr. Linden. Pseudolithos (see drawing)
is from Somalia as are many fascinating caudiciforms.

REFRESHMENTS: Verna McCarty reports that Jim Hanna, Carol Kennedy,
Dick Kohlschreiber, and Bob Miller will be bringing
the refreshments. THANK YOU.

BRAGGING TABLE: Bring what looks good or what's interesting. Bring
also any plants you have a question about.

SALES: Expected to be available will be the usual supplies and plants
thanks to MaryBelle Wallenhorst and Jim Hanna. DOOR PRIZE TOO.

LIBRARY: Bob Causey will be bringing the library books JUST FOR YOU!
Don't disappoint him. Check out a book!

DUES: Bring your dues to Norma Holley or mail them in (see inside
back cover).

GARDEN: Weed your mounds. All this rain will make the weeds grow
like weeds.

CREDITS: (not found elsewhere in this N.L.)

Cover drawing is by Bill Barnett of ADENIA GLAUCA for CSIE, #6,
1981. Editor Grace Rollerson writes: "According to Jacobsen,
this genus belongs to the family Passifloraceae, and species
come from Somalia, Kenya & Tanzania to S.W. Africa, Socotra,
Madagascar & Burma. Flowers are inconspicuous. Propagation from
seed or cuttings; keep dry in winter at 12 - 15° C."

PSEUDOLITHOS drawing is by Christabel King, from the February 1982 issue
of THE CACTUS AND SUCCULENT JOURNAL OF GREAT BRITAIN.

ZANE GREY & MARTIN LUTHER KING quotes are from THE COMMUNICATOR, Jan.'87.
Orange County Community Development Council Newsletter.

MASS REPRODUCTION OF CYCADS
NEW RESEARCH PROGRAM GOAL

WITH THE HELP of a \$25,000 Institute of Museum Services grant, the Los Angeles State and County Arboretum is coming to the rescue of the cycads, primitive seed-bearing plants whose 150-million-year history has earned them the nickname "living fossils."

Pressures of civilization, mainly the loss of habitat, have forced the cycads onto the endangered species list. The need for research to save the plants is the basis for the grant project now underway at the Arboretum.

Cycads are not suitable for all botanic gardens. In fact there are only a few other outdoor collections in the United States. The plants do well at these gardens and, if more specimens were available, could probably thrive in other gardens with climates similar to the plants' native environment.

The ideal location of the Arboretum lent itself to the formation of the Prehistoric and Jungle Garden in 1976. The garden's scattered cycad specimens were consolidated into this area along with metasequoias and ginkgos to show visitors an example of a plant community that could have existed before the Ice Age.

Loran Whitelock, an internationally recognized cycad authority, donated the initial specimens that make up the collection in the Prehistoric and Jungle Garden. Cycads later donated by the National Botanic Gardens of South Africa at Kirstenbosch were augmented in 1979 with the gift of a notable cycad collection from the University of Chicago.

The goal of the cycad research project, under the direction of Mr. Whitelock, is to obtain more plants for botanical gardens and home landscapes, primarily by producing greater quantities of viable seed. One of the first steps Mr. Whitelock has undertaken is a computer search of articles on pollination and the storage of pollen so he can avoid duplicating earlier research.

Experiments have been set up to study the pollination process of the cycads. According to Mr. Whitelock, one of the biggest problems in producing more plants is the lack of knowledge on how viable seed is formed. Cycad reproduction is often a hit-or-miss procedure. The plants are dioecious, meaning that the male and female cones are produced on different plants that can be widely separated by both location and maturity of the cones.

Fertile seeds are formed when a male cone releases pollen to the wind which with luck will carry to a female plant whose cone is in a receptive stage. The problem is that male and female plants rarely cone at the same time, and there is no proven way to determine if the pollen released is capable of fertilization. Nor is it easy to tell if a female cone is in a receptive stage.

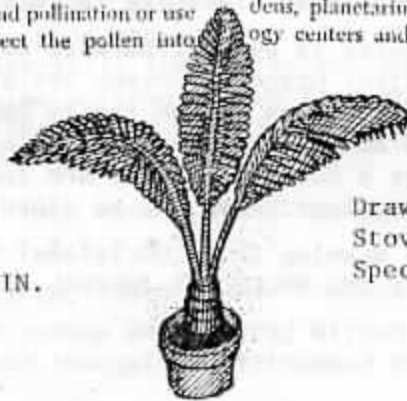
Discovering what makes a female cone receptive and examining alternate methods of pollination are among the goals of the project. Mr. Whitelock is considering experiments in which he would remove the top portion of the female cone to make the fertile scales more accessible for hand pollination or use a syringe to inject the pollen into the cone.

A basic problem in cycad reproduction is determining the sex of each plant prior to maturity when the difference between the male and female cones becomes obvious. Unfortunately some species take 10 to 20 years to produce a cone. Recent studies show that it may be possible to biochemically determine the sex at an earlier stage. According to Mr. Whitelock, this would make it possible to produce the plants in the numbers necessary to fulfill the project's goals.

One of the experiments recently set up at the Arboretum explores the possibility of increasing plant numbers through leaf propagation. With the aid of professional student workers Mr. Whitelock is trying to promote root growth from leaf cuttings using fertilizers and growth regulation chemicals.

One species that would benefit from vegetative propagation is *Encephalartos woodii*. In 1895 the only known clump of this plant — a male — was found in the wild. As far as scientists can tell, there are no female plants still in existence. The Arboretum counts a specimen of *E. woodii* among its cycad collection that includes nine of the 10 known genera.

The IMS Conservation Grant was awarded for a one year period, long enough to begin the complex cycad propagation study. The IMS is an independent agency within the Department of Education that supports a variety of museums including art, history and natural history museums as well as aquariums, botanic gardens, planetariums, science technology centers and zoos.



LA COUNTY DEPT. OF ARBORETA
AND BOTANIC GARDENS, MAY-
JUNE 1986...taken from the
LA C & S Soc. June 1986 BULLETIN.

Drawing by Hermine
Stover of Endangered
Species.



CACTUS CULTURE FOR THE AMATURE COLLECTOR

F. C. Thrumbley

This article will attempt to address the techniques of the cultivation of potted terrestrial cactus. The cultivation of epiphytic cactus will not be included in this article.

There are three ingredients that I believe we amateurs should learn most about. They are the compost, the containers and the water we use. All three are dependent on the other to the degree that if we plan ahead properly we will be able to grow and show cacti with pride. Let us look at each one of these ingredients in the order that they are listed.

Compost: A compost may be considered from two entirely different aspects, one physical, the other chemical. Physical properties include porosity, resistance to caking, drainage and moisture retention. Chemical constitution determines nutrient value and balance, organic and inorganic. A plant cannot absorb solid particles from the soil, but only nutritive salts in solution. The soil, that is the earth, has nothing to do with the nourishment, but is only the carrier of nutritive salts in solution. For that reason its physical properties are of great importance for the cultivation of cacti.

- Loamy (clay) soils hold water very well. They also retain nutritive solutions very firmly, not allowing them to be leached out easily. However, loamy clay soils are so closely packed they contain no air spaces. When dried out they split into cracks. For pot culture, therefore, they must be lightened. Fibrous loam is preferred to the clayey loam, and in general, they will not become muddy when wetted, nor cake hard when allowed to dry. The base for almost any potting mix is soil. One can choose between a packaged fibrous loam or a general potting soil.
- Leafmold is a source of fixed nitrogen and carbon dioxide. It should be at least two years old and thoroughly rotted. Being fibrous in nature, it retains moisture well and is often used in composting. Oak leafmold is probably the best for cactus culture because of its acidity. In my opinion a good compost should not be alkaline but have a pH number of between 6 and 6.5. More on this later. I have been using bandini packaged oak leafmold purchased at the local nurseries.
- Coarse sharp sand or agricultural pumice is added to assure open texture in the compost. A compost that will allow the water to drain thoroughly and not leave water pockets. The sand used must be coarse and not childrens play sand which will compact the soil. I prefer the agricultural pumice, it has a coarse granule and will not compact. This pumice is mined in California and is sold in most nurseries. I purchase mine at the Societies plant sales table.

Before mixing these three ingredients to start our compost, lets look at the chemical requirements of the soil. In the cactus regions, mineral salts are formed by gradual weathering of rocks. Since the weathering proceeds continuously, the natural soil in the cactus areas is a changing mixture of particles varying in size from pebbles down to sand and finer. In general, this has been derived from volcanic rocks and often contain a lot of nutritive substances, particularly as the scattered vegetation uses little food material.

In these dry areas the evaporation of moisture from the surface is so great that there is a rising flow of water by the capillary action of the soil. This capillary action brings up to the surface nutritive material from the deeper unused layers. These "deep nutritive salts", products of the weathering of mineral substances, are, however, very poor in nitrates (nitrogen). The soil contains much phosphate and many potassium compounds.

- Nitrogen (N) encourages growth, since it enhances the value of the other building materials. But, in excess - which is soon reached in cacti - it leads to spongy tissue. The result is susceptibility to disease, bad over-wintering and poor flowering.
- Phosphorus (P) absorbed in the form of phosphates, favors the production of flowers, fruits and seeds, and ensures sound growth. It encourages the roots in cuttings.
- Potassium (K) is indispensable to a healthy metabolism of the plants; it increases their power of resistance, even against water shortage.

Therefore, I believe that terrestrial cacti need soil with a high food content containing phosphorous and potassium but little nitrogen.

Beside the food content of the soil, there is also another chemical factor of importance to the well-being of the plant: the soil reaction. By soil reaction, we understand the acidity or alkalinity of the soil solution. The soil reaction is measured by a pH number which ranges from 1 to 14. The neutral value is pH7, values smaller than pH7 are acid and conversly values larger than pH7 are alkaline. All of the authors of articles and books I have read recommend a soil reaction of between pH5 and pH7. Further, they all claim the soil that is alkaline is not the best for growing cacti and can be very detrimental. Through mixing various composts I have found one that suits my needs well and has a pH of 6 to 6.5.

There is one more component that should be considered for our compost: horticultural charcoal. Horticultural charcoal is "activated" to enable it to absorb certain objectionable by-products of bacterial action in soil and so to keep it sweet. Since cacti are apt to remain in one pot for a relatively long period, it is valuable to prevent sourness developing.

There are many different recipes for the compost that one can use. It depends on your ambition, watering habits, location and various other ingredients I call common sense. The real pleasure comes from developing your own compost that works for your set of conditions. However, I will give two recipes which can be used to start us on our way.

#1 (A General Formula)

- 1 part coarse sand or agricultural pumice
- 1 part potting soil (packaged as a general soil for all plants)
- 1 part leafmold

#2 (This formula requires more effort to obtain the components)

- 2 parts fibrous loam - do not use products sold for mulching that have fine particles.
- 1 part oak leafmold
- 1 part agricultural pumice
- 1/8 part bone meal (for phosphorous)
- 1/8 part sulphate of potash (for potassium)
- 1/4 part horticultural charcoal

Both composts should be mixed thoroughly and stored in a clean container protected from the elements. A 3 lb. size coffee can is the measuring device I use. They are usually divided by ribs on the can into four equal parts which make it easy to measure.

←
 from the December
 1986 ESPINAS Y
 FLORES, Bulletin
 of the San Diego
 Soc., Mary Aubuch-
 on, Editor.

References used:

Marsden, C. 1958 Grow Cacti, Cleaver-Hume, Press, Ltd., London
 Buxbaum, Franz 1958 Cactus Culture Based on Biology, Blandford Press, London

HOLIDAY DAYTRIPPING Carol

On Christmas Day, Joe and I visited the cacti of Joshua Tree National Monument. Most of the cacti we saw were fine, and as they're cold-blooded they could ignore the invigorating wind chill which we had to try to ward off with heavy jackets and sweaters. As the sun dipped low in the sky, we grew nostalgic for the gloves and scarves still at home. There was no snow, which on another winter day we might have experienced as well. However the granitic sands made a soft scrunch much like dry snow, so it was easy to imagine.....

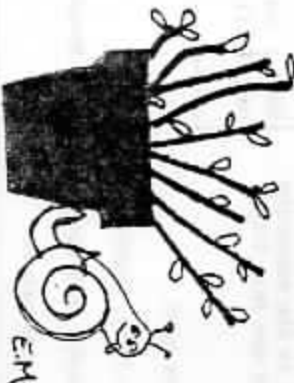


Anza-Borrego State Park on New Year's Day was much warmer - this being the low desert. A few plants were even in bloom, including one Agave. A ranger said that he'd seen a Mam. dioica in bloom that day, only one - perhaps a rugged individualist getting an early start. For the first hour Joe bicycled while I struggled with the camera, the battery having died in the line of duty. So there I was, face to face with the f/stop on the camera...Then we visited hundreds of barrels and jumping cholla; I am pleased to report that none of them bit me this time. Nor did a pencil cholla with 2" long spines flatten the tire of the car - though I wouldn't have blamed it if it had. (Don't ask!) But we got home that night intact, Joe, me and the car - with lots of photos (f/stop willing) and lots of good memories.

DUES are DUE



The following SNAIL RECIPES article is from the Feb. 1933 DESERT PLANT LIFE, author not given. The drawing of a snail just having dined on your best potted plant is by Elibet Marshall of the San Diego Soc. for their Sept. 1986 ESPINAS Y FLORES.



yum!

SNAIL RECIPES

To gardeners, especially here in the southland, snails are just another pest to be exterminated, but to many other people they are a fine food.

A man formerly in the hotel business here on the coast says the French cooks at the fashionable Coronah hotel down San Diego way, often prepared them and considered them a rare delicacy. The snails would be gathered from the front lawns in tomato cans, fed on hearts of lettuce for two weeks and after being scalded and soaked in sherry or port wine over night, were drained, dipped in cracker crumbs and fried like oysters. "And under what name did these choice morsels appear on the menu," I asked him. "Oh they were never prepared for the guests. The cooks served them at their own banquets."

A member of the Expeditionary Forces says the French cultivated snails for food along the Seine river during the war.

Not only in France but in the Philippines snails were a welcome change in the uniformly meager and monotonous diet of the people. The children brought them, cooked to school, munching them much as children elsewhere do peanuts. Sometimes "teacher's pet" would offer her some along with a safety pin for extracting. At other times snails were served in season, at the

"You say you want to know if I've paid my dues for this year, st?"



An Italian acquaintance of mine collects the snails in a paste board box and feeds them as long as four weeks on greens, chicory, lettuce, etc. After boiling, he prepares a sauce composed of fresh tomatoes, mushrooms and onions. A brown sauce is excellent. But any good sharp sauce will do. The plutocrats eat this dish with an oyster fork, informally, tooth picks are permissible.

In South Africa where Dr. A. L. Grant botanized for some time, she says the native blacks are glad to have snails, but are not particular as to their cooking or serving. They throw them in the pot along with anything else edible and cook them in flour or any kind of meal, comprising altogether a substantial repast.

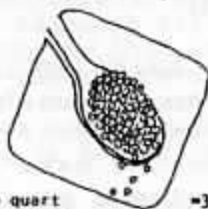
But it is not the foreign epicures alone who have found gastronomic pleasure where garden lovers have met only grief and disaster. One of the newer generation living here in Pasadena, says snails are very palatable boiled simply in salt water. She says they taste very good also served as a salad with lettuce and French dressing.

According to Mrs. Edwin S. Fuld who lives in Oregon for a number of years the people of that state pull the snails out with a fork, drop them in sugar, later eating them with a spoon. She adds that the abalone not far removed biologically is one of our greatest delicacies and is protected by law from being gathered below the minimum width of five inches.

In New Orleans where there are so many French, it is not surprising to learn that there several eating houses which make a specialty of their snail dishes and are famous for that alone.

In the old classifications the genus *Helix* included the majority of land snails, several thousand species having been assigned to it. Whether these various species differed appreciably in flavor was not made known to

The following conversion table is taken from THE OFFSET, Atlanta Bromeliad Society, Inc. I don't know about you - but it is a great help to me. Saves having to get that old calculator out!



CONVERSION TABLE

LABEL CALLS FOR:

1 oz to gallon	=1/4 oz to quart	=3/4 tsp. to pint
1 Tbsp to gallon	=3/4 tsp to quart	=3/8 tsp to pint
1 Tbsp to quart	=1 1/2 tsp to pint	=3/4 tsp to 8 oz.
2 tsp to quart	=1 tsp to pint	=1/2 tsp to 8 oz.
1 tsp to quart	=1/2 tsp to pint	=1/4 tsp to 8 oz.
1/2 tsp to quart	=1/4 tsp to pint	=1/8 tsp to 8 oz.

WEAKENED SOLUTIONS

FULL STRENGTH

1 Tbsp to gal
1 Tbsp to quart
1 tsp to quart
3/4 tsp to quart

1/2 STRENGTH

=1 1/2 tsp to gal
=1 1/2 tsp to quart
=1/2 tsp to quart
=3/8 tsp to quart

1/4 STRENGTH

=3/4 tsp to gal
=3/4 tsp to quart
=1/4 tsp to quart
=1/8 tsp to quart

TEASPOON CONVERSIONS

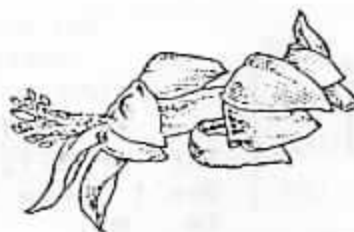
3 tsp = 1 Tbsp	64 tsp = 10 3/4 oz	256 tsp = 42 oz
6 tsp = 1 oz	72 tsp = 12 oz	288 tsp = 1 1/2 quart
12 tsp = 4 Tbsp	96 tsp = 1 pint	384 tsp = 1/2 gal
24 tsp = 4 oz	144 tsp = 1 1/2 pint	576 tsp = 3/4 gal
32 tsp = 5 1/3 oz	192 tsp = 1 quart	768 tsp = 1 gallon
48 tsp = 8 oz = 1/2 pint		
2 pints = 1 quart	4 quarts = 1 gal	

CLAY POT CAPACITIES

2" pot	1/3 cup	2 3/4 oz
2 1/2" pot	2/3 cup	5 1/3 oz
3" pot	1 cup	8 oz (1/2 lb)
4" pot	2 1/2 cup	20 oz (1 1/2 lb)
5" pot	4 1/2 cup	36 oz (2 1/2 lb)
6" pot	8 cups	64 oz (4 lb)

PETERS 20-20-20	1 level tsp to gal of water	
DSMACOTE	4" pot - 1/4 tsp	5" pot - 1/2 tsp
	6" pot - 1 tsp	7" pot - 1 1/2 tsp
MALATHON 50 1	1 tbls to gal of water	
DIAZINON	1 tbls to gal of water	
CYGON 2 E	2 tsp to gal of water	
RUBBING ALCOHOL	Full strength in quart spray bottle	
CAPTAN	1 tbls per gal of water	
BENLATE	1 tbls per gal of water	
PHYSAN	1 tsp per gal of water	
SUPERTHRIVE	1 drop per gal (This product is not to be considered a fertilizer. It is a vitamin-hormone solution. Use with fertilizer.	

The following is from the UCI (Irvine) Arboretum NEWSLETTER for winter 1985-1986. The Arboretum is open weekdays from about 9 to 4, but call first (714) 856-5833. The peak blooming season is approaching for the African bulbs, Aloes and others.



SAVING POLLEN FOR HYBRIDIZING!

As the new season approaches some of you may want to propagate your favorite plants or try and make new hybrids. Here are some simple steps on how to make a "pollen bank". This will allow you to make hybrids between early and late flowering species etc..

- Materials:
- 'Lilly' brand empty gelatin capsules No. 000. Can be obtained at nearly any pharmacy.
 - Sharpie fine point waterproof felttip pen.
 - Storage jars. Short Bell jars or other screw top containers will work just fine.
 - Dessiccant. (Drying agent such as Silica Gel which can be obtained at either Drugstores, Hardware or Camera stores.)

Procedures:

- Use fresh pollen from newly dehisced (split open) anthers and scrape it into an open capsule. (Be sure NOT to use wet pollen or pollen that was previously wetted with dew or rainwater). Close the capsule and shake it to dust the pollen on the walls inside the capsule.

- Label the pollen by writing directly on the capsule with a Sharpie felt tip pen. It is a good idea to write the date as well.

- Place the capsule into a screw top jar containing dessiccant at the bottom. Some gauze over the desiccant will help separate the pollen capsules from the desiccant.

- Keep the jar lids tight! only open for retrieving or depositing pollen. Store the jar in the refrigerator at about 5°C, that is the normal operating temperature. [not the freezer]. Pollen should be good for several months to nearly a year.

- If you want to keep pollen for several years it can be frozen but should not be thawed and refrozen more than 3 times. Each pollen sample therefor needs its own small jar with dessiccant.

"AAARRRGGG! I FORGOT
TO PAY MY 1987 DUES!"



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 crystate 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."

Variation 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.

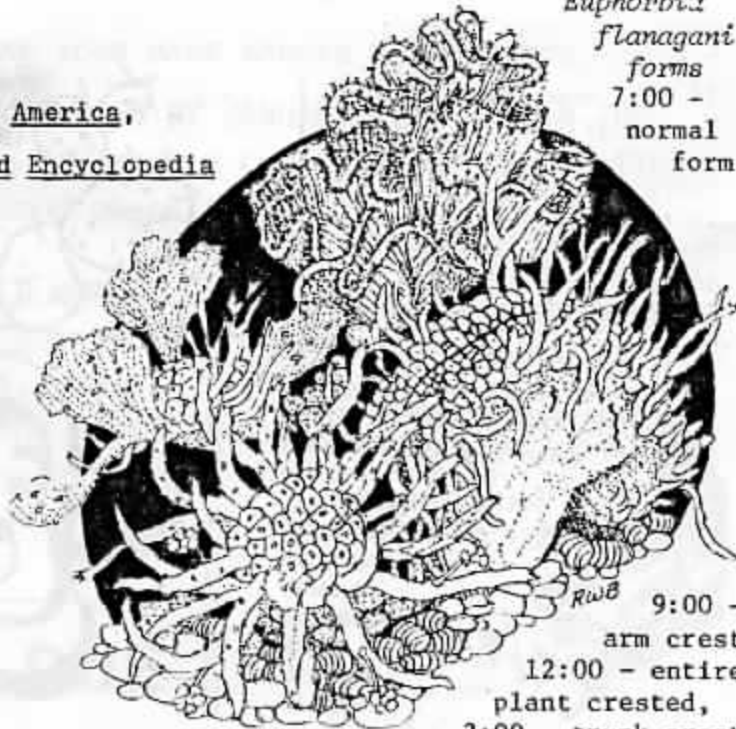
It would appear that so far the plants have triumphed over man and his science, and through all the theorizing, experimentation, and torture have refused to divulge their secret. No one knows why plants crest, and no one has ever been able, through any artificial means, to make a plant crest. Their fortitude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

References cited:

- Cactus and Succulent Journal of America, various issues
 Rowley, Gordon: The Illustrated Encyclopedia of Succulents

The above article by Dorothy Dunn is from the Nov. 1986 ESPINAS Y FLORES, Bulletin of the San Diego C & S Soc.

The drawing to the right is by Bill Barnett and is from the #7, 1981, CACTUS & SUCCULENT INFO. EXCHANGE from Canada. (Does anyone else see sowbugs or giant mealies at the base of the plants??!! Ed.)



Euphorbia flavagani
 forms
 7:00 - normal form

RWB 9:00 - arm crest,
 12:00 - entire plant crested,
 3:00 - trunk crest

NOT-JUST-ANOTHER-"HAPPY-NEW-YEAR"-WISH PAGE

OR

SCROOGE-REVERTS-BACK-ON-DEC. 26 PAGE

Can't decide whether this quote from Zane Grey is the work of an optimist, a pessimist, or a satirist...

A HAPPY NEW YEAR!, it can be yours. All you need do is to bear up under loss, fight the bitterness of defeat and the weakness of grief, to be victor over anger, to smile when tears are close, to resist evil men and base instincts, to hate hate and to love love, to go on when it would seem good to die, to seek ever after the glory and the dream, to look up with unquenchable faith in something evermore about to be, that is what anyone can do, and so be great.

Zane Grey

POEM: JUST THREE

If your nose is close
To the grindstone rough,
And you keep it down
There long enough,
In time you'll say
There's no such thing
As cacti that flower
And birds that sing.

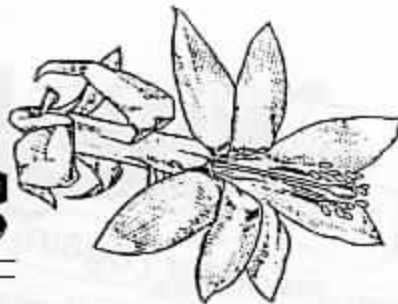
These three will all
Your world compose -
Just You, the Stone,
And your poor old Nose.

- Author Unknown
(with a change or two).

Drawing by Elibet
Marshall, San Diego
Society.



Welcome NEW Members



Thomas (Tommy) Engelhardt
263 Palos Verdes Drive West
Palos Verdes Ests., CA 90274
Phone 378-5303
Interest: Gen. Cacti & S.

Sonja Tuttle
2397 Via La Coruna
Mission Viejo, CA 92691
Interest: Gen C & S

Arnita Watson
12005 S. Halldale Ave.
Los Angeles, CA 90047
Phone 777-2605
Interest: Gen. C & S

Many South Coasters already know Tommy and Arnita through the Garden.

Welcome!

MEMBERS, PLEASE WEAR YOUR NAME BADGES TO MEETINGS.

DUES FOR 1987 MUST BE PAID BY JANUARY 15 TO BE IN THE ROSTER. Please see Membership Chairperson Norma Holley at the meeting or send check to her at:



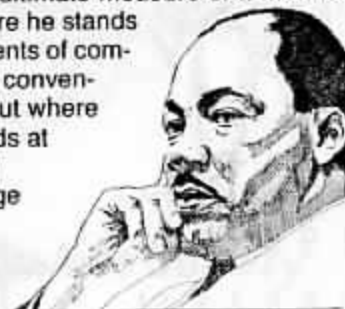
Norma L. Holley
Springwood Village
2971 Toledo St. #220
Torrance, CA 90503-7340

DUES ARE \$5 for each member plus \$1 for each additional person at the same address. Make checks payable to The South Coast Cactus & Succulent Soc. THANK YOU.

Martin Luther King Jr.'s Birthday—January 19

Dr. King:

"The ultimate measure of a man is not where he stands in moments of comfort and convenience, but where he stands at times of challenge and controversy."



.....
DUES ARE DUE

ZOUNDS!, this South Coaster has just realized that because he's let his Club go DUESLESS, he's about to become NEWSLESS! OH NO! DON'T LET THIS HAPPEN TO YOU!

NOTICE TO READERS
 if you WANT to SEE
 your News letter again
 pay your dues
 no dues
 no news
 THE ED.



SOUTH COAST CACTUS & SUCCULENT SOCIETY
 10860 El Mar Avenue
 Fountain Valley, CA 92708



FIRST CLASS
 FIRST CLASS

Norma Holley
 2971 Toledo Street #220
 Torrance, CA 90503-7340



1987
 BABIES!



HOW WILL
 THEY GROW?