

DESERT BREEZE



Note - The following issues are not available and we would ask anyone who may be able to provide us with a copy would be appreciated. They can be emailed to the webmaster at the Tucson Cactus and Succulent Society or to the President.

Year - Months Missing

2000 - Jan missing

1999 - Dec missing

1997 - Jan, Feb, Mar, Apr, Nov missing

1996 - Jan, May missing

1995 - Jun, Jul, Aug missing

1994 - Aug missing

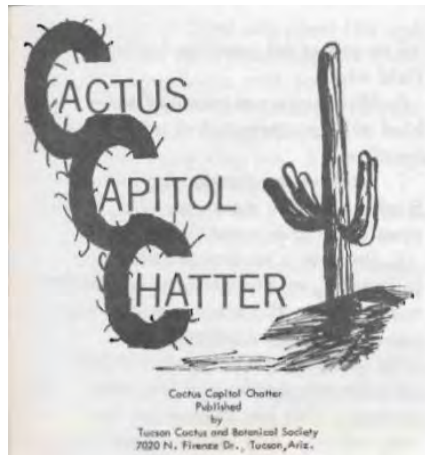
1992 - All months except Jul and Aug missing

1991 - All months missing

1990 - All months missing

1989 - All months except Jan and Feb missing

1988 - May, Sep missing



From 1965 to 1982 the Newsletter was named “Cactus Capitol Chatter”

It was published quarterly (4 issues per year)

We are missing 1982 - 3rd and 4th quarter publications

Desert Breeze

TUCSON CACTUS & SUCCULENT SOCIETY

FEBRUARY 1996

FEBRUARY FIASCO

That is the title I have given to this month. This is the first newsletter that I have ever written, so if it is crude please give me some advice on how to improve. Remember, this is your newsletter.

Please do not forget the meeting on February 1!!!!At this meeting we are planning something different. We are having a mini-show-of-sorts. Please read the cactus and succulent of the month articles, then....

bring your best Mammillaria and/or Aloe to the meeting.

This months program is a CSSA slide program on Mammillarias (cactus of the month)!!!!!!

If you missed last weeks program, you missed a great one. Jonathan Donald (vice-president) gave a talk on Mojave Flora, showing habit photos of most of the native succulents plants of the Mojave Desert. Those of you who were there, and would like more information about the plants discussed please do not hesitate to give Jonathan a call.

At last months meeting, an idea was brought up that we have a "hospital ward", for that were "sick". Bring your suggestions or new ideas to the next meeting .

Jonathan has informed me that he would appreciate suggestions on topics of interest to you. If you have a idea for a speaker or you yourself would like to do a program of your own, please call Jonathan at 577-6552. He would sure appreciate

it.

Also I would like to start a regular section on cultivation, including: question and answer sections, short articles, and your hints on growing succulents. I will have paper and pencils at the meeting to take your questions or tips. You do not have to leave your name. So REMEMBER there really is no stupid questions. So to start things off here is some helpful growing tips for WELITSCHIA. This information is condensed from the CSSA Journal Vol XLVI, 1974 by Frank Horwood.

It is now known that Welwitschia does not have a single long tap root going down many meters into the ground to reach moisture, but a comparatively shallow, much branched root system. Young seedlings do have a long unbranched hair-like root and if this is broken they will die, but after a year this root branches and it is then possible with care to transplant them. It now seems possible that it may not be necessary to cultivate the plants in drain pipes or long chimney pots which has been the usual practice, although this method does have the advantage that the leaves can hang down out of the way. I recently repotted my 10 year old plant and found that it had an extensive, well branched root system. In spite of the difficulty in removing the plant from an earthenware chimney pot 1.5 meters tall, during which process all the soil and many of the smaller roots fell off, the plant grew even faster when repotted. Contrary to all reason the

plant grows fastest in partial or even complete shade with plenty of water during the summer months. The most critical phase in the life of the plant from germination, which is easy, to about the second year of growth when the stem becomes woody. During this period many seedlings collapse at ground level due to fungal attack, after two years the plants become as tough as old boots and no losses occur. It should be noted that in some years WELWITSCHIA seed is not viable, although obtained from several, under 1% germinating, whereas in other years 70% germination may be expected. I have made measurements of growth rate of the tow leaves of my 10 year old plant, by the simple method of drawing a ink line across the base of the leaves as close to the trunk as possible on the first day of each month, and then measuring the distance between monthly lines. The plant is kept at a minimum temperature of 18C and is watered freely with a hose from early March to late September. It made 46 cm. of extension growth on each leaf during 12 months, never resting completely during the months with the shortest day length and least amount of sunshine 25 mm. of growth occurred. I must mention that although the plant is watered freely, the compost is very open, including gravel and small stones to allow free drainage.

Succulent of the Month Aloes

There is something foreveryone in this genus of the lilyfamily, which varies from tiny delicate Aloe haworthioides to huge tree-like specimens such as A. bainesii.

For landscaping, a rockgarden or rocky hillside is an ideal aloe site, since most of them grow in nature with their roots wedged among rocks, though, they require good drainage. Most will not tolerate temperatures below 25 degrees to 35 degrees Fahrenheit for very long, so a somewhat sheltered location is best. Some form tree-like specimens, others quickly formsymmetrical clumps several feet high and wide, while still others may be used as borders or accents plants. There is something forevery garden.

Smaller specimens are usually more desirable as potted plants. Ten to twenty-inch rosettes are produced by Aloe vera, the famed medicinal aloe, and A. striata, whose leaves have a distinctive smooth pinkish margin. Six to eight inches is the usual size of the triangular "partridge" aloe, A. variegata, lovely A. aristata, and more casually formed A. bakeri and A. jacksonii. The miniatures, under six inches, include such beauties as the delicate blue green A. parvula, intricately patterned A. rauhii, white toothed A. humilis, and dainty A. haworthioides.

There are a few which prefer acid soils, notably A. plicatilis,

with fans of flat leaves; A. brevifolia and a few others are happier in alkaline soil. for themajority, neutral is best. Leaf mold, bone meal, and up to one third sand should be added if it is heavy and clay-like. Surprisingly, aloes are heavy feeders, like many of our own southwestern plants which at first glance seem to grow in almost totally arid, sandy places. Actually the soil at their roots will after be high in both minerals and humus, from the wind-blown leaves of other shrubs.

Aloe seeds are plentiful and easy to grow, but they hybridize just as easily. It is usually better to propagate from offsets. After several days of drying, cuttings may be planted either in a container or directly in the soil, the weight of the crown may besupported by staking up the plant and surrounding the base with large rocks until the roots are well established. As little as possible of the stem should besubmerged. Incidentally, individual leaves will not root. A section of branch or stem is needed.

Aloe flowers are usually red, orange, or yellow in color, though there are exceptions such as the white-flowered A. albiflora and the dainty coral-pink A. bellatula. some inflorescence are multi-branched (A. thraskii) while others have single stalks of closely-packed small flowers (A. castanea). A. africana is especially attractive. Its flower stalks

display all stages from tight red waxy buds at the top to fully open orange-yellow flowers at the base. A favorite in many gardens this time of year is the clumping A. arborescens with its many spikes of bright scarlet flowers. Its flowers are a great winterattraction for humming birds, those American counterparts of thebrilliantly colored sun birds, which are the natural pollinators of many of the African species.

By Ed and Betty Gay
Taken from LACSS Chronicle
January 1996

CACTUS OF THE MONTH MAMMILLARIA

MAMMILLARIA is the largest cactus genus with about 350 species and some 100 varieties have been described.

MAMMILLARIA (called nipple cactuses). The name is from mamilla (Latin for nipple or wart). They are small to medium-sized cact, globular to short columnar, in habit, solitary, or sprouting, some forming surf-like clumps.

Instead of ribs, the plants have spirally-arranged overlapping warts. The numerous flowers appear, garland-like from the axils of the previous years growth.

The flower colors are in many shades from white to yellow to red. A distinction is made between small-flowered and large-flowered species. Many species are notable for their pronounced growth of down or hairs in the axils, particularly those of the flowering zone. The vividly-colored berry-like fruits provide further adornment, frequently lasting for months.

The spines of the **MAMMILLARIAS** are amazing in their great variety, and numerous species can therefore provide a constant decorative contribution to any collection, even when they are not flowering.

DISTRIBUTION:

Southwestern states of the U.S.A., the whole of Mexico, Central America, Venezuela, northern Columbia, and a few from Tahiti.

PLANT CARE: The majority of **MAMMILLARIAS** are easy to cultivate. During the growth period from spring to late summer, the plants should have

uniform moisture and abundant nutrients. The species with colored spines or hairs are especially in need of light, but a position in sunshine is preferable for all **MAMMILLARIAS**. Plants cultivated in mineral substrate develop a particularly pronounced and colorful covering of spines or hairs. Overwintering should be cool (40 degrees F.) and dry, apart from a few exceptional cases. If kept in a warm place in winter - as on a window sill- the plants should be watered a little every 8-10 days. Plants kept in these conditions are reluctant to flower.

M. plumosa differs from the general rule since it grows in winter and should therefore be given a warmer position and moderate amounts of water. Take care not to water over the hair-covered body, since this may cause rot.

This is a good genus for the beginner and also for the most expert collectors.

Condensed form Gunter Andersohn
"CACTI AND SUCCULENTS".

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This Newsletter is published monthly. Submit material by the 15 of the month preceding to Editor:

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Tucson, Arizona 85718
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I appreciate feedback. Please help me to correct phone/address errors. Membership meetings (free and open to the public) are generally held at Tucson Botanical Gardens, 7:30 pm, first Thursday of each month. Dues are \$20 per family, or \$15 per individual, payable at meetings or send check to: TUCSON CACTUS & SUCCULENT SOCIETY
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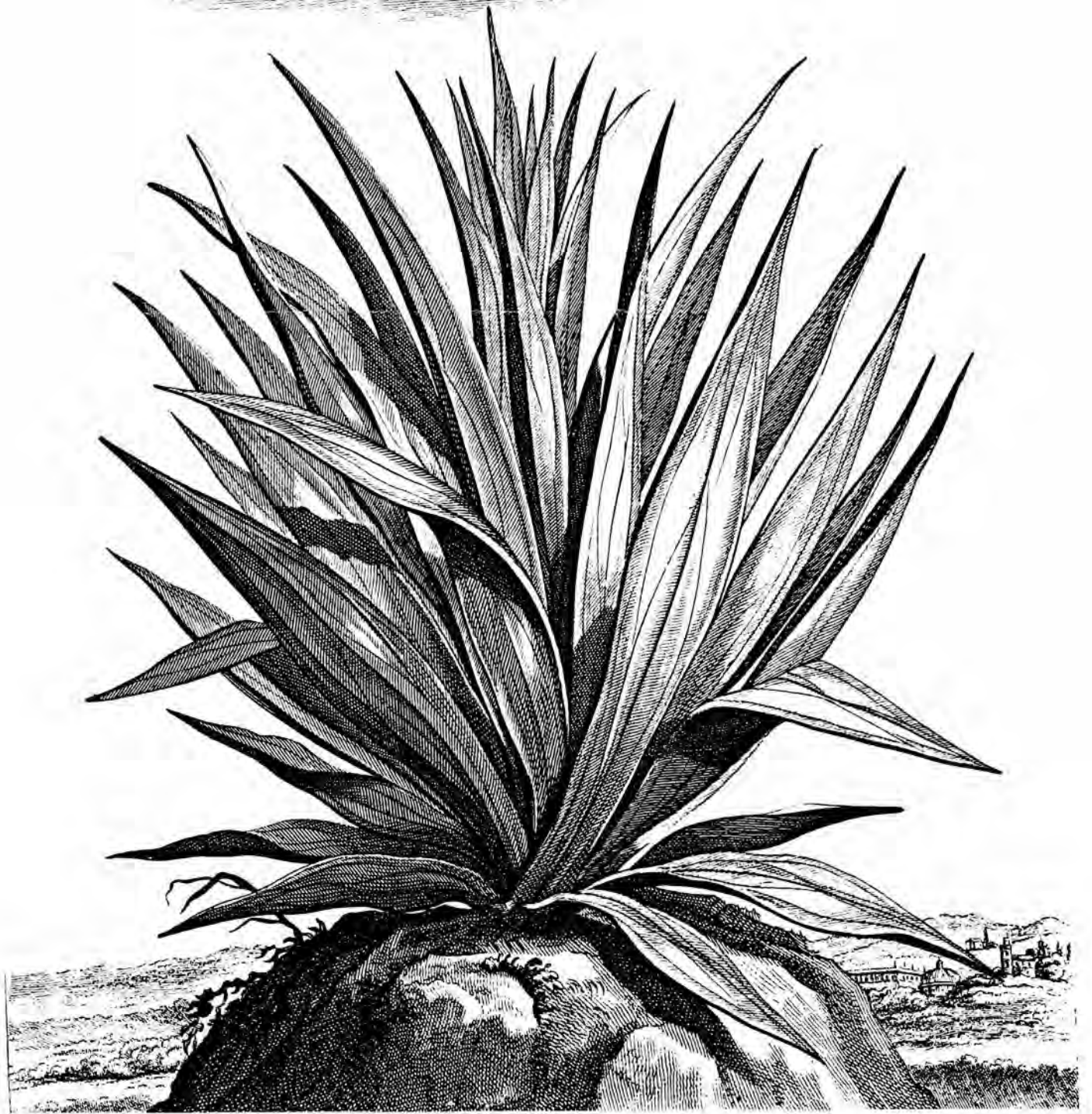
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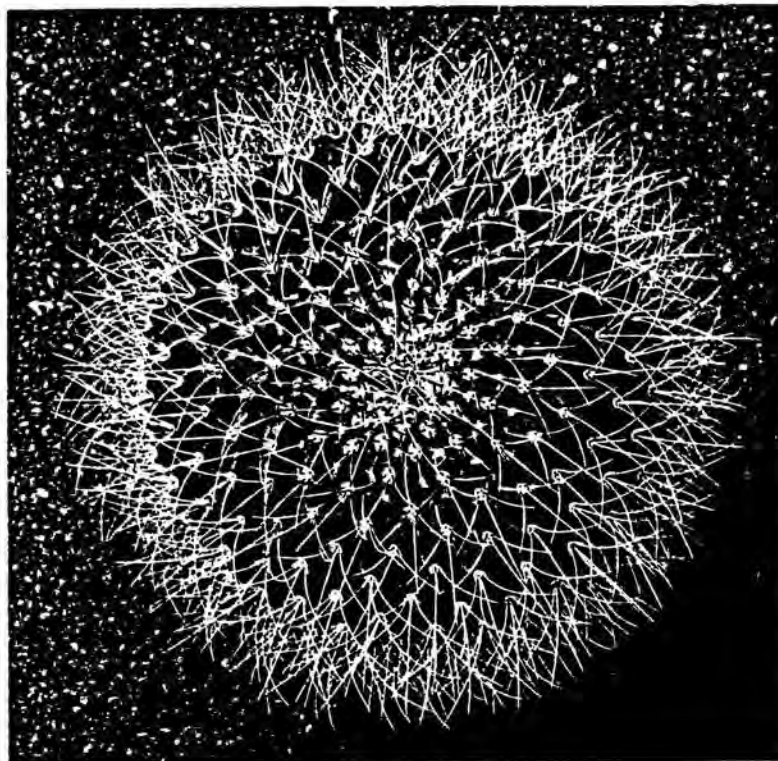
AMATEUR SUCCULENT BOTANY 101 QUIZ

CAN YOU MATCH THESE BOTANICAL TERMS WITH THEIR DEFINITION?

- | | |
|-----------------|---|
| 1. Saxicolous- | A. Climbing |
| 2. Terete- | B. Wool |
| 3. Farinose- | C. Smooth and rounded |
| 4. Awn- | D. Bearing minute, rough or sharp projections, and rough to the touch |
| 5. Baccate- | E. Shallowly and broadly notched at the apex |
| 6. Coriaceous- | F. A plant growing where it is not wanted |
| 7. Retuse- | G. Of leathery texture |
| 8. Weed- | H. Refers to plants growing on rocks |
| 9. Tomentum- | I. Hairy |
| 10. Hispid- | J. With rigid stiff bristles |
| 11. Scandent- | K. Having a mealy appearance |
| 12. Fastigiate- | L. Having long stout thick bristles |
| 13. Frutescent- | M. Growing erect and close together |
| 14. Pubescent- | N. Shrubby |
| 15. Scabrous- | O. Like a berry, that is, in the form of a fruit, that is fleshy or pulp inside |

ANSWERS: (1) H; (2) C; (3) K; (4) L; (5) O; (6) G
(7) E; (8) F; (9) B; (10) J; (11) A; (12) M; (13) N;
(14) I; (15) D.





MAMMILLARIA INGENES
Pincushion spines are protection from enemies.

TUCSON CACTUS & SUCCULENT SOCIETY
c/o TUCSON BOTANICAL GARDENS
2150 N. ALVERN WAY
TUCSON, AZ 85712



◆ Desert Breeze ◆

ISSUE 2

MARCH 1996

MARCH MADNESS

Thank you so much for making the mini-show such a success!!! The winners were:

MAMMILLARIA

- 1ST MILES ANDERSON
M. Pseudoperbella crest
2ND CINDY BECKLEY
M. Supertexta
3RD (TIE) GENE JOSEPH
M. Lenta
3RD (TIE) GARY DAVIES
M. Perez de la Rosa
3RD (TIE) JUDI GASTON
M. Bombycina

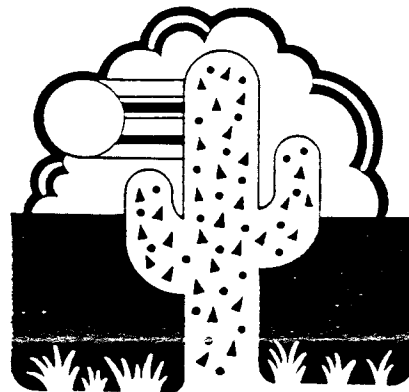
ALOES

- 1ST (TIE) MILES ANDERSON
A. Humilis
1ST (TIE) SALLY WILLIAMS
A. Erinacea
1ST (TIE) NO NAME
A. Vanbalenii
2ND GENE JOSEPH
A. Vamosissima
3RD (TIE) JIM HOSACK
A. Eninaceii
3RD (TIE) MARY CHURCH
A. Echarlanii

Congratulations to all the winners!!!!

This month the cactus of the month is Ferocactus, the Succulent of the month is Euphorbia. Please bring your plants in to show off and you might win.

Jonathan has planned a different program. He has arranged for local growers to sit in and let us "pick their brains". In other words if you have and questions about growing your plants or if you have a specific problem, or if you



have a plant that you have no clue what it is, bring your plant in and get your questions answered.

Remember to bring your plants in for the mini-show, the brag table, and the propagation table.



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... barrel just sits	page 3
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A CURE FOR SOIL MEALYBUGS

Plant growers are currently experimenting with a potting soil additive that appears to kill soil mealybugs. Not a chemical, not an artificially-produced poison, it is a natural substance — diatomaceous earth. You have seen bags of this stuff in hardware stores, as it is used in swimming pool filters. Composed of the skeletal remains of diatoms, microscopic sea creatures, DE is lethal to insects because its tiny particles have razor-shape edges. They pierce the insect's epidermis, causing them to desiccate and die.

Dry up and die? Sounds too simple, doesn't it, especially in light of the expensive chemicals we have resorted to in the bug battles (only to have build up a tolerance to it). African violet growers who have used DE over several seasons have eliminated soil mealybugs from plant collections which were long plagued by them. Some have also found a reduction in the problem of thrips (these pests live in the soil during a part of their life cycle), as well as springtails and fungus gnats. Diatomaceous earth is effective against such household pests as cockroaches; can be spread around flower beds to discourage slugs and snails. . .

Vast deposits of DE exist in the Western U.S. The commercially processed product has been partially melted and baked, resulting in a white substance that feels almost silky to the touch. It should be used in a well-ventilated area, as it releases dust in the same way perlite does. The natural, unprocessed DE is preferred, if you can find it.

Taken from LACSS Chronicles

SUCCULENT OF THE MONTH: EUPHORBIA

The following advice is reprinted from the Fresno Cactus & Succulent Society Newsletter.

Tom Loehman on euphorbias: Tom grows a lot of gorgeous euphorbias in his nursery in Paramount, CA. These are some of his techniques:

SOIL: 1 part Supersoil; 1 part pumice. The growing mix should be porous and permeable. (He has found that the leaf succulents are less fussy about soil than are cacti.)

FERTILIZER: He uses Peters 20-20-20 several times a season. For bloom, he uses and 8-8-8 tomato food.

EUPHORBIA CUTTINGS: He takes cuttings with a serrated knife, spraying the blade with alcohol between cuts. Cold water will stop the flow of latex from the plants. He also uses tree seal. Not only does it seal the cut, it helps rooting as well. For rooting other cuttings he uses Rootone; Hormex #30 for woody cuttings. He has observed that the top and bottom cuts of *E. ingens* will root, but all the middle sections will die. Every piece of *E. amak* will root, however when you are propagating euphorbias, you have to try everything.

The following article on six subglobose euphorbias was written by David Tufenkian and printed in the San Gabriel Valley Cactus and Succulent Society Newsletter.

Euphorbia meloformis Alton

The "melon form" *Euphorbia* was described by William Alton in 1789. It may have been introduced into England as early as 1774. There are two main forms of this variable species. The coastal and inland forms occur in the Cape Province of S. Africa. It is unisexual (separate male and female plants) and closely related to *E. obesa*. This

dwarf succulent is up to 10 cm. tall (larger individuals have been reported). The stem has 8 to 12 ribs, and like *E. obesa*, *E. symmetrica*, they are marked with alternating light green and purple-brown or dark green transverse bands. The leaves are less than 3mm and quickly deciduous.

E. obesa Hooker F.

Obesa means corpulent or fleshy. I'd rather think the latter! It was discovered in 1897 and named by Hooker at the Royal Gardens, Kew. It is a worldwide favorite and is common now but 50 years ago was rare. Collectors carried away great numbers of the plants, but monkeys also ate them in times of drought, which added to their rarity. Luckily the plant is easy to grow from seed, which sets readily (as long as you have plants of both sexes). Laurie Dell wrote in the sixth volume of the *Euphorbia Journal* on how to determine the sex of seedlings. She noted a difference in the transition of the stem tissue into the taproot tissue of seedlings. The males seemed to have a sharp transition, while the females had a more gradual transition.

E. symmetrica White, Dyer and

Sloane

This was described in 1941 and there is always discussion regarding this species and *E. obesa*. The plant bodies are almost identical. *E. symmetrica* is usually more squat and can produce more than one peduncle per flowering eye. (A peduncle is the flowering stalk).

E. valida N.E. Brown

Brown described this species in 1915 and its name means "valid or true". It is similar to *E. meloformis*, but generally tends to be taller than it is wide. Unlike *E. meloformis*, which tends to be more squat than tall. The peduncles tends to be more persistent on *E. valida*.

E. turbiniiformis Chiovenda

This rare and difficult-to-grow species was described in 1936. It was lost in cultivation, but was rediscovered in 1969 by John Lavranos in Somalia. These tiny plants were distributed by the ISI in 1976.

E. piscidermis Gilbert

This "fish skin" Ethiopian species was found in 1971. It was found in two small populations on one hillside and has a wonderful pattern formed by its unique tubercles.

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Tucson, AZ 85705

CACTUS OF THE MONTH: FEROCACTUS

Taken from Espinas y Flores January 1996 #1 By Paul Steward.

The Genus *Ferocactus* was proposed as a segregate of the Genus *Echinocactus* by Britton & Rose in 1922. This treatment included 25 species transferred from *Echinocactus* and 6 new species. Dr. George Lindsay undertook a study of the Genus and subsequently authored the monumental work "THE GENUS *FEROCACTUS*" as his doctoral thesis in 1955. This work has never been effectively published, although it is reproduced on demand through University Microfilms of Ann Arbor Michigan. Unfortunately none of the 129 plates or the 8 maps are legible. Dr. Lindsay accepted 16 of the original species as valid, excluded four, found four others to be synonyms, reduced two to varietal rank and adopted earlier names of three species and one variety had been proposed since Britton and Rose, two of which were retained as new species and the remaining three being reduced to varietal rank. Additionally nine species and three varieties had been added to the Genus. Of these two were retained as legitimate prior names and one was described as inadequately known.

The Genus as treated by Dr. Lindsay includes 25 species and 11 varieties; two species and three varieties were newly described. During the course of his studies Dr. Lindsay traveled 20,000 miles by car and truck and 5,000 miles by boat to observe plants in habitat and study their geographical distributions.

Nigel Taylor published in 1844 and 1987 in the *Journal of the British Cactus and Succulent Society*. I will not deal with his treatment at this time. Lyman Benson also did excellent work on the species which occur within the Continental United States. Presently research is being conducted at Iowa State University by Hugo Cota under Dr. Rob Wallace with the principal investigational tools being DNA, PCR comparison.

The Genus as a whole is rapidly evolving, with intermediaries and extremely variable spination common. Identification is often difficult, flower color which has character here. The Genus is best described as:

Stems: depressed globose to cylindrical often tall.

Ribs: thick prominent and sometimes tuberculate.

Aeroles: large, tomentose spiniferous area.

Spines: Large and strong, straight to hooked, produced in the lower part of the areole, dwarf spines persist in the upper areole as nectiferous glands.

Flower: broadly funnel form and cam-

Dr. Lindsay traveled 20,000 miles by car and truck and 5,000 miles by boat to observe plants in habitat and study their.....

panulate, scales occurring on the tube and ovary integrating with the inner and outer perianth segments, stamens numerous, inserted in the short tube, style thick, divided at the tip into many

stigma lobes.

Fruit: single, semi-fleshy, oblong in shape, persistent withered perianth section attached above, usually but not always dehiscent through vasil pore.

Seeds: thin, pitted or sculptured testa, curved embryo with a large hypocotyl.

Type Species: *Echinocactus wislizenii*, Engelm.

Distribution and habitat

Ferocactus inhabit the arid and semi arid regions of the Southwestern United States and Mexico. Most but not all, are desert plants. *Ferocactus viridescens* which occurs in coastal San Diego County and south into northern Baja California. It inhabits areas of coastal chaparral. *Ferocactus herrerae* is found in areas of Sinaloa associated with the Thorn forests where the average summer rainfall is 20 to 30 inches. Low temperature limit the Northern migration of the genus, whereas excessive rainfall limit its southern migration.

Ferocactus grow in well drained soils and have developed a specialized root system which consists of a few short vertical tap roots that anchor the

continued on page 6

WHAT TO DO WHEN YOUR BARREL JUST SITS THERE

The rotting away of roots can leave a barrel cactus simply sitting atop the ground waiting to be thrown away. When Cesar Mazier, superintendent of horticulture, discovered the roots of this *Echinocactus grusonii* had rotted, he decided to try re-rooting the plant. He upended the cactus, cleaned it out, applied fungicide and sulfur, and packed the cavity with sand. Then he replanted the specimen in a sandy medium and mounded sand around the base. He watered the cactus once a week and found that it had regenerated roots in three weeks (as evident in the photo). *Ferocactus* and *Echinocactus* species are particularly prone to root rot, Cesar said. "Try re-rooting before tossing your plant into the garbage."

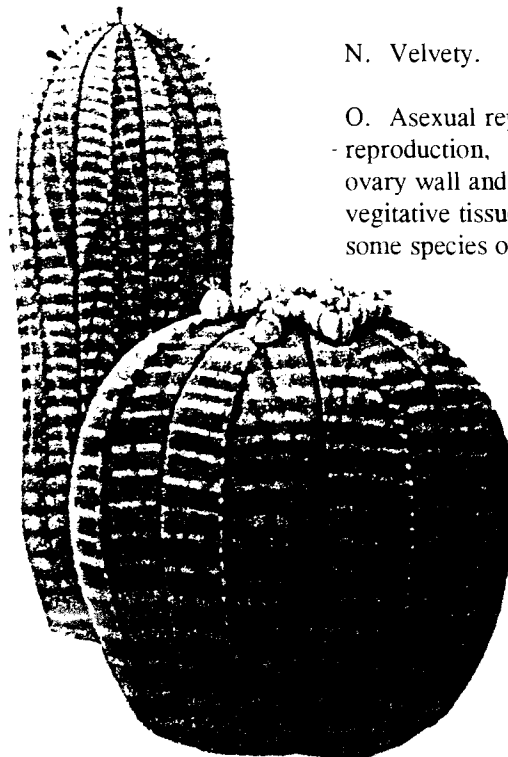
Courtesy of The SONORAN QUARTERLY, Vol. 49, NO. 4, Desert Botanical Garden, Phoenix, AZ

Photo by Carol Schatt



AMATEUR SUCCULENT BOTANY 101 QUIZ

1. EROSE
 2. SULCATE
 3. RENIFORM
 4. HAMATE
 5. CRENATE
 6. APOMIXIS
 7. VISCID
 8. SCARIOUS
 9. ALATE
 10. RUGOSE
 11. SPINIFEROUS
 12. PYRIFORM
 13. VELUTINOUS
 14. TERATOLOGY
 15. FLOERIFORM
- A. Bearing spines.
 - B. Having a terminal hook.
 - C. Wrinkled.
 - D. The study of biological monstrosities (or fasciation).
 - E. Sticky.
 - F. Pear-shaped.
 - G. In the shape of a kidney bean.
 - H. With an irregular *margin* that appears to have been gnawed.
 - I. Grooved.
 - J. Winged.
 - K. Having rounded, marginal teeth.
 - L. Thin, membranous, and translucent, in the manner of parchment.
 - M. Thread like, very slender.
 - N. Velvety.
 - O. Asexual reproduction that simulates but bypasses sexual reproduction. For example, fruits may develop roots from the ovary wall and grow into new plants; or, without fertilization, vegetative tissues in the seed may produce false embryos, as in some species of Citrus.



ANSWERS

- | | | |
|-----|------|------|
| 1=H | | 11=A |
| 2=I | 8=E | 12=F |
| 3=G | 8=L | 13=N |
| 4=B | 9=J | 14=D |
| 5=K | 10=C | 15=M |

BASKETBALL EUPHORBIA
Euphorbia obesa

PLANTS OF THE MONTH FOR 1996

MARCH	FEROCACTUS	EUPHORBIA
APRIL	COPIAPOA	CAUDICIFORMS
MAY	ASTROPHYTUM	AGAVE
JUNE	CORYPHANTHA/ ESCOBARIA	HAWORTHIA
JULY	PARODIA	ECHIVERIA
AUGUST	NO MEETING	NO MEETING
SEPTEMBER	TEPHOROCACTUS	LITHOPS
OCTOBER	ARIOCARPUS	STAPELIADS
	CEPHALIUM CACTUS	KALANCHOE
	CHRISTMAS PARTY	CHRISTMAS PARTY

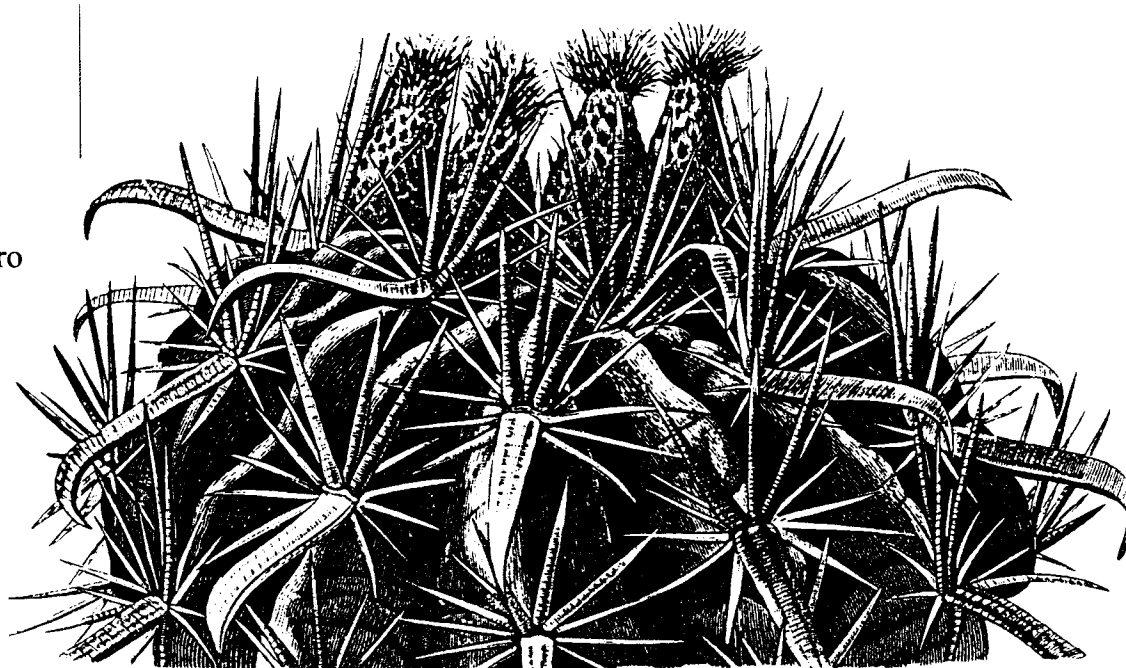
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FEROCACTUS CONTINUED

FROM PAGE 3

and a series of fine radiating lateral roots which are the principal absorptive organs. These lateral roots may effectively cover an area of 2 to 3 meters from the base of the plant, while not being any deeper than 10 cm. So effective is the Ferocactus in its ability to control transpiration and to absorb and store large quantities of water quickly that it can transpire and absorb and store large quantities of water quickly that it can transpire and absorb and store large quantities of water quickly that it can transpire and absorb and store large quantities of water quickly that it can endure periods as long as 6 years without appreciable rainfall and sustain no damage.

◆ Desert Breeze ◆

APRIL 1996

ISSUE # 3

AWESOME APRIL

Its that time again, I want to thank every one who participated in last months panel. I learned a lot, and I hope you did too. Congratulations to March's Mini-Show winners:

EUPHORBIA

- 1ST. Place Gary Davies
E. buplerifolia
2ND. Place Gene Joseph
E. obesa hybrid
3RD. Place Debra Shepherd
E. esculenta

FEROCACTUS

- 1ST. Place Miles Anderson
F. cylindraceus v. lecontei crest
2ND. Place Gene Joseph
F. chrysacanthus
3RD (TIE) Mary Church
F. gracilis
Gary Davies
F. melocactiformis

This month remember to bring your Copiapoas, and/or Caudiciforms. This month your wonderful Vice-President has arranged for the one and only Miles Anderson to speak to us about training your caudiciforms, in a program called **CAUDICCIPLINE**. Do not I repeat DO NOT miss this next meeting.

If you or someone you know are planning a trip to California and would like to know what is happening in the area concerning Cactus and Succulent Clubs let me know. I have a copy of the show and meetingschedule of the whole California area.

If you would like more information on diatomaceous earth (last month's issue), please let me know, for I was sent morainformation on this subject.

NEIGHBORS 10 CACTUS WREN

The dictionary defines 'curious' in various ways: unnecessarily inquisitive, singular, strange, arousing curiosity. Arizona's state bird, *campylorhynchus brunneicapillus*, the Cactus Wren to most of us, is byall those definitions curious.

The cactus wren is singular in that it is the largest of North America's seven species of wrens. It is strange in that it can walk on, roost in, and nest among the spiny arms of a cholla, as well as in a yucca, tree, or bush. It certainly aroused curiosity with its noisy call and flashy manner. and it seems to me that investigating the inside of my car or garage is unnecessarily inquisitive.

Cactus wrens always seem to be poking around on the ground, looking for edibles, which includes seeds and berries, invertebrates, and even small reptiles and amphibians. You may find them looking under the eaves of your house or the wheel wells of your Ford, or even picking 'roadkill' out of your car's radiator.

Cactus wren nests are ball-shaped, with an opening in the side. Depending on the season, the opening may face one way to avoid cool morning breezes in spring, or another way to deliberately catch the cool breeze on a summer afternoon. the nest, well-lined with softmaterials, is not only cool due to the side opening, but has higher humidity, helping the chicks toconserve moisture. A principal source of thamoisture is the insects which Mom brings to the nest particularly grasshoppers. In fact, mothercactus wren regulates the size of her clutch of eggs by the available supply of grasshoppers. How does she know in advance how abundant grasshoppers will be when her finally eggs hatch weeks after they are laid? Well. I told you that cactus wrens can arouse our curiosity.

By: Les Sloan



CAUDICIFORMS

This group of plants is very difficult to define, but whatever botanists or collectors have decided to include in it, they are generally very popular with enthusiasts of exotic plants. The general requirements to be a "caudiciform" are the presence of a thickened, water-storing root or stem which may be above or below ground. They are most often perennial with deciduous vines. When speaking of caudiciforms as a group, most people are speaking also of trees and shrubs with thickened trunks, more properly called a pachycaul. This definition begins to blur with plants such as a *Brachychitons* which make good bonsai plants, but if not trained, and planted in the ground, a fairly normal tree will form. One would hardly consider it a succulent. There are a great many vegetables in the grocery store produce department that indeed fit the definition of a caudiciform better than many plants that are collected as such, which only confirms the conclusion that a caudiciform is whatever you want as long as both root and stem are not slender!

Caudiciform plants are found in a great many plant families, and grow in a wide range of environments which make it impossible at best to make generalizations about growth habits and cultural requirements. Of course every one wants to know exactly when and how much to water them, how to pollinate them, seedling care, etc. It is safer to generalize the following: geophytic caudices grow fastest if left underground, in spite of the obvious drawback that you cannot admire them on a daily basis. As the plant develops, the caudex can be raised into view. They will also grow much faster if given free root run in a bed of well drained but rich humus, but few collectors have such a facility. For the pachycaul types, a better looking plant is achieved by applying the basic principles of bonsai. That is, grow the plant in pot-bound conditions (but don't forget to replace the soil on occasion for nutrients and upgrade pot size as needed for root health), and prune the top of the plant so that the energy goes into the formation of a caudex instead of the growing tips. This will also result in a more branched plant, as often multiple growing points replace each one that is terminated. It should also be mentioned that not all caudiciforms need training or manipulation, and good old fashioned patience is the only method of producing a fine specimen. For treatment of specific caudiciforms, please refer to the excellent books in our library, or ask one of the many expert growers and collectors at our club meetings. (After all, what is the club for!).

One does not have to travel to exotic lands on far away continents to view caudiciforms and pachycauls in habitat. True, many of the more spectacular species are exotic, but there are a handful of species native to the U.S. that have their own charm. Some of the only cactus caudiciforms come from our own back yards, like *Cereus greggii* (*Peniocereus*) and *Cereus striatus* (*Wilcoxia/Neoevansia*). There are also several species of *Jatropha* native to the U.S. of which at least one (*J. berlandieri* = *J. cathartica*) from Texas is definitely caudiciform. Other caudiciforms include tuberous rooted morning glories (*Ipomea*) and "Elephant Trees" (*Bursera microphylla*). The small seedlings of the southwest coral bean (*Erythrina flabelliformis*) make excellent fat-based, fleshy trunks, but in time form a tall woody shrub. Caudiciforms come in such an array of forms and cultural requirements that everyone is sure to stumble across one that they cannot pass up.

COPIAPOA-(Br. & R. 1922)

The genus *Copiapoa* was named after the town of Copiapo (the capital of the Atacama province of Chile). Most species are native to the coastal desert regions of northern and central Chile. *Copiapoa*'s distinctive features are yellow, scaly, bare or sparsely woolly flowers with a very short tube and a distinct nectar chamber. The fruit has an opening lid above. These features distinguish *Copiapoa* from *Neoporteria* (with a long floral tube) and *Weingartia* (with much larger flower scales). When not flowering, *Copiapoa* can usually be told by their very chalky or brown body color.

Authors disagree on how many species of *Copiapoa* should be recognized, ranging from 17 to 46 viable species. This difference is a result of natural variation in habitat. It has been said it is better to collect *Copiapoa* by location rather than species. Copiapoas live in extremely dense colonies separated by considerable distances. Within each population the morphological characteristics are fairly homogenous, but each population can differ greatly from one another. This explains the rash of species and variety names applied to each population. Whether these deserve taxonomic rank is questionable, as most will cross pollinate. Regardless of taxonomic standing, most Copiapoas are beautiful and worth growing.

Copiapoas are often difficult to keep alive because of their strange biology. In habitat, they may not be rained on for up to twenty years, but are watered almost daily by the very dense coastal fog that rolls in from the Pacific Ocean and condenses on the spines, then dripping onto the ground around the plant. These fogs are seasonal, depending on the temperature of the gulf stream. In cultivation, they need little water, and very porous soil, as they come from one of the world's harshest deserts. They grow very slowly, and many seedlings will not flower until they have grown for many years. These factors have made this genus rather unpopular with nurseries and collectors alike. They are, however, very beautiful plants, and with some patience a *Copiapoa* will become a striking plant in any collection. They tend to be most active during the spring and fall months, and may possibly appreciate a light shade cloth in the hottest part of the summer if they exhibit dormancy during that time.

Copiapoas range in form from huge mounds of clustered heads or stately barrel forms to tiny buttons less than an inch wide. The smaller plants with dark, soft bodies grow faster and flower more easily while the larger types are often slower, and produce very impressive spines. In the past, many of these were imported for collectors, only to grow strange misshapen growing tips on top of magnificent bodies. As with many slow growing wild plants that are put into artificial conditions, the new growth exhibits a weaker, softer, thinner shape resulting from weak or non-existent root systems and too much or too little water. However, many such plants produced side shoots which was the vegetative stock for many fine plants found in collections today. Seed is the easiest way of obtaining many species, as they are much more available than living plants.

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❖ Desert Breeze ❖

JUNE 1996

JUNE MEETING TO START AT 7:00 PM

The Board of Directors has requested that the summer meeting start earlier for your convenience. We hope this will meet your approval.

Circle
**October 10-
13, 1996** on
your Calendar

FootHills
Mall.

Cacti of the Month for June

Coryphanta/ Escobaria

**Bring 2 of these for
showing and sharing
information.**

Succulent of the Month Haworthia

You may bring up to 5 species of this genus for show and be prepared to tell something about each one. Cultural info, habitat, successes, failures, etc.

**If your last name
begins with:**

A thru E

**Please bring
snacks, TCSS will
supply the Drinks.
Thanks!**

Desert Breeze

TUCSON CACTUS & SUCCULENT SOCIETY

JULY 1996

“The Thunder shower, the clearing sky,
And sunset splendor of July.”



During the June meeting, Dick Wiedhopf showed slides of thirty-eight different species of *Haworthia*, twenty-seven of which are considered by M. B. Bayer (1976) as true species.

The slides were all of plants Dick has grown at his house over the past twenty years, and following the meeting he claimed to have listed at least half the names incorrectly. Perhaps all those slides were really of one or two plants?

No man has a good enough memory to be a successful liar!

- Abraham Lincoln



Upcoming!

Our next meeting will be held at the Tucson Botanical Gardens, 7 pm on

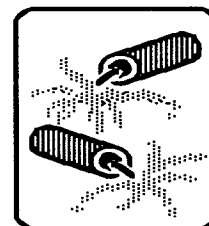
JULY THE 18TH

due to conflicts in schedule with the annual burning of “A” Mountain on the
★★★★★★★★4th★★★★★★★★

July 5-7 CSSA Show and Sale at the Huntington Botanical Gardens.

July 20-28 Henry Shaw Show.

August 17-18 Inner City C&S Show



Saint Swithin Day - July 15 - St. Swithin, Bishop of Winchester, is remembered for this rhyme:

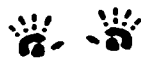
*St. Swithin Day, if thou dost rain,
For forty days it will remain;
St. Swithin Day, if thou be fair,
For forty days 'twill rain na mair.*

It is told that a century after his burial, it was decided to move his remains - against his instructions - to a more prominent place in the Cathedral. It rained so for forty days and nights the change had to be abandoned.

July. It's what you've heard of hell and its fire. The Sonoran Desert. When Cabeza de Vaca first set eyes on it in 1536, he inscribed in his log, "Of all the things I have seen, this is the one that has left me without hope of being able to describe it in words."

Man has carried cactus, or its seeds, to Africa, the Mediterranean, and Australia. Cactus grew in the gardens of the Aztec king Montezuma at Tehuantepec. Legend has it that the gardeners plucked sacrificial blood from their own ears to sprinkle on newly planted cacti. The red fruit, representing sacrificed hearts, was used for barter, and as items of value in a dowry. In ancient Navajo wind chants, Cactus People grow out of rocks and mirages. Some cactus plants have the power to cure skin disease, some work as cardiac stimulants, some as hallucinogens in religious ceremonies. The Cactus People have the power to harm as well as help, and they must be treated with respect. In legend, the tribe wanders, eating nothing but desert plants. One cactus lures them with fruit that smells like strawberries. When the tribespeople eat it, their hearts are twisted with pain. Henceforth that cactus, the *Echinocereus coccineus*, has been called by the name Heart Twister. The custom grew that before eating the fruit of a cactus, a hair must be pulled from one's head and offered to the plant with the words, "Be good, little cactus fruit, and do not twist my heart."

The objectives of the Tucson Cactus and Succulent Society shall be "to function continuously in the study of cacti and native flora..." Notice this doesn't mention other succulents, but it does direct the Society to study, protect and foster the planting of native flora in suitable places. *Acacia willardiana*, or *Palo blanco*, is endemic to western Sonora. It occurs in the coastal mountains from the Sierra Seri to Guaymas and on Tiburón Island. This thin, wispy tree is spineless and has paperlike, peeling white bark. The trunk and limbs are usually straight, slender, and flexible, yet the wood is hard. It is most common on rocky slopes and arroyos near mountains. Plant one today!



Parodia (Speg. 1923)

Information about the Genus Parodia was gathered from "The Ultimate Parodia Page" by Willy A. Verheulpen (1996) waverheu@vub.ac.be, who writes the following disclaimer: gathering data and knowledge is a never ending story! He also states that "feedback would be nice, especially if you have any corrections and/or enhancements to propose; proposed changes must be based on documented facts, 'a matter of opinion' is not good enough!"

The first Parodia Plants ever collected were probably the plants that Heinrich Schickendantz collected between 1860-1870? up to around 1890 when he sent some plants to Dr. A. C. Weber in Paris. From this batch, Weber described *Echinocactus microspermus* as early as 1896 (Dictionaire d'Horticulture 496, 1896). This was to become the type plant of the Genus. Up to then the plant was only known as 'Echinocactus.' A further species was described two years later by Karl Schumann, namely *Echinocactus chrysacanthion*. In 1907, Emil Heese described *Echinocactus maassii*.

Nothing much happened with these plants until 1922, when Britton and Rose proposed the name *Hickenia* for this Genus without knowing however that this name had already been given to a family in the Asclepeadacea, and hence it was invalid. Two of the Echinocacti, *maassii* and *escayachensis*, were transferred by these authors to the Genus *Malacocarpus*. It was Dr. Carlos Spegazzini who proposed the name Parodia in honor of Dr. Domingo Parodi (1895-1966), investigator of the flora of Paraguay. (Some books list that the name is derived from the Spanish word 'parodo' which means 'mountain pass'. Mr. Verheulpen calls this a quirk of unknown origin.)

From the "Cactus and Succulent Journal" (U.S.), Vol. 62 re: Parodia (Keisling and Ferrari, 1990): In the past thirty years many collections have been made in the field, producing a great interest in the group. Many of the new discoveries were published with scientific names but without good understanding of the considerable variability of some species and the extent of their adaptations to different environments.

The proliferation of specific names based upon quite minimal variations makes the study of this group very difficult, especially when in general the descriptions are deficient. The appearance of these plants changes considerably under cultivation, especially if they are overfed and grown with insufficient light, causing the stems to be overly large and the spines poorly developed. Also, a lack of overhead watering and the other artificial greenhouse conditions, will produce overly woolly areoles, giving the plants an attractive but unnatural appearance. All this can be seen in the illustrations of the many proposed "new species" published in recent years.

Plants small to medium size: 5-30 cm in diameter, depressed-globose to shortly columnar. *Ribs* present or completely dissolved into tubercles. *Spines* straight, arched or hooked. *Flowers* funnellform to campanulate, 2.5-6 cm in diameter. *Parodia* is distributed from central and southern Bolivia to northwestern Argentina.

Echeveria (Crassulacea)

Echeveria comprises one of the largest genera of North American succulent species, widely distributed throughout Mexico and Central America, with one species in Texas. They are freely branched plants, rapidly forming clusters of varying shaped rosettes of fleshy leaves with smooth margins and generally with small pronounced tips. The inflorescence have several bracts and bell-shaped flowers on stalks. The cover of the CSSA Journal, Vol. 66, No.3 is a beautiful photo including many echeverias taken inside Gerry Barad's coolhouse... and that's about all a month of scrounging turned up!



It would be wonderful to have articles about those cacti and succulents designated as plants of the month for the future. Plants of the month for the remainder of the year are:

September
October
November

Tephrocactus
Ariocarpus
Cephalium cactus

Lithops
Stapeliads
Kalanchoe

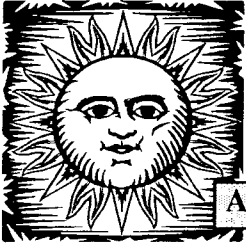
Submitted to the CSSA Journal, Vol. 66, No. 1, by Larry W. Mitich: Writing in *The Desert Magazine* in June 1938, Ruby Bowen related the Papago legend of the Desert Queen, better known as *Peniocereus greggii*, the night-blooming cereus of Arizona. Wrote she:

Long ago, says a Papago legend, there lived a wrinkled and bent, kindly old Papago grandmother who all her life had yearned to be beautiful. When it came time for her to set her burden basket down, Great Spirit heard her and granting her life-long wish, he touched her shriveled arms, so like dried sticks, and wherever he touched them, flower buds appeared. Once a year there after, the little brown Papago grandmother is permitted to reign for one magic night as the beautiful Flower Queen over all other desert blossoms.

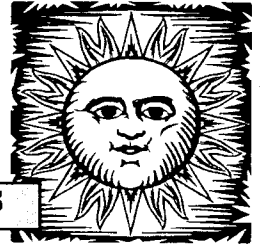
On a warm June evening as that haunting perfume of the night-blooming cereus, which Indians call the "Ghost Smell," drifts across the desert sand, knowing Papagos will tell you that Great Spirit's promise has again reached fulfillment, and she who carried beauty unrequited in her heart those many years reigns again in floral loveliness.

Thus the desert Indians explain simply and beautifully that which has baffled botanists for many years, the presence of the indescribably lovely Desert Queen on our southwestern deserts, fragrantly blooming, inexplicably carrying on her traditions during one of the hottest, driest seasons of the year.





Desert Breeze



August/September 1996

Volume 1 Issue 8

People who think that they can run the earth should begin with a small garden.

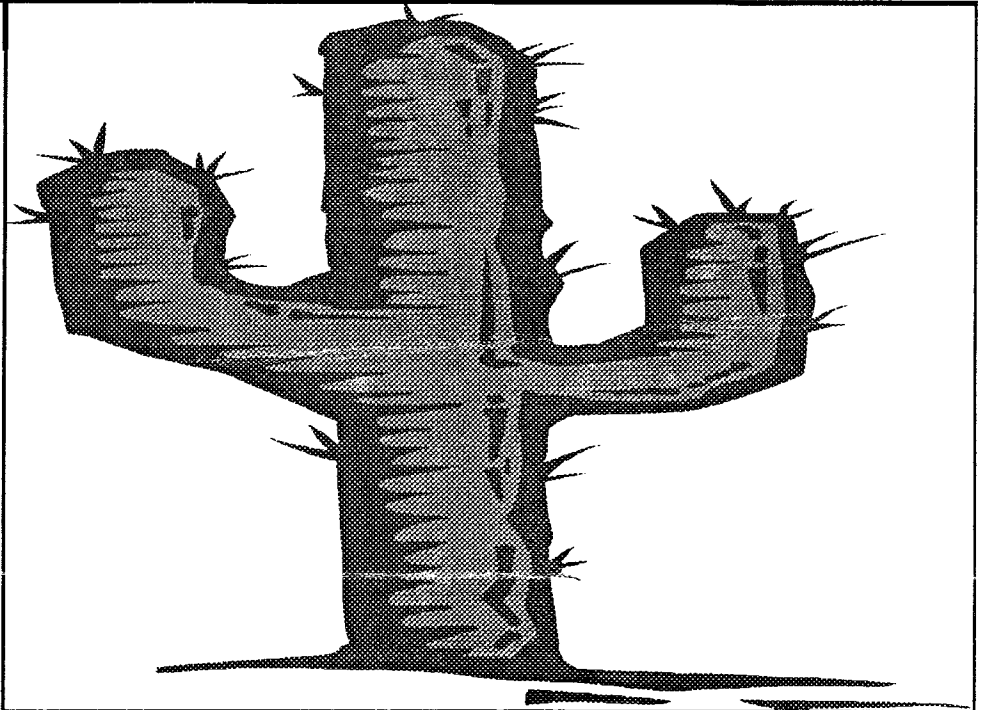
Rain in Summer

*How beautiful is the rain !
After the dust and heat,
In the broad and fiery street,
In the narrow lane,
How beautiful is the rain!*

*How it clatters along the roofs,
Like the tramp of hoofs!
How it gushes and struggles out
From the throat of the overflowing spout*

*Across the windowpane
It pours and pours;
And swift and wide,
With a muddy tide,
Like a river down the gutter roars
The rain, the welcome rain!*

Henry Wadsworth Longfellow



All would live long, but none would be old.

Benjamin Franklin.

Dalea spinosa

There are thirty-six species of *Dalea* in Arizona. *Dalea spinosa* is an intricately-branched ascending bush or small tree, 4-9m high with seemingly leafless, spine-like branches. The stems, leaves and parts of the flowers are ashy-gray. It has small, early deciduous, simple leaves. In Apr-June, the small, pea-like, violet-to-indigo flowers in spike-like racemes make an impressive display. The gland-dotted fruit is a small pod with grayish-white, fine hairs. In order to germinate, the seed coats must be scarred by the abrasive action of rushing water, rocks, and sands during a flash flood, ensuring sufficient water for the young plants. Found in sandy washes in frost-free areas at 250 to 1000'; aka Smokethorn or Indigo Bush.

July meeting a tour of the C&S Garden

Cecily Gill, Curator of the Tucson Botanical Gardens was the speaker during our July meeting. She gave a tour of the cactus and succulent garden, and spoke about its history as well as plans for the future. Matt Johnson designed the garden in the late 80's using input from other TCSS club members. The garden is primarily to appeal to and educate out of town visitors, show hardy plants to local landscapers, and to display many new and old world arid regions. For the future, an interpretive guide booklet and pot specimens for a

planned xeriscape patio area will be needed, as well as volunteers of time and funds to update tags and keep the garden flourishing. Because the gardens are based on a design and occupy a finite space, many plant donations are turned down. Instead, funds are appreciated to allow flexibility depending on the garden's most pressing needs. Cecily pointed out those plants most recently purchased using TCSS funds. If you have not seen the garden in over a year, take time for a visit. It's looking much more prosperous and succulent!

inside...

CACTUS OF THE MONTH: TEPHROCACTUS
SUCCULENT OF THE MONTH: LITHOPS
A SERIOUS AND NOT ALL CEREUS LOOK... !

page 3
page 4
page 5

Tourists baffled in great outdoors

A woman vacationer, disturbed and in tears, entered the visitor center for California's Redwood National Park, then searched out a park ranger. With her speech choked by sobs, she explained she had seen "dozens of Irish setters lying along the highway," apparently injured, and nobody was doing anything to help them.

The ranger responded by immediately driving off and surveying the highway, then returned and explained to the woman that the Irish setters "were pieces of redwood bark that had fallen off logging trucks."

At the Grand Canyon, after a one-hour interpretive group hike, the ranger asked the group if there were any questions. "Is this man-made?" came one. Then later, "So where are the faces of the presidents?" Then finally, "I bought tickets for the elevator to the bottom. Where is it?"

At Yosemite National Park, a vacationer walked into the information station in the valley, sought out a ranger, then asked, "What happened to the other half of Half Dome?" Another asked, "Do you turn the waterfalls off at night?"

Last summer, a group of horrified European tourists entered the Wawona Ranger Station and said their car had been "blown up by terrorists" and that "powder residue from the explosive" was all over the back seat. Inspecting rangers found that the "powder residue from the explosive: was actually flour from a box of pancake mix, and that bear paw prints were everywhere amid the powder.

A woman from the San Francisco Bay area was hiking to the top of El Capitan on the popular North Rim Trail, a seven-mile hike, when she became lost, saw clouds forming, and called 911 on her cellular phone and asked to be rescued. A helicopter rescue team found

her barely off the trail and only about a quarter mile from the top of El Capitan. Then when the helicopter lifted off with her - and she saw how close she was to the top - she asked the crew to land and let her back out. When the crewmembers declined, she threatened to sue them for kidnapping.

Another woman hiker in Yosemite also called 911 with her cellular phone, this time from the top of Half Dome.

"Do you feel sick?" she was asked.

"No, I'm just really tired and I want my friends to drive to the base and pick me up."

"You'll have to hike back down the trail for that," she was told by the dispatcher."

"But you don't understand. I'm really tired." Then, according to a ranger, "her phone battery luckily died."

Adapted from Tom Stienstra, San Francisco Examiner in the Arizona Daily Star, July 8, 1996.

Submitted by Mary Odette.

Dear Mesemb enthusiast, (from 5/13/96)

For the past four years, several of the Southern California members of the Mesemb Study Group have gathered each autumn at my home. We feel it is time to extend a personal invitation to all MSGers in California and Arizona. We will meet on Saturday, Nov. 2, starting at about 10 AM. Mostly we talk. About the latest mesemb books and articles, taxonomy, cultivation, ... and the sheer joy of mesembs. There are always plants and seeds to share, plants that need a name, people that need a little help with something unusual, others with something special to show. It's a very informal day. No speakers, lectures, tours or auctions. Just good people, good food, and great plants. We are a varied group: a couple have grown mesembs for just a few years, others have many years experience, most are in between, and there is a commercial grower or two. The one thing we all have in common is a deep interest in these wonderful plants. Won't you join us this year?

Tim Jackson, 8959 Valley View Ave.,
Whittier, CA 90605-1721. Ph: 310-693-5761
email: timjackson@loop.com

Bar in a baobab tree has its clientele thinking big

DUIWELSKLOOF, South Africa (AP) Walk around Dougie van Heerden's baobab - all 154 feet around- and you think: big tree. Step inside and saddle up to the bar and you think: very big tree.

The bar inside the sprawling baobab, which grows on van Heerden's mango, avocado and citrus farm 200 miles north of Johannesburg, seats a dozen people comfortably. On a recent evening, 56 partiers squeezed inside.

The South African Dendrological Society, which keeps track of such things, says the tree is the second-biggest of its kind in the country. The biggest, which is nearby, doesn't have a bar.

Baobabs (*Adansonia*) squat on the dry plains of southern Africa and Australia. Honey bees build hives in their gnarled branches and baboons enjoy their fruit, which is known as monkey bread. People have found their own uses for the elephantine trunks, hollowing them out to store grain, water, even mail.

Van Heerden decided on a bar three years ago after his farm workers, trying to

drive out snakes, set a fire inside the tree. The yard-thick walls of the tree bar are rough and gray, showing signs of having been burned and scraped clean with steel brushes.

Van Heerden has decorated the tree with a collection of brass ship and miners' lamps - appropriately enough, as the cramped quarters resemble a cabin or a shaft, or a cozy wooden cave. Twenty feet above patrons heads, a few natural openings in the trunk let in shafts of sunlight.

Van Heerden has fitted the bar with benches and a wooden bar with five stools. Pipes carry in water and electric wires, and beer is available on tap. He rents the baobab and surrounding patio out for private gatherings at about \$60 a night.

Jutta von Breytenbach, secretary-treasurer of the Dendrological Society, worried that all the human activity could damage the baobab. She bristled at the idea of trees being turned into roadside attractions. "It's better to keep quiet about big trees," she said.

From the Arizona Daily Star, submitted by Gary Davies

Cactus of the month: Tephrocactus

Tephrocactus was described by Lemaire in 1862, and to it he referred 8 species of *Opuntia*. *T. diadematus* is the type species. Schumann included it in *Opuntia* as a subgenus, with 15 species. They are all South American, chiefly in Argentina and Bolivia. Four series were recognized by Britton and Rose (1937).

Series 1. WEBERIANAE. Plants low, forming dense clumps; joints subcylindric, strongly tuberculate and bearing numerous spines. Only one species known, inhabiting the dry part of northern Argentina.

Series 2. FLOCCOSAE. Low plants, forming dense clumps or mounds; joints short, thick and fleshy, usually covered with long, white, silky hairs. The two species are common in the high valleys of the Andes of Peru and Bolivia. *O. floccosa* is one of the most unusual and striking species of all the opuntias. Mr. M. F. Cook, in the Journal of Heredity 8:113.1917) wrote:

Many exposed slopes on the bleak plateaus of the high Andes are dotted with clumps of pure white cacti that look from a distance like small masses of snow. On closer view, the shaggy white hair of these cacti make them appear like small sheep or poodle-dogs, or like reduced caricatures of the denizens of the arctic regions. We are so accustomed to think of cacti primarily as desert plants, peculiarly adapted to hot, dry deserts, that they seem distinctly out of place on the cold plateaus of the high Andes of southern Peru.

While most of the plants are covered with long white hairs, plants without hairs are not uncommon. These naked plants, which are characteristic of the whole clump or colony, appear at first sight very unlike the other forms, but they grow in the same region and have the same kind of flowers and fruits. In cultivated plants few hairs are developed. The variety *denudata* Weber seems to be only one of these naked forms. *O. lagopus*. This species is related to *O. flaccosa*, with which it often grows, but it takes on a very different habit, growing in very dense, peculiar rounded mounds much

higher than those formed by *O. floccosa*. **Series 3. GLOMERATAE.** Plants low, composed of globose or oblong joints, the spines, or some of them, modified into flat papery processes. *O. australis* from the southernmost parts of Argentina. Plants often with large roots, these 5 to 8 cm. long by 2 to 3 cm. in diameter and larger than the parts above ground. Central spines, 1 or 2, much

The flowers had one day arrested his attention by the great irritability which their stamens manifested upon his inserting a piece of straw into the tube,....

longer than the radials, 2 cm. long, erect, flattened, and somewhat papery; flowers yellow. *O. glomerata*, which is common on the dry hills about Mendoza (western Argentina), is very variable. the spines - which are really not spines but thin ribbon-like processes - vary much as to their color, markings and length. Forming low, spreading clumps, the branches either erect or prostrate; dull grayish brown, bearing numerous long, brown glochids; spines, often wanting, when present 1 to 3, long, weak, thin and papery, sometimes 10 cm. long.

Series 4. PENTLANDIANAE. Plants often growing in large mounds; joints globular to oblong; spines usually slender. Nineteen species were recognized: in B&R (1927)

Spines very long and stout, up to 15 to 20 cm. long: *O. aoracantha*, Spines slender, 10 cm. or less, spines appressed to the joints, spines 12 to 20, flexuous; joints 7 cm. long *O. rauppiana*, Spines 6 or 7.; joints 2 to 4 cm. long *O. subterranea*. Spines straight, not appressed. Spines flat or simiterete, spines 7 to 10 cm. long: *O. hicked*. Spines 6 cm. long or less. Longer spines 1 to 3, joints ellipsoid, 4 to 5 cm. thick: *O. darwinii*. Joints oblong, 1 cm. thick: *O. tarapacana*. Longer spines 4 or 5: spines gray: *O. atacamensis* spines yellow: *O. russellii*. Spines terete.

Spines white, at least when young. Joints tuberculate: *O. corrugata*. Joints not tuberculate. Joints oblong: *O. ovata*. Joints globose: *O. sphaerica*. Spines yellow to brown or nearly black. Roots large and woody; spines nearly black: *O. skottsbergii*. Roots fibrous. Spines purple-black: *O. nigrispina*. Spines yellow to brown. Plants forming large clumps. Fruit about 2.5 cm. long, nearly unarmed: *O. pentlandii*. Fruit 5 to 6 cm. long, copiously armed with long spines above: *O. ignescens*. Plants isolated, not forming clumps. Old joints globose; spines acicular: *O. campestris*. Joints all oblong; spines subulate: *O. ignota*. *O. alexanderii*: Low, depressed, forming a small clump; joints readily detached, grayish green, strongly tubercled, globose, 2 to 3 cm. in diameter, nearly hidden by the numerous spines; spines 4 to 12, up to 4 cm. long, flexible, white below, dark above or with black tips, scurfy-pubescent even in age, and *O. wetmorei* forming low mounds of considerable extent with hundreds of branches, otherwise similar to *darwinii*.

Regarding *darwinii*, the following note is taken from Mr. Henslow's article as it appeared in the Magazine of Zoology and Botany, volume I, page 467:

I named this interesting Cactus after my friend C. Darwin, Esq., who has recently returned to England after five years' absence on board H.M.S. *Beagle*, whilst she was employed in surveying the southernmost parts of South America. The specimen was gathered in the month of January, at Port Desire, lat. 47° S in Patagonia. He recollects also to have seen the same plant in flower as far south as Port St. Julian in lat. 49° S. The flowers had one day arrested his attention by the great irritability which their stamens manifested upon his inserting a piece of straw into the tube, when they immediately collapsed round the pistil, and the segments of the perianth soon after closed also. The geographical position of this species is beyond the limits hitherto assigned to any of the order, which are not recorded as growing much south of the tropic of Capricorn. The climate is remarkably dry and clear, hot in summer, but with sharp frosts during the winter nights.

Britton, N.L., & Rose, J.N. (1937) *The Cactaceae: Descriptions and Illustrations of Plants of the Cactus Family*. New York: Dover Pub.



**Plants for the
Southwest
50 E. Blackledge
Tucson 85705
602-628-8773**

PLANT FEATURE: Lithops

Lithops are succulent plants in the ice plant family, the Aizoaceae (used to be Mesembryanthemaceae). There are 36 species including about 150 varieties of Lithops native to the countries of South Africa and Namibia. They grow in deserts similar to ours with rainfalls ranging for the different types from a few inches to as much as twenty inches and temperatures ranging from below freezing to as high as 120F. They occupy a niche like our cacti, growing in rocky places with the plants having evolved to be the color of the rocks they grow in, thus the name 'livingstones'. (Lith==Greek for rock, ops==Greek for like) The colors and markings are what make Lithops so appealing. They range from pure white and no markings to tan with blood red dots to slate grey with black lines. Once you start staring at them, its hard to stop. They are typically small plants, from single headed plants at about an inch in size to six inch diameter plants (15 to 20 years old) with up to fifty heads. Lithops flower in fall with either white or yellow flowers depending on the species.

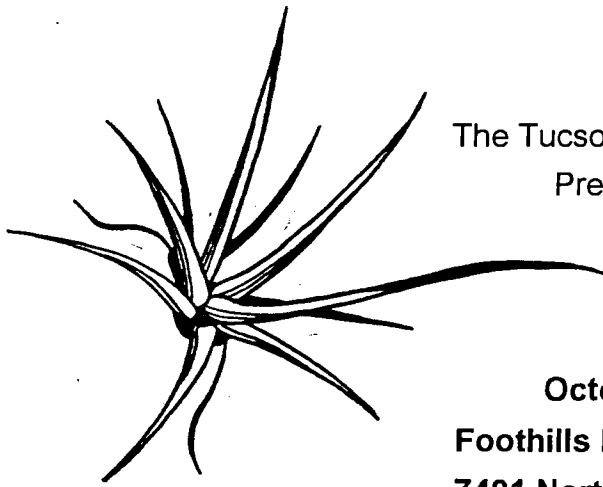
Lithops Care Instructions

LIGHT: Lithops are best grown outdoors under filtered light, but can tolerate full sun in winter or morning summer sun until about ten, and late afternoon summer sun after about four. A well grown Lithops is a compact cluster of pairs of leaves (head). If they are grown in low light, the heads will elongate and the plants will ultimately die. Bright light also brings out the best color of the leaves.

WATERING: The growing season for Lithops is actually split into two. At the end of summer or the beginning of fall, Lithops come out of their summer dormancy and begin to grow and flower. The growth is noticeable only as a slight increase in the size of the already existing heads and more importantly, they flower. During the fall growing season, Lithops should be watered regularly, depending on your specific conditions (light, air movement, soil, pot size, etc.) about once per week. After flowering these plants enter an apparent dormancy. They are not truly dormant, but are renewing their leaves by recycling the nutrients from the older leaves into the yet invisible new leaves. At this time they just sit there, somewhat wrinkled and do not need any outside moisture. (If the winter is dry, I usually give them a light spray of water once a month.) If they are potted in a well drained soil mix, and they should be, they will tolerate our normal winter rainfall. When the temperatures warm in spring, the new leaves emerge from between the older ones, these drying to a papery outer sheath, and a regular watering schedule can be resumed until the temperatures regularly stay over about 100F when Lithops become truly dormant for the summer. At this time also, I lightly spray them down, enough to wash the dust off only, about once every two weeks.

TEMPERATURE: As a group, Lithops are cold hardy to about 25F with some species having been tested to as low as 0F. They can tolerate high temperatures as high as 120F, if they are properly shaded..

Plants for the Southwest has the largest collection of correctly labeled Lithops in the world.



The Tucson Cactus and Succulent Society
Presents.....

**a SERIOUS and not all CEREUS
look at CACTI and SUCCULENTS
of the SONORAN DESERT**

October 11-13, 1996

Foothills Mall

7401 North La Cholla Boulevard

(Ina & La Cholla - NW Corner)

We are delighted about your interest in our October event, and hope you will find many things that interest you in our program. This is the first time the TCSS has held an event like this and we are very excited about it. Our purpose is primarily to inform you about, and acquaint you with the cacti and succulents of the Sonoran Desert. We also want to give you information and ideas for growing them. Even if you do not live in the Sonoran Desert, our goal is to provide information and an appreciation of the Sonoran Desert and its flora.

Most of the speakers will be presenting interesting background information regarding the cacti and succulents of the Sonoran Desert: the workshops will provide the "how to" of cacti and succulents. We also want to have fun! Included in the program is a Silent Auction where you might pick up a very special plant; a raffle with fun things that will enhance your enjoyment of plants and life in general; a Plant Show you can enter for competitive fun (that you will also judge); many vendors (where you can spend money you don't have); and food to support your caloric needs.

We are able to offer, to a limited number of participants, a tour of the cacti and succulents of the Arizona-Sonora Desert Museum. This is a wonderful opportunity for anyone who has not been to the museum or who has visited there but has not had a tour by a member of the Botany staff. There will be no extra charge for this tour. You will be responsible for getting there on your own. We will supply a map (it's easy to get there).

It is important for you to be aware that the Workshops and the Tour will be filled in the order in which registrations are received.

The fee for this event is \$45.00. If you are a TCSS Member it is \$25.00.

Enclosed are:

1. Registration Form
2. Program Schedule
3. Synopsis of Talks and Workshops and Information on Presenters
4. Guidelines and Rules for the Plant Show
5. Plant Show Entry Forms
6. Directions to Foothills Mall Entrance on East

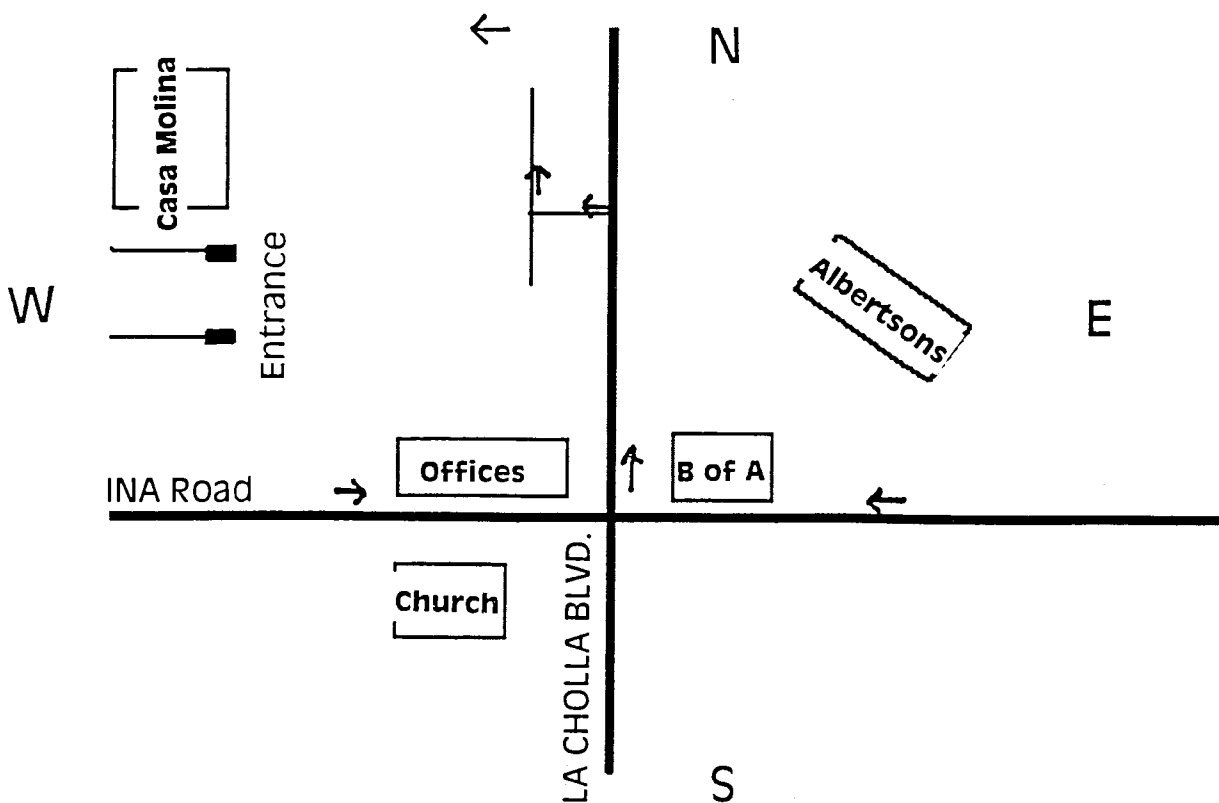
DIRECTIONS TO: FOOTHILLS MALL ENTRANCE ON EAST

From I-10

1. From I-10 take INA ROAD EXIT.
2. Travel EAST on INA ROAD to LA CHOLLA BLVD.
3. Turn LEFT on LA CHOLLA traveling NORTH.
4. Turn LEFT at the first LEFT turn into the Foothills Mall Parking lot.
5. Turn RIGHT to take you down into the parking lot.
6. Look for the CASA MOLINA (restaurant). The ENTRANCE will be to the south of the restaurant right next to it.

From Oracle Rd., 1st Ave., Campbell Ave.

1. Go north to INA ROAD.
2. Turn LEFT on INA ROAD traveling WEST.
3. Continue on INA ROAD to LA CHOLLA BLVD.
4. Turn RIGHT on LA CHOLLA traveling NORTH.
5. Turn LEFT at the first LEFT turn into the Foothills Parking lot.
6. Turn RIGHT to take you down into the parking lot.
7. Look for the CASA MOLINA (restaurant). The ENTRANCE will be to the south of the restaurant right next to it.



The Tucson Cactus and Succulent Society
Presents.....a **SERIOUS** and not all **CEREUS**
look at CACTI and SUCCULENTS
of the Sonoran Desert

PROGRAM SCHEDULE

THURSDAY, OCTOBER 10, 1996

4:00 PM-9:00 PM Set up
 TCSS October Meeting at Foothills Mall
 with members assisting in set up
 Bring plants for Plant Show

FRIDAY, OCTOBER 11, 1996

7:30 AM-10:00 AM Set up
 Bring plants for Plant Show

10:00 AM -6:30 PM Sales
 Raffle-buy your tickets at TCSS Sales Area
 Bring plants for Plant Show

2:00 PM - 6:30 PM **REGISTRATION**
----- 6:30 PM Dinner (on own)

6:30 PM - 7:30 PM **WELCOME RECEPTION AND DESSERT**

7:30 PM - 8:30 PM Speaker, Peter Gierlach
 "AGAVE at the Office:
 A Horticulturalist Lost in Social Services"

SATURDAY, OCTOBER 12, 1996

8:00 AM - 9:00 AM **REGISTRATION**
 Bring plants for Plant Show

Continuous Events

8:00 AM-4:00 PM Silent Auction-Place your bids

8:00 AM-6:00 PM Raffle - buy your tickets at TCSS Sales Area

10:00AM-6:00 PM Plant Show - vote for YOUR favorites

9:00 AM - 9:45 AM Speaker, Tom Van Devender
 "HISTORICAL BIOGEOGRAPHY OF THE SONORAN
 DESERT AND ITS' SUCCULENTS

10:00 AM-10:45 AM Speaker, Kent Newland
 "OVERVIEW OF THE CACTI AND SUCCULENTS
 OF THE SONORAN DESERT"

11:00 AM-11:45 AM Speaker, Gene Joseph
 "GROWING POTTED CACTI AND SUCCULENTS IN
 THE SONORAN DESERT"

12:00 PM - 2:30 PM Lunch (on own) (OVER)

SATURDAY, OCTOBER 12, 1996 (continued)

2:30 PM-3:30 PM

Workshops

1. Mark Sitter - BASICS AND MORE ABOUT GROWING CACTI AND SUCCULENTS FOR THE LANDSCAPE IN THE SONORAN DESERT
2. Kent Newland - AGAVES FOR ARIZONA GARDENS
3. Michael Stoklos - PLANT PHOTOGRAPHY: CLOSE UP WORK
4. Gene Joseph - MOUNTING ROCK FIGS

4:00 PM

Silent Auction ends EXACTLY at 4:00 PM!!

4:00 PM-4:30 PM

Silent Auction highest bidders pick up
and pay for your plants, etc.

-----7:30 PM

Dinner (on own)

SUNDAY, OCTOBER 13, 1996

7:00 AM - 9:00 AM

Tour of the cacti and succulents of the
Arizona-Sonora Desert Museum by Mark Sitter

8:30 AM-10:30 AM

CONTINENTAL BREAKFAST

Continuous Events

8:30 AM-11:00 AM

Plant Show - vote for YOUR favorites

8:30 AM- 1:30 PM

Raffle - buy your tickets at the TCSS Sales Area

8:30 AM- 2:30 PM

Sales

10:30 AM-11:15 AM

Speaker, Matt Johnson
"SUCCULENT TREES AND SHRUBS OF
THE SONORAN DESERT"

11:30 AM-12:30 P

Workshops

1. Miles Anderson - GRAFTING CACTI AND OTHER SUCCULENTS-A MISUNDERSTOOD METHOD OF PROPAGATION
2. Julie Turko - GROWING EUPHORBIA IN THE SONORAN DESERT
3. Jane Evans - WINTER GROWERS: HOW TO GROW, POT UP, AND PROPAGATE
4. Judy Mielke - LANDSCAPING WITH CACTI AND SUCCULENTS

12:45 PM- 3:00 PM

FAREWELL LUNCHEON

Speaker, Richard Felger
"ECONOMIC USES OF SUCCULENTS
OF THE SONORAN DESERT REGION
Announcement of Raffle and Plant Show winners

SYNOPSIS OF TALKS AND WORKSHOPS AND INFORMATION ON PRESENTERS

Alphabetical by last name of presenter

MILES ANDERSON

Workshop: GRAFTING CACTI AND SUCCULENTS-A MISUNDERSTOOD
METHOD OF PROPAGATION

Miles will give a brief talk about what grafting is and its uses in propagating succulent plants, followed by a demonstration of grafting techniques on various families and species of succulent plants. He will conclude with audience participation.

Miles Anderson is the owner of a small local mail order cactus and succulent nursery, MILES TO GO. He uses grafting extensively, but not exclusively, to propagate rare plants. Miles is a member of TCSS.

JANE EVANS

Workshop: WINTER GROWERS: HOW TO GROW, POT UP
AND PROPAGATE THEM

In her talk, Jane will include a general discussion of winter growers and techniques for growing them. Emphasis will be on potted plants and examples will be given of plants to pot up and propagate. She will demonstrate cutting techniques and participants will receive a cutting.

Jane Evans has her B.S. in Horticulture from the University of Arizona. She is co-owner of PLANTS FOR THE SOUTHWEST/LIVING STONES NURSERY. Prior to that she was owner of THE GARDEN FLOWER SHOP for 12 years. Jane is a member of the Arizona Native Plant Society and has been Chairperson of the Urban Landscape Committee for the last four Desert Plant booklets published by that committee. Over the past school year she has worked with the teachers and students at Keeling Elementary School to develop a Bird and Butterfly Garden. Jane is a member of TCSS.

RICHARD FELGER

Talk: ECONOMIC USES OF SUCCULENTS OF THE SONORAN DESERT REGION

Life in the Sonoran Desert Region would indeed have been very hard for the Sonoran Desert Peoples without the many diverse succulent plants. The Seri, Mayo, Yaqui, various O'odham groups, Opató and Baja California peoples used succulents for food, medicines, building materials, basketry, dyes and clothing. The most prominent succulents used by the Sonoran Desert Peoples are in the following plant families: *Cactaceae*, *Agavaceae*, *Cucurbitaceae*, *Euphorbiaceae*, *Chenopodiaceae* and *Burseraceae*.

Richard Felger is Director of the Dry Lands Institute in Tucson and is a Senior Research Scientist with the Environmental Research Lab at the University of Arizona. As a researcher he looks upon himself as a student of the natural history of the arid regions of the world (particularly the Sonoran Desert Region) and their peoples' uses of plants. He is co-author of People of the Desert and Sea Ethnobotany of the Seri Indians. Currently he is writing a book on the trees of the State of Sonora, Mexico and another book on the flora of the Pinacate Region in Sonora, Mexico. Richard is a member of TCSS.

PETER GIERLACH

Talk: AGAVE AT THE OFFICE: A HORTICULTURIST LOST IN SOCIAL SERVICES

Using slides, Peter will talk about his eight year association with DESERT SURVIVORS NURSERY and his love affair with native plants and the areas from whence they come.

Here is what Peter says about himself..."born and raised in Kentucky, came to Tucson to go to the University of Arizona, last major was Wildlife Biology before dropping out to pursue a musical career. Nine years later, I got my first job in a nursery as a laborer and have worked in nurseries for the last 18 years. In May of '95 my family and I moved to the west side of the Chiricahuas (mountains in southeastern Arizona) in Cochise County to live and start our own nursery (SPADEFOOT NURSERY). I have a 5 minute radio show once a week on KXCI Community Radio that celebrates plants and the life in southern "Arizona called... 'Growing Native With Petey Mesquity.' Petey goes everywhere with me."

MATT JOHNSON

Talk: SUCCULENT TREES AND SHRUBS OF THE SONORAN DESERT

Matt will discuss succulent/semi-succulent trees and shrubs found in the Sonoran Desert including *Bursera*, *Jatropha*, *Fouquieria*, *Pachycormus* and *Euphorbia*. A discussion of the species, their range, and the growing requirements for potted and landscape plants will be covered.

Matt Johnson received his M.S. in Horticulture in 1988 and B.S. in Agriculture (Major: Horticulture), in 1981 from the University of Arizona. He is presently, and has been since 1990, Botanist and Program Manager for the University of Arizona Desert Legume Program. From 1983-1987, he was Park Curator at Tohono Chul Park. Since 1981 he has been a member of TCSS and the Arizona Native Plant Society (President of the Tucson Chapter in 1987). Matt is the author of over 40 publications on the botany or horticulture of arid land plants and has traveled extensively in the southwestern United States and northern Mexico to observe and photograph plants. His travels have also taken him to arid regions of Australia, Argentina and Paraguay.

GENE JOSEPH

Talk: GROWING POTTED CACTI AND SUCCULENTS IN THE SONORAN DESERT

A slide presentation will describe all aspects of growing succulents and cacti here in Southern Arizona, including soil, container types, light, temperature, fertilizing requirements.

Workshop: MOUNTING ROCK FIGS

Gene presents a demonstration and explanation of the bare rooting and mounting of a *Ficus petiolaris* (and/or *palmeri*), onto a rock, including subsequent care requirements.

Gene Joseph has a B.S. in Plant Sciences from the University of Arizona. Was a plant propagator at Arizona-Sonora Desert Museum for 7 years. In his own words, "I now maintain a large collection of plants under the guise of running a business (PLANTS FOR THE SOUTHWEST/LIVING STONES NURSERY for 10 years)." Gene is a member of TCSS.

JUDY MIELKE

Workshop: LANDSCAPING WITH CACTI AND SUCCULENTS

The most beautiful, unique and sculptural cacti and succulents will be the focus of this workshop. Practical considerations for designing with spiky and spiny plants will be addressed, including mature size and cultural requirements. Slides will be used to illustrate design techniques including massing of plants for impact, contrast of textures for interest and highlighting individual specimens.

Judy Mielke is a landscape designer with ARROYO ENVIRONMENTAL DESIGNS in Phoenix. She is the author of Native Plants for Southwestern Landscapes. Judy received her B.S. in Horticulture from Washington State University and a Master of Environmental Planning from Arizona State University. She was a horticulturist with Desert Botanical Garden in Phoenix for nine years.

KENT NEWLAND

Talk: OVERVIEW OF THE CACTI AND SUCCULENTS OF THE SONORAN DESERT

This presentation will feature an overview of the following cacti and succulents that occur in the Sonoran Desert: *Pereskiaopsis*, *Opuntia*, *Carnegiea*, *Pachycereus*, *Mytillocactus*, *Bergerocactus*, *Peniocereus*, *Neoevansia*, *Echinocereus*, *Echinocactus*, *Ferocactus*, *Neolloydia*, *Sclerocactus*, *Coryphantha*, *Mammillaria*, *Agave*, *Yucca*, *Dasyliiron*, *Nolina*, *Hesperaloe*, *Hechtia*, *Pachycormus*, *Plumeria*, *Bursera*, *Maximowiczia*, *Dudleya*, *Graptopetalum*, *Pedilanthus*, *Fouquieria*, *Ficus* and *Talinum*. Various botanical, ecological and ethnobotanical aspects will be featured on these cacti and succulents as well as an overview of their habitats in the various subdivisions of the Sonoran Desert, namely the Lower Colorado Valley, Arizona Upland, Plains and Foothills of Sonora, the Central Gulf Coast, the Viscaino Region and the Magdalens Region.

Workshop: AGAVES FOR ARIZONA GARDENS

In the last several hundred years, *Agaves* have enriched mankind's existence through food, fiber, and beverage. However, there is a renewed interest in agaves from their ethnobotanical aspects such as the movement of *Agaves* by early man throughout the southwest, to their pollination ecology by bats in southern Arizona. With renewed interest, largely through the dedicated efforts of Dr. Howard Scott Gentry, has come a wealth of new *Agaves* into cultivation and a renewed appreciation of these remarkable plants as worthy and excellent landscape subjects for subtropical gardens. This workshop will focus on the botanical, ecological, ethnobotanical and horticultural aspects of the *Agaves* and their landscape values to Arizona gardens.

Kent Newland is presently, and has been for the past 10 years, a Botanist for the City of Phoenix Water Conservation Office in charge of xeriscape education programs. He received his B.S. in Botany from New Mexico State University. He was a horticulturist for the Boyce Thompson Southwestern Arboretum for 15 years. He is presently Chairman of the Arizona Municipal Water Users Conservation Committee and has been President of the Phoenix Chapter of the Arizona Native Plant Society for the past 9 years. He is a member of the International Organization of Succulent Plant Societies and of the Central Arizona Cactus and Succulent Society. Kent has botanized intensely in Arizona, the U.S. southwest, and Mexico looking for new Arizona native and arid region plants for desert gardens.

MARK SITTER

Workshop: THE BASICS AND MORE ABOUT GROWING CACTI AND SUCCULENTS IN THE SONORAN DESERT

Mark will discuss propagation, ways to handle cacti and succulents when working with them, potting soil, types of pots, transplanting from pot to pot, transplanting from pot to ground, water, light, food requirements of the various cacti and succulents. He will tell you when and how to separate *Agave* pups, how to cut back extra growth and separate root bound plants and will suggest tools helpful for working with cacti and succulents.

Mark Sitter is a Landscape Horticulturist at the Arizona-Sonora Desert Museum. He takes care of all the plants at the Ironwood Gallery and Restaurant, Cactus and Succulent Garden, Convergent Evolution Garden and the Walk-in Aviary. He has been studying and growing desert plants for 12 years. He is also an Entomologist, studying Coleoptera (beetles) and Lepidoptera (butterflies and moths). He has traveled extensively in search of plants and insects. Mark has made many field trips to Latin America, Southern and Eastern Africa and the Indo-Pacific. He enjoys growing plants with his main interest in cacti, especially *Ferocactus*. Mark is a member of TCSS.

MICHAEL STOKLOS

Workshop: PLANT PHOTOGRAPHY: CLOSE-UP WORK

Michael will show examples of 35 mm and 4x5 transparencies on light table with 10x enlargement and will discuss films (Kodak vs. Fuji, slides vs. color). He will talk about camera vs. lens choices and show how he would shoot a cactus flower with his lighting kit and flash lights.

Michael Stoklow has traveled widely as a freelance photographer producing works ranging from scenics and fine art prints to commercial photography for publications and advertising agencies. In his many and varied assignments he has photographed celebrities and politicians, shot landscapes in Alaska and southern France, and developed several series of large-format prints for gallery display. He has volunteered his expertise to local non-profit groups and experimented with films and papers for such major manufacturers as Eastman Kodak. His photographs have appeared in *TIME*, *PEOPLE*, *LIFE*, *ARIZONA HIGHWAYS* and others. He has a keen interest in documentary photography. The effects of the war in Nicaragua on its people, 1990 election of Violeta Chamorro in Nicaragua, the Ulta Man Triathlon on the Big Island of Hawaii and 1991 total eclipse in Hawaii have been among his subjects. Since 1990 he has worked on a book which will document the life of a Navajo medicine man. In doing this he has been allowed the privilege of viewing a way of life rarely observed by an outsider. The Navajo name given to him means "Captures Lightening".

As teaching photographer he is one of six photographers featured in a Kodak video, "Visions and View", in 1987. In 1990 he was an instructor in the Kodak Mentor Program, assigning him to a three-city tour to lecture to high school and college level photography instructors.

JULIE TURKO

Workshop: GROWING EUPHORBIAS IN THE SONORAN DESERT

Julie will give a general overview of some of the succulent euphorbias in cultivation, with examples of each growth form. Emphasis will be on container culture. She will give information on propagation and seasonal care, a demonstration of pollination and cutting techniques (each participant can take a cutting home) and a comparison of seedlings vs. mature plants (if possible).

Julie Turko received a B.A. in Liberal Arts from St. John's College, Santa Fe, New Mexico. Her interest in plants led to grounds keeping and propagating landscape plants. A particular interest in succulent plants developed while working at ARID LANDS GREENHOUSES. She has worked there for three years, the first two as propagator and currently as manager. Julie is a member of TCSS.

TOM VAN DEVENDER

Talk: HISTORICAL BIOGEOGRAPHY OF THE SONORAN DESERT AND IT'S SUCCULENTS

The talk will explore the transition from early Tertiary (65 mybp*) tropical forests to the modern biotic communities and biotic provinces in the Miocene (23-5.3 mybp) with the uplift of the Sierra Madre Occidental, the formation of the Sonoran Desert in the late Miocene, and subsequent environmental fluctuations in the Pliocene (5.3-1.6 mybp) and Pleistocene (1.6-.01 mybp). Gradients, landscapes and plants, especially succulents of the Sonoran Desert will illustrate the story.

Tom Van Devender is originally from Texas where he received his B.S. in Biology at Lamar University in Beaumont in 1968. He did his Masters and Doctorate at the University of Arizona (1973, Department of Geosciences, dissertation on reconstructing the Pleistocene vegetation of the Sonoran Desert using plant remains in fossil packrat middens). From 1979 to 1983, he was the Endangered Species Botanist with the Arizona Natural Heritage Program. Since 1983, he has been the Research Scientist at the Arizona-Sonora Desert Museum. He is also an Adjunct Assistant Professor in the Department of Geosciences at the University of Arizona. His research interests have included paleoecology and paleoclimatology of the Chihuahuan and Sonoran Deserts using fossil plant and animal remains in pack rat middens, historical biogeography and evolution of the southwestern biota, floristic studies in various desert and tropical communities in Arizona and Sonora, the relationships of bruchid seed beetles and desert legumes, and the diet and nutrition of the desert tortoise in the Sonoran Desert. Tom Van Devender is co-author of Packrat Middens The Last 40,000 Years of Biotic Change.

(*million years before present)

EXTRA! EXTRA! EXTRA!

Horticulturalist, David Brunner will be our speaker at the September meeting. He has traveled through Mexico, Central America, Paraguay, Argentina and Peru working on botanical surveys. He will be showing slides with emphasis on the cacti and succulents of those areas.

**Please join us, with
David Brunner,
Thursday, September 5th,
7pm
Tucson Botanical Gardens**

If your last name begins N through Z please bring a snack to share.

Bring your plants! Plants of the month are *Tephrocactus* and *Lithops*. Bring as many as you want, and don't forget other favorites for the brag table!

Succulent Symposium
August 31
Speakers include Dan Bach, Steve Hammer, Chuck Hanson, Burl Mostul, Ernst Specks, Carl Volkers and John Pilbeam.

Contact the Huntington
818-405-2160.

September 14-15 is a busy C&S weekend! San Jose, Mid Iowa, Belgium, Houston, and San Antonio, all have shows and/or sales!

A Serious and not all Cereus look at Cacti and Succulents of the Sonoran Desert.

We would like to have background plants for our October event. So many of you have beautiful plants that other people would love to see and would "set the stage" at the Foothills Mall. The plants can be of any size. We would like any cactus, succulent, or other plants that will be discussed in the program. Help will be provided for transportation if needed. Please call Dan Birt @ 325-4967 to give him the name(s) and size of your plant(s).

We would also like everyone to enter at least one plant in the Plant Show. If you don't know the name of one (or more) of your plants and would like to show them, please bring them to the September meeting for identification.

Remember the October meeting will be held at the Foothills Mall. Register early for Program events to have a choice of workshops and the tour of ASDM.

**TUCSON CACTUS AND SUCCULENT SOCIETY
PLANT SHOW - FOOTHILLS MALL - OCTOBER 11-13, 1996**

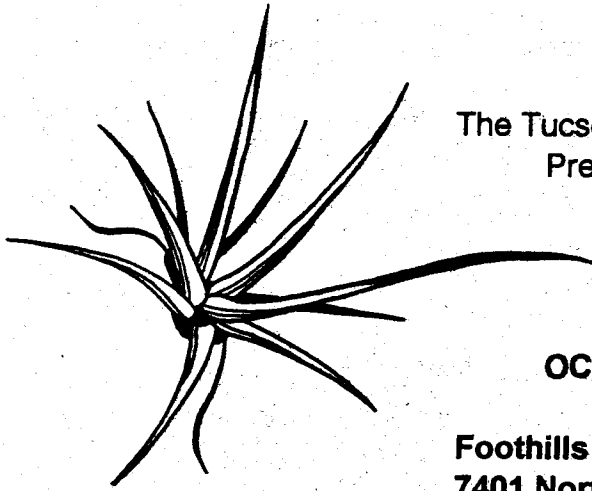
GUIDELINES

1. Do not water your entries for at least two days before entry day.
2. Containers should not be overly ornate and should be suitable for your plant. They should be clean and unbroken and as free from salt accumulations as possible.
3. There should be a top dressing around the plant which will enhance rather than detract from the plant. Natural materials are usually considered most appropriate.
4. It is most convenient for the Plant Show Staging Committee if you bring your plants to the show before Saturday, if possible. (see schedule)
5. We suggest that if you would like to repot your plant, repot it up to six weeks before the show date in order for it to adjust to its new pot. If the pot breaks within six weeks of the show, you can put it inside of a larger pot and cover the surface with top dressing to hide the inner pot.
6. If possible, we would like the entry information to include the part of the world where the plant is native. Also, please try to include the flower color, flowering season, and perhaps the minimum temperature the plant can survive. This is information that may be of interest to the public.
7. Cacti and succulents will be accepted for entry in the Show. There are no specified plant categories.
8. All plant entries will be judged by you and the public.

RULES

The Show Committee will determine if a plant is allowed as an entry according to the criteria below. The decision of the Show Committee is final.

1. You must own the plant for at least six months before the show date.
2. You cannot enter a plant collected in the wild.
3. An entry must be accompanied by a Plant Show Entry Form. We **require** that you submit the following information:
 - a) **Scientific name of the plant (common names optional)**
 - b) **Owner of plant**
 - c) See #6 above for additional optional information you may wish to include. Show Committee will provide a card with this information & will display it with entries.
4. The entry should not:
 - a) Be poorly planted (e.g. not centered in the pot)
 - b) Show etiolation, scars, sun burn, broken spines or broken leaves
 - c) Be in a cracked, broken or unclean pot (including mineral deposits)
 - d) Be diseased or have an insect infestation
 - e) Be ungroomed-no dead leaves, twigs, miscellaneous material, spent flowers (it may have seed pods)
5. The entry must have top dressing
6. There is no size limit for plants as long as you arrange transportation of plants
7. You may bring as many plants as you wish



The Tucson Cactus and Succulent Society
Presents....

a **SERIOUS** and not all **CEREUS**
look at **CACTI** and **SUCCULENTS**
of the **SONORAN DESERT**

OCTOBER 11-13, 1996

**Foothills Mall
7401 North La Cholla Boulevard
(Ina & La Cholla - NW Corner)
Tucson, Arizona**

REGISTRATION FORM

If more than one person will be attending, please duplicate this form and submit a separate form for each registrant. THANK YOU!!

Your Name _____

Street Address _____

City _____ State _____ Zip _____

Home Telephone _____ Work # _____

e.mail _____ Fax Number _____

1. Fee TCSS Member \$25.00 ea. _____

Non-TCSS Member \$45.00 ea. _____

TOTAL ENCLOSED _____

Payment only by check or money order payable to "TCSS". Return form & payment to: TCSS, c/o Odette, 3831 North Cherry Creek Place, Tucson, AZ 85749

2. Plant Show

Please indicate if you plan to enter plant(s) in the Show Yes _____ No _____
(If yes, please see enclosed Plant Show Guidelines and Rules and Plant Show Entry Forms)

3. Would like the tour of the cacti and succulents of The Arizona-Sonora Desert Museum (limited space for 20) Available to paid registrants only

Yes _____ No _____

4. Choice of Workshops

Each workshop has a limited number of spaces. Available to paid registrants only. Workshops run concurrently so you can attend only one on Saturday and one on Sunday. Please decide which workshops (if any), you are interested in attending each day and rate them in 1st, 2nd, 3rd, 4th order. Rate only those you are interested in.

Saturday Workshops (2:30 PM-3:30 PM)

Choice

_____ AGAVES FOR ARIZONA GARDENS by Kent Newland

_____ BASICS AND MORE ABOUT GROWING CACTI AND SUCCULENTS FOR THE LANDSCAPE IN THE SONORAN DESERT by Mark Sitter

_____ MOUNTING Rock Figs by Gene Joseph

_____ PLANT PHOTOGRAPHY: Close up Work by Michael Stoklos

Sunday Workshops (11:30 AM-12:30 PM)

Choice

_____ GRAFTING CACTI AND OTHER SUCCULENTS - A MIS-UNDERSTOOD METHOD OF PROPAGATION by Miles Anderson

_____ GROWING EUPHORBIAS IN THE SONORAN DESERT by Julie Turko

_____ LANDSCAPING WITH CACTI AND SUCCULENTS by Judy Mielke

_____ WINTER GROWERS: HOW TO GROW, POT UP AND PROPAGATE by Jane Evans

Please tell us how you heard of our event? _____

Should you be in need of any additional information about this educational, fun weekend, please feel free to contact us. Mary Odette, 3831 North Cherry Creek Place, Tucson, AZ, 85749, Telephone (520) 749-2285 or odette@azstarnet.com. Dick Wiedhopf FAX (520) 626-4063 or wiedhopf@tonic.pharm.arizona.edu. We will be glad to assist you in any way we can. We look forward to seeing you!!

PLANT SHOW ENTRY FORM

Please complete this form, duplicate if necessary, and send it along with your registration form **OR** bring it with you upon arrival at Foothills Mall.

Name of exhibitor _____ Date _____

Scientific name of plant (Genus and species) _____

Common name of plant, if any _____

Native to what area of the world _____

Flower color _____

Flowering season _____

Any additional cultural information available _____

PLANT SHOW ENTRY FORM

Please complete this form, duplicate if necessary, and send it along with your registration form **OR** bring it with you upon arrival at Foothills Mall

Name of exhibitor _____ Date _____

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Common name of plant, if any _____

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Flower color _____

Flowering season _____

Any additional cultural information available _____

Desert Breeze

October 1996

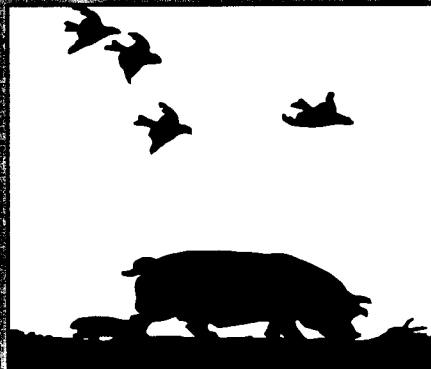
Volume 1 Issue 9

Tucson Cactus and Succulent Society Presents... a SERIOUS and not all CEREBUS look at CACTI and Succulents of the SONORAN DESERT

This is the first time the TCSS has held an event like this and we are very excited about it. Our purpose is primarily to inform you about, and acquaint you with the cacti and succulents of the Sonoran Desert. We also want to give you information and ideas for growing them. Even if you do not live in the Sonoran Desert, our goal is to provide information and an appreciation of the Sonoran Desert and its flora.

Most of the speakers will be presenting interesting background information regarding the cacti and succulents of the Sonoran Desert; the workshops will provide the "how to" of cacti and succulents. We also want to have fun! Included in the program is: a Silent Auction where you might pick up a very special plant, a raffle with fun things that will enhance your enjoyment of plants and life in general, a Plant Show you can enter for competitive fun (that you will also judge), many vendors (where you can spend money you don't have), and food to support your caloric needs.

At present, registrations have been received from around Arizona, California, Iowa, Kansas, Missouri, Nebraska, Nevada, New Mexico and Texas. If you plan to attend, please register promptly, so that meals can be planned.



*Love loveth best of all the year
October's bright blue weather.*

It is important for you to be aware that the Workshops and the Tour will be filled in the order in which registrations are received.

Should you need additional information about this educational fun weekend, please contact Mary Odette 3831 North Cherry Creek Place, Tucson, AZ, 85749. Telephone (520) 749-2285 or odette@azstar.net. Dick Wiedhopf FAX (520) 626-4083 or wledhopf@tonic.pharm.arizona.edu. We will be glad to assist you in any way we can.

We look forward to seeing you!

*The pleasures of the senses pass quickly;
those of the heart become sorrows, but
those of the mind are ever with us, even to
the end of our journey.*

SPANISH PROVERB



Olneya tesota

The ironwood tree, (desert ironwood, palo-de-hierro, tesota, palo fierro, or Arizona ironwood) is a member of the Pea Family (Leguminosae). It may grow to 30' with a trunk to 1 1/2' in diameter. An evergreen, with widely spreading crown that can extend up to 30' across; mistletoe is often found growing in the branches. The bark is gray and smooth on young trees, but fissures and darkens with age. The flowers are pink and purplish to white; pealike, with five unequal petals; to 1/2" wide in short clusters, followed by brown, hairy, beanlike pods to 2 1/2" long. The leaves are bluish green, finely haired, pinnately compound to 2: long; 2 to 10 oblong leaflets to 3/4" long. At the base of each leaf is a pair of 1/2" long, brown-tipped, slightly curved spines.

The ironwood blooms from May to June below 2500', along desert washes and in sandy canyons. A frost sensitive tree, it has been used as a gauge for citrus grove selection. To germinate in the wild, the hard coating on seeds must pass through the digestive system of deer or cattle. The seeds provide food to birds and other animals and were also an important part of the Native American diet. The tree is also browsed by bighorn sheep. Ironwood is one of the heaviest woods in the world; one cubic foot weighs 66 pounds. It makes excellent firewood, producing intense heat and lasting coals. The wood was used by Native Americans for arrowheads and tool handles.

A mash made from the seeds was used by the Seris to still or calm wind-roughened water surfaces. The fisherman carried seeds for this purpose, chewed them and spat the mash into the water. The roughened surface was said to still quickly, so that one could see through the water to spear crabs or fish in the shallow water.

Felger & Moser (1985) *People of the Desert and Sea: Ethnobotany of the Seri Indians*. UofA Press

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Cacti of the Month - *Ariocarpus*

These popular and unusual cacti grow in the Chihuahuan desert of southern Texas and northern/central Mexico. Unlike southern California, the Chihuahuan desert lacks winter rain. The hottest time of the year is June, with rains occurring during July, August and September. The primary growing period is during these rainy months. They start flowering in September but most of the blooms occur during October. The fruits start popping up through the plants' woolly tops the next spring and summer. The genus was named in 1838 by the German botanist, J.M.Scheidweiler. He thought the seed pods resembled those of the genus *Aria*. One unusual character (for cacti) is that adult plants lack spines. Seedling and juvenile plants have spines but as the plants mature there are no spines present. Some adult plants actually lack areoles!

Ariocarpus are adapted to survive in harsh conditions and are slow growing. They often grow flush with the surface of the ground and can even shrink back below ground surface during extreme periods of drought. The unusual, large tubercles are often flattened on the top surface and resemble succulent leaves. Tubercle color can range from dark green to blue-grey-green in color. The ability to blend in with the surrounding rocks and their unusual form has led to the common names 'rock cactus,' 'living rocks,' or 'fossil cacti.' Most of the species grow on limestone or soil of limestone origin. In January of 1993, I saw *A. retusus* in the wild. At first, they were hard to spot because they blended in so well with the broken limestone rocks which were everywhere. Each hill seemed to have a different form! Besides the natural defense mechanism of mimicry, the plants are said to contain a hallucinogen similar to that of the Peyote cactus (*Lophophora williamsii*). This may make them less palatable to predators.

Similar to an iceberg, the part of the plant visible above ground is smaller than the very thickened underground

roots. Care must be taken when repotting not to damage these roots. Growers often put top dressing around the upper part of the rootstock to help prevent rot and promote good water drainage. In these large rootstocks are extensive systems of mucilage canals. Some of the species are referred to as 'chaute' (the word meaning glue) by natives, who are reported to use the mucilage to repair broken pottery!

The flowers that erupt from these plants are beautiful. Flower colors of pink, purple, violet, white, and yellow are found. I have one plant that has 4" diameter pink flowers! Another bonus is that the flowering period tends to start in late September when many other cacti are not blooming. Flowering signals the end of the growing season. Taper off watering at that time! The flowers of the different species arise from different positions on the plant (see references for more information).

To grow these plants, maximal light and temperature are needed. I grow some of my plants outdoors in cold frames and some in a greenhouse. Both areas get extremely warm - sometimes 130 to 140°F. Plants in both areas do well. I protect them from too much water during the winter but have to water just about every week during the summer. Try and keep water out of the crown of the plant. The wool will get matted down and you run the risk of rotting the center of the plant. An occasional fluffing with a brush will make the wool look nice.

In the past, imported, field collected plants were available. They are now, of course, illegal to collect. If you do acquire a collected plant from an auction, trade, etc. take off any old dead tubercles. Make sure you do this during the growing season and not when the plants are resting. Many small seedling plants are available. Seedlings are better to grow because they are easier to establish than collected plants, tend to be unscarred, and this also protects the plants in the wild. Seed can be gotten from the

by David Tufenkian

CSSA Seed Depot, commercial nurseries, and friends with plants. Grafting of seedlings can accelerate their growth. The plants can then be removed from the grafts when they get larger. Seedlings are not difficult to grow but you must be patient! With good culture (lots of heat, well drained potting mix, water and fertilizer) the plants grow surprisingly well. Flowering size plants can be grown in five years (of course, different species grow differently). *Ariocarpus retusus* and *A. trigonus* seem to move the fastest from seed. I have a double headed *A. retusus* that is seven to eight years old with each head over three inches in diameter. One hint I've learned is to eliminate sand from the soil mix. This has increased growth tremendously. Also, on the advise of a grower in Oregon that I've been corresponding with, a small amount of pelletized gypsum has been added to my soil this year.

I think all members of the genus are fantastic and worth growing. Eileen bought our first one (*A. kotschoubeyanus*) for five or six dollars, and I couldn't believe she spent that much for 'a little thing only 3/4" across.' Since she bought the first one, she can't say too much when I bring home another one. She'll ask why, and I'll make up a feeble excuse about how this one's tubercles are smaller, or rougher, or larger, etc. than others we already have. Look out, they can be addicting (and expensive)!

The genus has been divided into two sub-genera: *Neogomesia* and *Roseocactus*. Subgenus *Ariocarpus* (*Neogomesia*) members possess a woolly areole at or near the tip of each tubercle. (Areoles may be absent in the latter three species). The tubercles are obviously divergent. An areolar groove is absent: *A. agavoides*, *A. retusus*, *A. scapharostrus*, *A. trigonus*.

Subgenus *Roseocactus* members have a furrow extending from the base to the tip of each tubercle. The tubercles are crowded at the base of the plant and often have wrinkles, bumps or undula-

tions on their surfaces: *A. bravoanus*, *A. fissuratus* (3 varieties), *A. kotschoubeyanus*.

Species

A. agavoides has elongated, narrow tubercles and is named for their resemblance to plants of the Agave genus. They are small and a mature plant can be 1 or 2" across. Larger plants are occasionally seen but in my experience extreme care must be taken not to overwater as they will respond by rotting! The flowers are purple, 1 to 1 1/2" across, and the fruits are reddish (other species have pink, white or greenish fruit). The areoles are not on the tip of the tubercle but occur about 1/4 to 1/2" from the tip.

A. bravoanus is the most recent addition to the genus and is restricted to a single locality in the Mexican state of San Luis Potosi. The plant is named in honor of Dr. Helia Bravo-Hollis who is well known for her research and writing about Mexican cacti. This species seems most closely related to *A. agavoides* and *A. fissuratus* v. *hintonii*. The plants undergo morphological changes as they mature. Young plants have narrowly triangular tubercles (3-4 times longer than wide) with a central, wooly areole that suggests a close relationship to *A. agavoides*. As plants mature, the tubercles become more squat, the surface of the tubercles acquire an irregular bumpy texture, and some larger individuals have lateral adaxial grooves. These features suggest a relationship with *A. fissuratus* v. *hintonii*. While these plants may be the result of field hybridization, they appear to be geographically separated from other species by at least 75km. Don't expect to see this plant in cultivation for several years. *A. fissuratus* has three varieties. The plant is characterized by thickened, flat topped tubercles with a wooly central furrow. The surface of these tubercles are irregular and the lateral (adaxial) grooves are interrupted by verrucae (bumps). It is found in the Big Bend area of Texas and along the Rio Grande, southward to central Coahuila. *Ariocarpus fissuratus* v. *lloydi* doesn't have these additional grooves. It has a

more restricted distribution, from southern Coahuila to northern Zacatecas. Both of these varieties have bumpy, textured tubercles that are wider than they are long. Mature plants can grow to 5-8" in diameter. *Ariocarpus fissuratus* v. *hintonii* was discovered in northern San Luis Potosi (in 1981) and described in Bradleya 7. It differs from the previous two varieties in being smaller (up to 3" in diameter) and extends the range of the species southward. It is disjunct from the previously described species by at least 150km. Like *A. fissuratus* v. *fissuratus*, the variety *hintonii* has the adaxial grooves. The tubercles are longer than broad in this variety and the verrucae that cover the surface of the tubercles are fine in texture.

A. kotschoubeyanus is named for Prince Kotschoubeyi, a member of Russian royalty. He paid 1000 francs for one of the first three plants brought to Europe in 1840. These plants are very small growing and in contrast to others in the genus grow in loamy ground that often floods (lake bottoms). They have thickened flat-topped tubercles with roughened surfaces. A plant will bloom at 1/2" in diameter (or smaller) and a large specimen is 2" across. Different forms have been described. The usual flower color is pink or light purple but the variety *albiflorus* differs only in having white flowers. The variety *mcdownelli* is smaller than the type and variety, *elephantidens* is larger (3 to 4" in diameter). (Some authors feel these 'varieties' should be listed as forms and not as distinct varieties.)

A. retusus has 3-edged tubercles and was given its name because of the leaves of *Aloe retusa*. These plants can get up to 12" across and tend to have white flowers. The areole is at the tip of the tubercle, but may be absent. Tubercle shape is very variable and has given rise to a number of 'forms'. The form *furcatus* has more blunted tubercles with rounded tops and can have pink to white flowers. I have one plant that has 4" diameter pink flowers! They are often referred to by the area from which

they were found, ie. *A. retusus* 'Amberri form.' Seedlings of *A. retusus* are readily available.

A. scapharostus is one of the gems of the genus. It has elongate, blunt tipped tubercles without areoles. The tubercles are flat on top, roughened and lack furrows. The name comes from the Latin *scapha* (small boat) and *rostrum* (beak or prow) referring to the boat shape of the tubercles. In Bradleya 9, the spelling of this species was changed to *A. scaphirostris*. It is one of the slowest growers and a large specimen in 3" in diameter. The flowers are violet-purple in color and 1 to 1 1/2" across. Purchasing a graph may save you years of growing, and the graph may eventually be rooted.

A. trigonus can get up to 15" in diameter. It has elongate, flat topped, unfurrowed tubercles that are sharply pointed. The tubercles tend to curve in towards the center of the plant. The flowers are yellow and about 1 3/4" across. Stan Peterson (Shawnee, KS) reported a population that had purplish flowers. Stan runs Aggravation Acres in Kansas and specializes in Ariocarpus. For some reason *A. trigonus* plants seem to get a 'blistering' on their epidermis when they reach a certain size. It is 'natural', but I don't like it!

Literature:

- Anderson, A TAXONOMIC REVIEW OF ARIOCARPUS, LOPHOPHORA, PELECYPHORA, AND OBREGONIA, (1961, Ph.D. dissertation)
 Benson, THE CACTI OF THE UNITED STATES AND CANADA, 1982
 Bravo-Hollis & Sánchez-Mejorada, LAS CACTACEAS DE MÉXICO, Volume II, 1991
 Cullman, Gotz, and Groner, THE ENCYCLOPEDIA OF CACTI, 1986
 Hernandez & Anderson, A NEW SPECIES OF ARIOCARPUS, in Bradleya 10, 1992
 Hunt & Taylor, NOTES ON MISCELLANEOUS GENERA OF CACTACEAE, Bradleya 9, 1991
 J. Pilbeam, CACTI FOR THE CONNOISSEUR, 1987
 W, Stuppy & N. Taylor, A NEW VARIETY OF ARIOCARPUS FISSURATUS, in Bradleya 7, 1989

(originally written for the October 1993 Plant of the Month for the San Gabriel Valley C&SS - revised 9/95.)

Succulent of the Month - *Stapeliads*

by Al Guhl

Strictly speaking, stapeliads belong to Stapelieae, a tribe in the Milkweed Family, ASCLEPIADACEAE. Frequently in the nursery trade, other closely related genera (*Ceropegia*, *Brachystelma*, etc.) from other tribes are often found under the heading "Stapeliads," but the practice is solely one of convenience.

The number of true stapeliad genera has varied depending upon who's winning, the "lumpers" or the "splitters," especially nowadays. White & Sloane (1937) listed 20 genera, 2 of which are monotypic and consist of putative hybrids. More recently, Plowes (1990) discussed 31 genera in current usage.

Although long used by natives, the first stapeliad collected by a European was by Justus Heurnius at Table Mountain, South Africa, in 1624 (White & Sloane, 1937). He sent his drawings/descriptions back to Leyden, Netherlands. Johannes Bodaeus Stapelius ("van Stapel" latinized) described it, naming it *Fritillary crassa*, later changed by Linnaeus to *Stapelia* (now *Orbea*) *variegata* in honor of van Stapel. Heurnius was later honored by having the genus *Huernia* named for him when Robert Brown split *Stapelia* into 4 genera in 1809.

Stapeliads are stem succulents (van Jaarsveld, 1987) with

rudimentary leaves at best. Most have shallow adventitious roots. Plants may be small sprawlers (*Piarranthus*, *Huernia*) or larger, erect and branching like miniature saguaros (*Hoodia*). The flowers are quite fleshy, more so than those of most succulents, and are frequently strikingly colored. The flower parts are normally in 5's, with the petals united to some extent. Besides sepals and petals, other parts (the corona) are usually found surrounding the reproductive structures. The stamens and pistils are united into a column, the staminal column or gynostegium. The pollen is found in 2 waxy "sacs" (pollinia) joined by various connective tissues, the whole structure (a pollinarium) resembling a tiny set of saddlebags. (Refer to Barad (1990) for a complete, thorough description.) Pollination is primarily accomplished by flies as many of the flowers are quite odoriferous, mimicking the aroma of decaying meat (or my cooking!) Some seem to lack and aroma, but still attract flies. The fruits (follicles) split along one side releasing the seeds, with "fluff" (the coma) at one end, to be dispersed by the wind.

Stapeliads are found throughout Africa, Madagascar, Arabia, India, Asia Minor, and even in the warmest part of Spain. Most are relatively easy to grow but a few (*Caralluma socotrana*, *Edithcolea grandis*) can be difficult and quite

frustrating. Propagation is normally by cuttings; pollination is possible, though tricky. Overwatering, especially when dormant, is a major concern. Unfortunately, some species attract mealy bugs, either on the stems or the roots.

Plants are readily available both locally and via mail order. Information concerning all aspects of stapeliads may be found in numerous publications in the club's library. The references listed below are highly recommended.

References:

- Asklepios, the journal of the International Asclepiad Society (ALL asclepiads)
- Barad, Gerald S., M.D., 1990. Pollination of the stapeliads. *In* Cactus & Succulent Jour. (U.S.), Vol. 62, No. 3, p. 130-140. (Stapeliad reproduction)
- Leach, Larry C., 1978-1988. *Various taxonomic revisions. In* Excelsa Taxonomic Series No. 1 through 4. The Aloe, Cactus & Succulent Society of Zimbabwe, Herrare. (Keys and discussions of various genera with *Stapelia* and *Huernia* covered in individual issues)
- Plowes, D. C. H., 1990. An introduction to stapeliad genera. *In* Cactus & Succulent Jour. (U.S.), Vol. 62, No. 3, p. 111-129. (Descriptions of all genera, both synonymous and those current)
- van Jaarsveld, Ernst. 1987. The succulent riches of South Africa and Namibia. *In* Aloe, Vol 24, No. 3-4, p. 46-92.
- White, Alain, and Boyd L. Sloane, 1937. The Stapelieae, 2d ed., Vols. I-III. Abbey San Encino Press, Pasadena. (The Bible!!!)

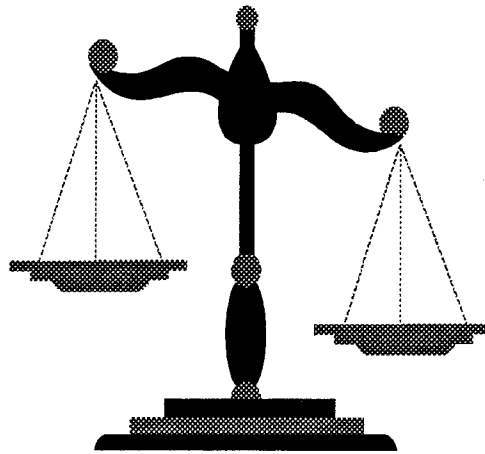
Shows and Judging

Exhibiting your plants in a show can be fun, stimulating, and very educational. If it is a competitive show, judged by discerning and knowledgeable plant experts, it becomes even more challenging and exciting. It's also very gratifying to overhear strangers ooh-ing and aah-ing over your "pampered darlings" which you have (hopefully) groomed and dusted to perfection for their public appearance. Unfortunately, too many of us hesitate to enter plant shows because of lack of information concerning just exactly what constitutes a "show-worthy" plant. So - the purpose of this article is to acquaint the timorous uninitiated with a few basic guidelines in preparing plants for a show. Remember, first of all, that judging is a very individualistic and opinionated process, and that rarely will any two judges ever see the same plant in the same way on any given day. A plant which sends one judge into paroxysms of delight may be passed over almost without comment by another.

The criteria most often followed in cactus and succulent shows is the CSSA (Cactus and Succulent Society of America) Judging Scale, which is as follows: Condition = 70%; Staging = 15%; Size and Degree of Maturity = 10%; Nomenclature = 5%.

The condition of a plant relates to general culture. How well has the plant been grown and cared for? Condition reflects on the grower's ability to assess a particular plant's needs to maintain characteristic, healthy growth. Is the plant etiolated (too green and lanky, indicating too much shade and/or fertilizer)? Is it sunburned, scarred, discolored, or diseased? Is the growth uniform and even? Are there any signs of mealy bugs, scale, or ants? An experienced judge will note immediately and automatically all of these things.

Staging is the manner in which the plant



is displayed, and includes pots, top dressing, and cleanliness. Pots may be ordinary clay, stoneware, ceramic, or even plastic, but they must be in good condition (no chips or cracks) and they must be clean (no alkali encrustations, algae, dirt clinging to the pot etc.). The pot should be of a complementary size, shape, and color for the plant: no garish, shiny colors or elaborate designs, and no fanciful, overly ornate or "too cute" shapes. Remember, you are displaying the plant, not the pot, and while the pot should always subtly enhance the plant, it should never overwhelm it in any way. The judges will however, take the total effect into consideration. The plant must, of course, be straight and centered in the pot. Top dressing is optional, but generally adds to the well-groomed effect. It may consist of clean gravel, pebbles, lava rock (scoria), or coarse sand or decomposed granite. Aside from being neat appearing, top dressing is also beneficial to the plant; it keeps the soil from caking and cracking, conserves moisture, and discourages weeds. Here again, as with the pot, it should never detract from or clash with the plant. If you choose not to use a top dressing, the soil around the plant should be clean and fresh-looking and free of weeds or debris. The plant itself should be as immaculate as you can possibly make it - no spider webs and/or (worse!) spiders, no snail tracks and/or (worse!) ants, etc., ad nauseam, and it should be cleaned of hard-water marks on the leaves or body and free of dust, dead leaves and other debris. Dead

by Dorothy Pasek

blooms should be removed, unless they have been left on the plant for the purpose of setting seed.

A large, relatively mature "specimen-size" plant, if well grown, will always take precedence over immature or seedling plants. This is where Size and Degree of Maturity come in. It is especially satisfying to display a plant which you have successfully grown from a seedling into a handsome and mature specimen. Most show rules require that the plant must be grown by the exhibitor for at least six months prior to the show, and some judges feel that the plants shown should ideally reflect the end result of several years of painstaking effort on the part of the grower. Rarity, and how difficult the plant is in cultivation, although not listed in the judging scale, can also be factors with individual judges, especially when all other points (condition, staging, etc.) are virtually equal. A very rare or difficult to grow plant is bound to influence most judges.

Nomenclature has to do with the proper labelling and correct botanical name of the plant. Even though it counts for only 5%, you should make every effort to provide the correct name for your plant. When in doubt, if all else fails, it is probably better to label it - for example - simply *Mammillaria species*, rather than to give it an erroneous specific name, or worse, yet, an ambiguous common name such as "Pincushion Cactus". Labels should be clean, neat, and inconspicuous, if used. (Many shows use an entry card instead of labels.) The owner's name cannot be visible to the judges.

Now start making plants to cart your favorite plants off to the next show with confidence, relax and enjoy it, and try to accept with grace and suitable modesty the compliments and ribbons which are sure to reward your efforts!

(Guidelines for the Plant Show at the Foothills Mall on October 11-13 were enclosed with the last newsletter. Please refer to these for specifics for this event. The Show Committee requests that you send in your Plant Show Entry Forms in advance, as they will be typing labels for the plants. Questions? Contact Linda Ryan: 299-2338).

The Tucson Cactus and Succulent Society
Presents.... a **SERIOUS** and not all **CEREUS**
look at **CACTI** and **SUCCULENTS**
of the Sonoran Desert

THURSDAY, OCTOBER 10, 1996
7:30 PM

AT FOOTHILLS MALL, 7401N. La Cholla
This will be a working meeting. Please enter off La
Cholla Blvd., right next to Casa Molina Restaurant.

bring:

- 1) YOURSELF**
- 2) PLANTS FOR THE SHOW**
- 3) YOUR DONATION FOR THE SILENT AUCTION**

Contact Julie Turko if she hasn't already contacted you: 578-1666

*bringing your plants to the meeting will help avoid a last minute set-up rush.

* bring in your Plant Show Entry Forms if you have not already mailed them.

* bring in your Registration Form if not already mailed.

7:30 -9: Set up in store fronts for the show, silent
auction and workshops, designate individual vendor
areas.

9-10: Set up vendor areas.

If you haven't done so: Dan Birt (325-4967)re: displaying background plants for the speakers, Linda Ryan (299-2338) re: The Show. Other questions? Mary Odette 749-2285

ON LANGUAGE

Spine Tinglers

BY PATRICIA T. O'CONNOR
 IN THE NEW YORK TIMES MAGAZINE
 Submitted by Mary Odette



THE MEMBERS OF THE CACTUS and Succulent Society of America are an easygoing bunch. They clasp to their bosoms (figuratively, of course) strange botanical specimens that only a mother could love. It takes a lot to get them upset - say, someone overwatering a *Pachypodium brevicaule*. (A *pachypodium*, from the Greek for "thick foot," resembles an elephant's foot, though the elephant's foot is dumber.)

...able folk have been
 ... German botanist at
 Werner Rauh,
 an American
 ...red plural in
thorns, not
 were aghast.
es, not *thorns*!

...jections and
 ... from the United States and Europe began trickling into the Cactus and Succulent Journal (U.S.) and the society's newsletter, as well as computer bulletin boards. German and American botanists differ, it seems. The pointy projections that Americans call *spines* are known to Germans as *Dornen*. But, botanically speaking, *Dornen* translates into English as *thorns*. Correct! said the German contingent - cactuses have *thorns*; it's roses that have *spines* (*Stacheln*).

The ensuing debate has been surprisingly spirited, with pro-*thorn* and pro-*spine* factions bolstering their arguments not only with science but with atrocious puns. (Opponents were "spineless" or "stuck" on "splinter" issues.) The Cactus and Succulent Journal finally weighed in last fall with a scholarly article reaffirming the standard wisdom among American botanists: a *spine* is a modified leaf (which is what cactuses have);

a *thorn* is a modified branch. The society's newsletter politely cut off further discussion. On this continent, cactuses have *spines*, Heidelberg or no Heidelberg. (And roses, by the way, have *prickles*, outgrowths of the epidermal layer, the journal said.)

A tempest in a flowerpot? Perhaps not. Our bottomless capacity to feud over terminology is as old as language itself. "The use of a word is one of the best membership badges in a tribe or society or subgroup," says Steven Pinker, director of the Center for Cognitive Science at M.I.T. and author of "The Language Instinct." Within a group, a common word serves as a bond, he says, so when people use words differently, "the ground erodes under their feet. The whole medium of communication is compromised." And since words mean what they mean only by mutual agreement, people who disagree on terms must resort to "sheer bullying, histrionics, force of personality, appeals to emotion."

People do get emotionally attached to words - even scientific ones. What middle aged dinosaur aficionado can view the *Apatosaurus* on display at the American Museum of Natural History and not think wistfully of the *Brontosaurus* that used to be? *Brontosaurus* (Greek for "thunder lizard") lost its name because findings in paleontology identified it as a dinosaur that had been discovered earlier, *Apatosaurus* ("deceptive lizard"). Betraying not a whit of sentiment, Mark A. Norell, a paleontologist at the museum, says, "That's the way science works. (As for *Stegosaurus* and *Triceratops*, he adds, "they're safe for now.")

Our use of names to identify who's in and who's out is something that Mark Aronoff, a professor of linguistics at the State University of New York at Stony Brook, calls "the shibboleth phenomenon." A verbal slip, he says, can betray an outsider, like the stranger who orders a Turkish coffee in a Greek restaurant.

"Us versus them" nomenclature has seldom been as vigorously argued over the years as it has been among British and American *bird watchers*. Americans prefer the term *birders*; in Britain they're *twitchers*. The two groups often call the same bird by different English names, and sometimes use the same name for different birds. What's more, Americans recognize families of birds - like *cuckoos*, *wrens*, *swallows* and so on - but give each individual species its own name. The British, however, have tended to give the best-known species the group name - THE *cuckoo*, THE *wren*. Kenneth C. Parkes, senior curator of birds at the Carnegie

Museum of Natural History in Pittsburgh, says this is "one British usage that many Americans have found ludicrous."

But some American names appear equally ludicrous to the British. "Why do you call the Connecticut warbler the Connecticut warbler when it hardly ever occurs in Connecticut?" says Mark Beaman, a British author and ornithologist. (The offending warbler is found mainly in south-central Canada and parts of northern Minnesota, Wisconsin and Michigan. It so happens, Parkes explains, that the first specimen was collected in Connecticut as the bird was passing through on migration. The English "are not innocent of the same kind of thing," he adds. "Their *Kentish plover* is sure as heck found way outside Kent.")

Organizations in both countries periodically publish more or less "official" checklists of English-language names for birds. Although trade-offs and compromises in recent years have brought the sides closer together, there are still a few dozen wayward birds that are one thing in the Old World and another in the New. *Ourreough-legged hawk* is a *rough-legged buzzard* in England. Their *Kentish plover* is our *snowy plover*. Their *divers* are our *loons*. Our *red phalarope* is their *gray phalarope* - ours named for the summer plumage, theirs for the winter. None of this makes life easy for migratory birders, or for publishers of field guides.

The root of the problem, Mark Beaman suggests, is that "English originated in the British Isles." Consequently, so did English names for birds. Nevertheless, his latest book demonstrates that the English can be as flexible as the next guy. In "Palearctic Birds," published last year, he proposes ("after much consideration, and indeed agonizing") that *divers* become *loons* and the *gray phalarope* be renamed the *red phalarope*.

But the *rough-legged buzzard* stays a *buzzard*. Oh, and another thing: the *American pipit* really should be renamed the *buff-bellied pipit*.

"Exceptionally arrogant of them," says Kenneth Parkes.



September meeting was a trip through the arid botanical regions of South America

David Bruner *An Overview of the Arid Regions of South America* - provided us with an exciting talk and slide show for our September meeting. South America is the richest continent botanically due to its situation between the equator and Antarctica. Forty percent of all species occur there, as does every case of desert formation. The Anacoma receives 3mm of annual rainfall. It is home to *Acacia prostrata*, the shortest tree in the world at 3" tall, and *Fibrulaca dicodea* (?) (a relative of Pope Weed), the tallest herb in the world at 30'. This is also home to species of copiapoa, borzicactus, bromeliad, tillandsia, orchid, trichocereus,

echevaria, and *Pepperomia cultraformis*.

The Andean Valleys are one of the least studied areas on the globe. There are many plants yet without names. These regions have increased humidity and torrential rainfalls, home to agaves, espitoea, borzicactus and melocactus.

The Puna is the region to the south populated by "cushion plants" because of the permafrost present at 13,000': tephrocactus and opuntia. The Altiplano, a very flat plain at 12,000' is llama land. There is very little seasonality here, exclusive home to plants which have adjusted to the temperature and length of day in the Andean "cloud forests": tillandsia,

bromeliads, puya and cereus species.

The Paramo is a subset of the Puna, not quite as high, so there is more moisture. Some of the most primitive plants are found here (if you have a helicopter). About 80% of the plants on each mountain peak occur only there, with 20-30% differing from peak to peak. David also took us through Patagonia, the Yungas and Quebradas regions, where in the area of Arazona, many plants grow which are used in our local landscaping. We were also able to view the Monte, Gran Chacos, Savannahs and Cerado, Semideciduous Forest, Cuchinga, Monte Espinoso and Galapagos: an incredible, well informed trip through the most diverse of habitats!

◆ Desert Breeze ◆

Volume 1 Issue 10

November 1996

You know you're a cactophile...

f all your gloves have spines in them.
...if you make u-turns on the freeway when you pass a C&S nursery that's on the other side of the road.
...if your greenhouse is larger than your house.
... if you can remember all your plant names, but forget your grandchildren's names.
... if you sit up all night waiting for the night cereus to bloom.
... if you think wars refers to battles with mealy bugs and spider mites.
... if you spend more on plant food than on people food.
... if your only reading material is the Cactus Journal.
... if your greenhouse has a security system and your house does not.
... if all your shirts are cactus prints.
... if your hairstyle starts resemble a *Cephalocereus senilis* or *Backebergia militaris*.
... if your try to deduct your plant care expense with your medical deductions on your tax forms.
... if you send out birthannouncements when your mammillaria offsets.
... if you celebrate the birthdays of your seed grown plants.

Green's Up, Peg Spaete
Oregon C&S Society



*Full moon in October
without a frost,
No frost until full moon in
November.*

THE TYPISTE'S HOLIDAY

*My tYpust is io hor vacation,
My trpist's away fo r a week,
My trpuat us in hwr vacarion,
Wgile these damu kew's ploy hudge and
seek.
Chorus:
Oy, breng boaxk, bting bzek,
Brung beej mu blnnie ti my, tp mr;
B) & ng blxj, b6ics,
Pping bozk m% beinino-o-mx CH1/4 helk?*

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and Coleocephalocereus*

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Superior Speakers and Succulents

Ocotillo

Fouquieria splendens

Candlewood, slimwood, coachwhip, Jacob's staff, vine cactus, flamingsword.

Named for Pierre Fouquier, a French professor of medicine, the ocotillo is a relative of the boojum tree, *Fouquieria columnaris*. Despite the spines on its stems, the ocotillo is not a cactus. Most of the year, its canes are leafless, but after a heavy rain, bright green leaves appear on the long stems. When arid conditions return, the leaves change to brown and fall. This drought responsive process may be repeated several times during the warmer months. Sections of ocotillo planted in rows soon become living fences. Mature plants have up to 75 slender branches.

Height: To 20' tall.

Flowers: Red, tubular, about 1" long; in clusters to 10" long, at tips of canes.

Leaves: Green, oval, to 2" long.

Blooms: March - June.

Elevation: Below 5,000'.

Habitat: Desert, especially on rocky, well-drained slopes.

One who was seeking spirits or a vision sometimes built an *hasóoma* (ramada) with an ocotillo framework and covered it with branches of such plants as desert lavender (*Hyptis*) or elephant tree (*Bursera microphylla*; Griffen 1959: 50). Although the elephant tree and desert lavender had religious significance, the ocotillo was probably merely of practical consideration.

Epple, Anne Orth: *A Field Guide to the Plants of Arizona* (1995). LewAnn Pub: Mesa, AZ.

Felger & Moser: *People of the Desert and Sea: Ethnobotany of the Seri Indians* (1991). University of Arizona Press: Tucson, AZ.

Melocactus

by Ed and Betty Gay

A unique and even startling feature of amateur *Melocactus* specimen is the woolly cephalium which rises like a small tower from the center of the more or less hemispherical body. From this grow the small rosy flowers and reddish club-shaped fruit, both much like those of *Mammillarias*. A plant may flower from the woolly mass that precedes the cephalium but fruit rarely form.

Equally unique but not as obvious is the fact that the rest of the plant tends to stop growing as soon as the cephalium is completely formed. According to Franz Buxbaum, in "Plant Cultures Based on Biology", this is true not only of the plant body but of the roots as well. Therefore, he recommends that once a plant has reached flowering size it should, if possible, never be repotted.

He also discusses the theory that *Melocacti* are especially salt-tolerant, since they are most often found near the ocean in Central America, Brazil, eastern Peru, and the Caribbean region. He points out that the root system is very shallow, sometimes only two inches below the surface, but very wide-spread. Fist-sized plants may have roots nine feet long! This permits them to make use of salt-free rain water, even near the sea.

Since few specimens will ever be more than 10 or 12 inches in di-

ameter, *Melocactus* are well adapted to growing in pots. Besides, most of them will need protection from winter cold. This is almost 100% true of imported collected plants. Those raised from seed are more tolerant. We have a number of them growing in one of the warmer sections of our garden for several years. As feeding and watering go, we have found that they can be treated much like any other average globular cactus.

Many species require a number of years to reach mature size, but a specimen raised from seed will usually be much healthier and more attractive than an imported



one. *M. matanzanus* is our enthusiastic recommendation for "first" in a collection, since it is not only very attractive but also forms its cephalium much sooner than any other, often in only five years.

The Great Rainmaker

bt Matt Gandall

In 1916, after a prolonged dry spell, the San Diego reservoirs were drying up, crops were parched and fear gripped the city. Then some city councilmen got a brilliant idea. Why not employ Charlie Hatfield, the famous rainmaker.

Although there was some opposition, (wasn't it true he had been tarred and feathered and ridden out of town on a rail somewhere in Canada?) nevertheless a vote was passed to pay him \$10,000 if he could fill up the Morena Reservoir. Anyhow, it was reasoned, this was a no lose deal because if he didn't produce - no money.

Hatfield agreed, loaded his equipment on his wagon, drove to the reservoir, built a platform on which he placed a large tank. Then he poured in some chemicals and left them to brew. As days passed, he kept adding more of his chemicals until vapors began to rise.

Whether it was Hatfield's chemicals that caused the ensuing disaster or just nature, has proponents on both sides. There is no question however, that in some years in this area when one storm charges in out of the Pacific, many more follow, one after the other.

In any event, the downpour took on ominous proportions. San Diego became isolated from the world, except for the steamers which then plied the California coast. All roads, train tracks, telegraph and telephone lines, were under water. At least 22 people drowned and scores were left homeless. Crowds gathered on high ground to watch the rampaging torrents sweep people, houses, bridges, animals, wagons, out to sea. Lower Otay Dam was destroyed.

When the storm subsided, Hatfield presented his bill for the \$10,000. The reservoir had been filled and then some. The city refused to pay because the flood was considered "an act of God" even though two of the councilmen, Benbough and Moore, insisted that it was immoral not to pay up.

The City Attorney Cosgrove had stated, "This gentleman, according to my opinion, cannot collect his money in the courts. Under the constitution and the statutes of the state and the charter of the city, a claim that is unenforceable is invalid."

The council then rejected the claim and instead placed the matter in the hands of the city attorney what all along had opposed any payment.

Hatfield took his case to court but his luck was not better there. The judge ruled against him and Hatfield left San Diego in disgust.

Soon rumors were persisting of a rainmaker producing downpours in various arid spots around the world. This rainmaker always demanded cash in advance.



Buiningia and its relation to Coleocephalocereus

by J. A. Betzler

Buiningia was originally described by F. Buxbaum in Krainz's *Die Kakteen* in 1971. But any modern mention of *Buiningia* must take into consideration that it has been reclassified as a subgenus of *Coleocephalocereus*. *Coleocephalocereus* was described by the famous cactologist, Backeberg, in 1938. Fifty years later Pierre J. Braun has made the determination that *Coleocephalocereus* should contain the genus, *Buiningia*, because there are not enough differences to warrant a separate generic rank.

Braun wrote an article in *Bradleya* (Vol. 6, 1988 p. 85-100) and outlined the basic description of *Coleocephalocereus*. The type specimen (founding plant that this genus is based on) is *Coleocephalocereus fluminensis*. The following description describes this group, even *Buiningia*.

All members of this group are columnar, erect to semi-erect in habit and sometimes creeping on rocks. They can attain 5 m (about 15') in height. The stems can be single to branched, though branching is usually at the base. The color of the stems is green and there are 6 to 35 ribs. The ribs are not sharp as in some cacti but more or less rounded. The spines range in color from yellow, brown, grey, black or red. They can be up to 45 cm long (that's up to 18")!

The cephalium is the special flowering portion of the stem and the flowers are actually produced there. The cephalium is normally continuous, lateral and usually not interrupted. This flowering area is usually on one side of the stem and sunken into the stem a bit forming a slight flat spot on one side (depending on the species). Usually with whitish wool and strong bristles that have the same color range as the spines.

The flowers are nocturnal and produced at an apex of the cephalium. The outside of the flowers are naked and range in shape from tubular, funnel-shaped and sometimes bell-shaped. The flowers vary in length from 2 to 8 cm. Flower color is: cream, white, yellowish, greenish, brownish-olive, reddish-rose or purple. The stamens are produced on the inside of the floral tube. The primary stamens are long and the secondary stamens are progressively shorter. The anthers are yellow with pollen and the filaments are white.

The fruit is a spherical to egg-shaped berry, occasionally it is club-shaped. The berry can be up to 2.5 cm long and is smooth. Ripe fruits are purple and they may or may not open at the base. The pulp is white and the seeds are about 1 mm long. Seeds are usually globular and black.

Distribution of the genus *Coleocephalocereus* is exclusively in the country of Brazil in the states of: San Paulo, Rio de Janeiro, Espirito Santo, Bahia, and Minas Gerais.

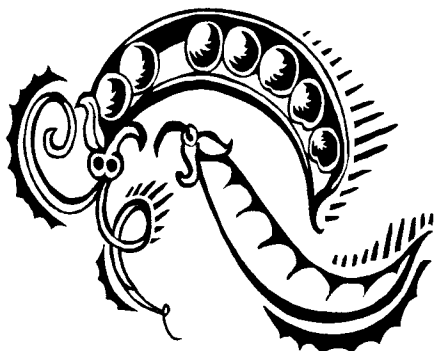
Coleocephalocereus subgenus *Buiningia* -

The proposal to 'lump' *Buiningia* into *Coleocephalocereus* was proposed by Ritter in 1968 and Braun made it nomenclaturally legal 20 years later. Braun agreed that the smallness and coloration of the flowers, as an adaptation to pollination by hummingbirds, was not enough of a difference to justify a different genus. There are species of *Coleocephalocereus* (before *Buiningia* was placed into this genus) that have similar flowers to *Buiningia*. These species are *C. braunii* and *C. pluricostatus*. The latter species is considered a link to the subgenus *Buiningia* and has intensely green flowers like many *Buiningia*.

The more or less closed, tubular perianth of *Buiningia* is an adaptation to hummingbird pollination. Very similar flowers can be found in some *Melocactus* species (*M. warasii*). The small size of the *Buiningia* stem and the early development of the cephalium are not relevant criteria for separation. *Coleocephalocereus braunii* (Diers & Esteves, 1985) begins to form a cephalium at a height of only 15 cm.

Nevertheless, the bird pollination syndrome is evident and therefore, *Buiningia* is best classified as a subgenus, as suggested in Braun in 1984. Braun and other investigators also feel that *Melocactus* is closely related to this group of cacti (Barthlott, 1979, and Ritter, 1988, 1979).

Coleocephalocereus displays a wide variety of gradations in form and function that lead in a neat path from the extremes of *Coleocephalocereus* to *Buiningia*. An example of this is displayed by a reduction and specialization of ceroid columnar growth: *C. braunii*, *C. decumbens*, *C. estevesii* and subgenus *Buiningia*. Early development of the cephalium is displayed in *C. braunii*, and *Buiningia*. Longer than usual juvenile growth in this genus is displayed in *C. goebelianus*, *C. estevesii* and *Buiningia*. There is a lot of crossover in flower shape, color, and length in the two subgenera as well. There remains one unique feature that distinguishes *Buiningia* from *Coleocephalocereus*, and that is hummingbird pollination. Because this pollination syndrome is the one unique feature to this group of plants it was 'lumped' with its other relatives.



Whether or not someone will further 'lump' *Coleocephalocereus* into closely related *Melocactus* remains to be seen, this action seems to be on hold for the time being though.

Below is a list of the *Coleocephalocereus* and their respective authors:

Subgenus *Coleocephalocereus*:

Group 1. Base of stem lacking long curled spines.

1. *C. fluminensis* (Miquel) Backeberg.
variety *fluminensis*
variety *braamhaarii* P.J. Braun
2. *C. decumbens* Ritter
3. *C. diersianus* Braun & Esteves
4. *C. paulensis* Ritter (perhaps a sub species of *C. fluminensis*)
5. *C. pluricostatus* Buining & Brederoo

Group 2. Stem with long colored spines at base.

6. *C. braunii* Diers & Esteves
7. *C. buxbaumianus* Buining & Brederoo
8. *C. estevesii* L. Diers
9. *C. flavisetus* Ritter

Group 3. Seeds elongate, pear-shaped.

10. *C. goebelianus* (Vaupel) Buining

Subgenus *Buiningia* (F. Buxbaum) P.J. Braun.

11. *C. aureus* Ritter
12. *C. brevicylindricus* (Buining) Ritter
variety *brevicylindricus*
variety *longispinus* (Buining) Ritter
13. *C. elongatus* (Buining) P.J. Braun
14. *C. purpureus* (Buining & Brederoo) Ritter.

Bibliography:

- Braun, Pierre J., 1988. On the Taxonomy of Brazilian *Cereae* (*Cactaceae*). *Bradleya* 6:85-99.

NEW MEMBERS' LAMENT

When I see you at our meetings,
You never say 'hello'.

You're busy all the time you're there
With those you really know.

I stand around among the men,
Yes, I'm a lonesome guy.

We new members feel so strange
When you old-timers pass us by.

Why don't you nod and say a word,
Or stop & shake a hand?

I'd also like to meet your friends,
I hope you'll understand.

So, when we meet next meeting
time,
Can't you a moment spend?

Step up and introduce yourself,
I had hoped to make new friends.

From the Nightcrawler, Spokane Men's Garden Club, reprinted in *Cactus Chatter*, Vol IV, No. 2., 1968. The *Cactus Capitol Chatter* was TCSS's quarterly bulletin, published '65 to '80. About members, the *Chatter* (Vol III, No. 1, 1967), tells us:

A lot of club members are like wheelbarrows - they are not good unless pushed.

Some are like canoes - they need to be paddled.

Some are like kites - if you do not keep a string on them, they will fly away.

Some are like footballs - you can't tell which way they will bounce.

Some are like balloons - full of wind and ready to blow up.

Some are like a good watch - open-faced, pure gold, quietly busy, and full of good works.

Succulent of the Month: Kalanchoe

by Dorothy Pasek

The plants in the genus *Kalanchoe* belong to the huge *Crassulaceae* family, and are native primarily to the warmer parts of the Old World. They are widely distributed throughout Africa, Madagascar, Southern Arabia, China, India and Malaysia. The name "*Kalanchoe*" is derived from the Chinese name for one of the species, and is correctly pronounced kal-an-koh'-ee.

The genus is broken down into three sections: *Kitchingia*, *Bryophyllum*, and *Kalanchoe*. There are only seven or eight species of *Kitchingia*; they are all from Madagascar and are seldom cultivated. There are over twenty species of *Bryophyllum*. The name means "sprouting leaf", and they are native for the most part to Madagascar. This section includes such familiar plants as *K. daigremontianum*, *K. tubiflorum*, and *ginii*, *K. pinnata*, *K. fedtschenkoi*, and *K. beauverdii* (also known as *K. costantinii* or *Bryophyllum scandens*, and reputed to have the only mouse-colored flower known). *Bryophyllum* can be distinguished by their pendant flowers and prolific production of plantlets along the leaf margins, and are now routinely included in the section *Kalanchoe*.

Most of our commonly-grown plants of this genus fall into the section *Kalanchoe*, which is by far the largest in the group, numbering well over 200 species and characterized by their upright or erect flowers. They are mostly easy, rewarding plants to grow, and range in size from the tiny *K. jongmansii* and *K. rotundifolia* to the familiar tree-like *K. beharensis*. In between there are many moderately-sized plants with a wide range of shades. Since they bloom mostly during the winter months, they are an especially welcome addition to our gardens. Some are also sweetly-scented, notably *K. grandiflora* which has bluish-purple leaves and yellow, lemon-scented flowers, and the tropical-looking *K. modoc*, which has lush green

leaves (unusual in *Kalanchoe*) and fragrant pink flowers. One of the choicest *Kalanchoes* is *K. pumila*, with powdery lavender and maroon leaves and pinkish-purple flowers. It makes an outstanding hanging basket specimen, but can also be effectively utilized as a ground cover.

Many *Kalanchoes* have very attractive and distinctive foliage, especially *K. tomentosa* (the "Panda Plant") with its fuzzy gray leaves edged in cinnamon-brown, and its cultivars "Chocolate Soldier", "Golden Girl", and "Super Fuzzy". Others with striking foliage include *K. orgyalis*, with unusual felt-like brown leaves, *K. marmorata* (the "Pen-Wiper Plant") with blue leaves splotted with deep purple and unusual clear white flowers, *K. longiflora* var. *coccinea* with brilliant red leaves and yellow flowers, and *K. thyrsiflora*, whose powdery pale-blue leaves edged in pink bear a superficial resemblance to a *Cotyledon*.

Noteworthy for its peculiar method of plant reproduction is *K. suarezensis*, which produces plantlets at the tips of its astonishingly long leaves. This is a fortunate eccentricity since the plant dies down completely after producing its spectacular inflorescence. *K. gastonis-bonnierii* also forms plantlets at the tips of its powdery bluish-white leaves, which then curl up tightly to protect the young plants. For this reason, and because their flowers are pendant rather than erect, many authorities place these two plants in the section *Bryophyllum*. *K. synsepala* produces its young plants at the ends of four long runners, somewhat reminiscent of a strawberry plant.

I would like to propose an additional section (to be called perhaps "Les Miserables") to which I would assign such temperamental specimens as *K. eriophylla*, which is at first white, furry, and attractive, but sooner or later (usually sooner) languishes into extinction, *K. rhombopilosa*, whose leaves fall off it

you so much as breathe on it (it is very little consolation that each leaf eventually takes root and begins to form a new plant, as all you generally have is a pot full of sprouting leaves!), and *K. nyikae*, which has glossy, purplish leaves and is quite pretty until it blooms, at which point it dies completely. This species is also particularly tender to frost.

However, most *Kalanchoes* are desirable and satisfying to grow for many reasons. In addition to their long-lasting winter flowers, beautiful foliage, and vigorous growth, most of them are very easy to cultivate. Many of them are extremely slow-growing plants (especially *K. orgyalis*, *K. millotii*, and *K. tomentosa*), so make ideal pot-plants, although these three seem very reluctant to bloom. Some of them even make good house plants (notably *K. blossfeldiana* and its many hybrids) if given sufficient light. Their cultural requirements are simple. They thrive in your usual cactus and succulent soil mix and some species seem to prefer partial shade. However, full sun will give many of them better foliage and flower color (this is especially true of *K. tomentosa*, *K. orgyalis*, *K. pumila*, and *K. longiflora* var. *coccinea*). They also like more water than many other succulents, and some will tend to drop their leaves if left dry for too long. After blooming, many species become leggy, woody, and unattractive and should be cut back, after which new growth will usually sprout from the base of the plant. Propagation is easy from cuttings or leaves. The principal pests are aphids, which usually attack the flowers as soon as they appear. Almost all species are quite frost tender, so year round outdoor cultivation is limited to the warmest parts of the country.

References:

- Bleck, John, *Kalanchoe*. Cactus and Succulent Journal, Mar - Apr, 1973, pp 59-62.
- Brown, J.R., *Succulents for the Amateur*, pp 104-110.

ARE YOU STUCK ON CACTI & SUCCULENTS?

Once upon a time

Linda Burbank, Mary Odette and Margaret Pope, posed the idea of a "Mini-Convention" to be held in Tucson on the "off-years" from the National C&S Convention. The main purpose of this meeting was to be education,

They set up a committee of the dedicated, determined and diligent to help with the event. They gathered up some speakers and workshop facilitators, some vendors and some food. They stayed on the phone well past their bedtimes and raised vendors and donations for the silent auction and display plants for decor and the show. They sent out mailings across the country. They never dawdled; they never cussed. They advertised in every type of media; they lived, breathed and wallowed in "Stuck on Tucson" for a year. All so we could complain that it was over too soon!

On behalf of TCSS, we wish to thank YOU, the committee members for working so hard to bring about a well organized, and thoroughly educational and entertaining event. May you sleep well, and may all your plants be strong and prosperous.

Thank you for all your hard work, for all you have done for the club, and for furthering our knowledge and enjoyment of the Sonoran Desert.

We certainly look forward to '98!

TOP TWENTY-FIVE PLANTS IN THE PLANT SHOW

The Plant Show was judged by conference participants and the public. That is, the judging was "peoples' choice". Four **Superior Succulent Awards** were given, one to each of the four most popular plants.

The following four plants received the **Superior Succulent Awards**. Listed in alphabetical order:

- Agave victoriae-reginae, farma 'nana'
John & Dorothy Pasek
- Lithops (variety)
Miles & Janice Anderson
- Myrtillocactus geometrizans (crest)
John & Dorothy Pasek
- Pachypodium rosulatum var. gracilior
Jane Evans & Gene Joseph

The following are the remaining most popular twenty-one plants. Listed in alphabetical order:

- Abromeitiella chlorantha
- Agave verschaffeltii
- Astrophytum asterias
- Bursera schlechtendalii
- Coryphantha calipensis
- Copiapoa tenuissima (dwarf monstrose)
- Crassula sarcocaulis
- Dorstenia crispa
- Echeveria fimbriata (crest)
- Epithelantha micromeris (crest)
- Euphorbia ambovombensis
- Euphorbia esculenta
- Euphorbia lactea (crest)
- Euphorbia pseudoglobosa
- Ficus palmeri
- Gymnocalycium mihanovichii (crest)
- Heurnia schneideriana
- Kalanchoe tomentosa
- Mammillaria perbella
- Monvillea spgazzinii
- Operculicaria decaryi

And for the rest of you **Superior Succulents, Males and Females**, and all the bean droppers and bean counters: many thanks for making the show such a success!

Talks And Workshops/Speakers and Workshop Leaders:

We would like to thank, and hear more from: Miles Anderson, Jane Evans, Richard Felger, Peter Gierlach, Matt Johnson, Gene Joseph, Judy Mielke, Kent Newland, Mark Sitter, Michael Stoklos, Julie Turko and Tom Van Devender.

Some of us in the club were not able to attend many, or any, of the talks or workshops, attending instead to the public in the mall, or the needs of the convention. We are thrilled with the reviews you received from those who were able to see you each personally, and hope that you will return to us, someday, to share your secrets and your slides. Thank you for helping to make the convention such a success...

Evaluation of Conference(the following are comments from the EVALUATION OF THE CONFERENCE turned in by 30 conference participants):

Both the speakers and workshops are great and provide a change of pace. Hands-on workshops are always lively. I wish I could have gone to more!

Keep up the good work!

This selection of speakers was wonderful.

I would like to be able to attend more workshops.

The workshops were so good that it was very difficult to choose only one!

I want to hear and do all talks and workshops. It was frustrating not being able to hear everything.

The more hands on involvement you can get, the higher the experience and future interest.

The workshops were wonderful! They elicit more questions - my only regret was not getting to see more.

Thanks to those of you who took the time to comment. More specific reviews, and serious attention to your suggestions to come in the next issue, and in the next convention.

A Thank You

**To all members who participated in any way in...
a SERIOUS and not all CEREUS
look at CACTI and SUCCULENTS
of the SONORAN DESERT
your help and involvement was much appreciated.**

The following are people we would particularly like to acknowledge for their very generous help and support.
In alphabetical order:

Janice Anderson
Miles Anderson
Barbara Angerhofer
Warren Baker
Cindy Beckley
Norma Beckman
Dan Birt
Mary Church
Carol Clapp
Maury Clapp
Al Coritz
Ali Coritz
Bobbie Coritz
Sari Coritz
Agnes Daniels
Gary Davies
Bob Ellis
Norm Epstein
Jane Evans
John Gaston
Judi Gaston

Helen Housman
Gene Joseph
Kyle McDermott
Sarah McDermott
Scott McDermott
Bill Odette
June Mueller
Dorothy Pasek
John Pasek
Lloyd Perper
Sara Perper
Glenda Pierce
Betty Radmacher
Linda Ryan
Margaret Sitter
Mark Sitter
Dale Sloan
Les Sloan
Julie Turko
Arnold White
Pat Wiedhopf
Sally Williams

If we have omitted anyone please accept our apologies.

From: Linda Burback, Mary Odette, Margaret Pope, Dick Wiedhopf

Date sent: Fri, 18 Oct 1996 10:48:37 -0700
Send reply to: cacti_etc@opus.hpl.hp.com
From: CAWUJCIK@aol.com
To: Multiple recipients of list <cacti_etc@opus.hpl.hp.com >
Subject: Re: Tucson Serious but not all Cereus Event

TUCSON SEREUS BUT NOT ALL CEREUS -- Part One

Was it a symposium? A mini-convention? Whatever one calls it, it was GREAT! Last weekend, Oct. 12 & 13, the Tucson Soc. assembled terrific speakers and growers who gave workshops, talks, and a tour -- all filled with info on the Sonoran Desert. There was a show/exhibit, a silent auction, a luncheon feast, and good times. There were nurseries to see and an entire desert to explore.

Ah, Time, if only we could expand you -- sort of a middle-age spread for these great occasions! Time, however, being linear (theoretically) and minute-by-minute unvarying, required decisions like: WHICH workshop to see in each group of four. I wanted to see them all. I had to decide! I had to miss Jane Evans, Julie Turko, Judy Mielke, Mikchael Stoklos, Gene Joseph, and Kent Newland impart their wisdom. Ah the agonies of decision.

And so I watched Miles Anderson behead and graft; and I watched Mark Sitter demonstrate his potting methods and tools. And I learned. I listened to excellent speakers, local talent all, who could have gone technical had they wished, but who kept the talks accessible to hobbyists. Happily, I didn't have to choose among the talks, as they were sequential.

This year the symposium concentrated on the Sonoran Desert. In two years it might be South American succulents. Maybe another theme. Whatever, I plan to go. I hope to add a few days as I did this year to see the desert and visit a nursery or two. What a great location. And, like the Huntington Symposium, there was a full "menu." Two days were better than one; the Huntington Symposium has always been just the one day.

The Tucson group hopes to host the symposium/mini-convention on years alternate to the CSSA Convention. They may move their time of year. This year's plans were very hobbyist-friendly and participatory, although professionals would have benefitted just as much.

As a part of the registration, you were encouraged to bring plants for the show, which I did. More like an exhibit, the show displayed wonderful plants for the public (and us) to judge! How we judged was part of the fun -- let's just say that in the end there were four "top bean" plants! The show area was a gathering place for everyone -- it was user-friendly.

I'll add a little more to the above in the next posting -- more about the speakers and the organizers -- this was a beautifully organized and prepared event.

Best wishes, Carol Wujcik, So. Calif.

Date sent: Mon, 21 Oct 1996 12:34:12 -0700
Send reply to: cacti_etc@opus.hpl.hp.com
From: CAWUJCIK@aol.com
To: Multiple recipients of list <cacti_etc@opus.hpl.hp.com >
Subject: Re: Tucson Serious Not All Cereus Roundup

Tucson Serious Not All Cereus -- Part Two

The speakers Oct. 12 and 13 were mostly experts I had not heard before, which was one of the big attractions for me. I learned new things and saw the desert through different eyes. Tom Van Devender talked about the Sonoran area generally, and Kent Newland focused in on the c & s of the Sonoran. Gene Joseph followed by talking about growing these plants in pots -- lots of cultural info & lots of good quotes, which I wrote down and hope to use in future! This was a natural grouping of talks, and all three speakers were excellent (and entertaining).

Whoops, forgot that Friday night after the reception, we heard Peter Gierlach on agaves and other plants grown at his nursery, which nurtures both Sonoran natives and people -- his nursery provides jobs for severely handicapped -- who learn to nurture and love the plants. Peter photographs the people, the plants, and the desert with love and skill. He concentrates on that part of the desert nearby, and in the nursery grows plants which sell, and also those that don't. (In fact, many nurseries grow those plants only the naturalist loves while the saleable items support them.) Peter is one of those people who are so full of life it spills over on the audience -- his enthusiasm and hope fills everyone around. It's not that bad a world when we have people like Peter Gierlach and Gene Joseph and Mark Sitter and Matt Johnson and all those who so readily share knowledge and enthusiasm.

I lingered at the AZ-Sonoran Desert Museum Sunday morning, I had a continental breakfast followed by Matt Johnson speaking on the cacti and shrubs of the Sonoran. Joann and Charles Spotts and Camille Rutkowski told me I had missed an excellent talk. Ah well. The farewell luncheon was a feast put on by the Tucson Convention Center in the mall, and along with raffle and plant show winner presentations, we heard Richard Felger discuss economic uses of succulents of the Sonoran Desert region. Luckily, we were full of good food or at least good descriptions of some of the bounty of the Sonoran would have been irresistible. Ah *Stenocereus gummosus*; ah saguaro fruit on ice cream.

I am lucky to live in an area with so many fun events having to do with our plants. Time is always a problem, but I am almost always glad to have attended these events, especially this one. The unsung heroes and heroines are those who share their love of our plants with others by working countless hours to organize these events, and the Tucson event was one of the best. Mary Odette and Margarette Pope, D. Wiedhof, Julie Turko, and many others obviously worked so hard -- mostly behind the scenes. It was a class act. Such workers provide the foundation -- without them things don't happen, speakers don't speak, info isn't disseminated, the plants can't strut their stuff for us humans to marvel at.

I look forward to the next Tucson plant/people festival.

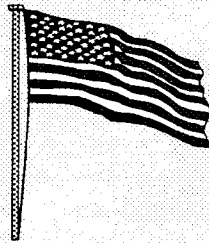
**November Meeting
- Thursday,
November 7th,
7pm@TBG**

**“A Brief Botanical Tour of
the Mexican States of
Coahuila and Nuevo Leon”**
will be presented
by Jon R. Weeks, Ph. D.

Marty Eberhart, the Director of
the Tucson Botanical Gardens has
a few words for us as well.

Bring your children, bring your
parents, bring your neighbors,
bring your friends!

**ELECTION
TIME !**



Before the December Meeting:

**Please call Dick Wiedhopf
@ 885-6367**

to recommend names.

**A Board Meeting will be called to set up the
Nominations Committee.**

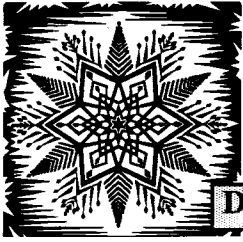
**All four officers' (Pres, V-P, Sec,
Tres), three board positions, CSSA
affiliate and editor's positions are
open. This would be a great opportu-
nity to increase your participation in
THE CLUB!**

From a Conference Participant

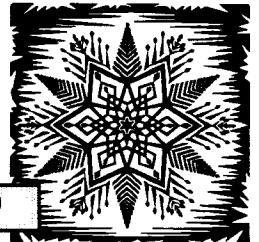
In the December “Desert Breeze”,
we hope to give you a short
summary of each talk and workshop.
Thirty-one evaluations were
returned by conference participants.
At the November 7 meeting, we will
have a compilation of the results for
members. There is however, one
“evaluation/summary” that appeared
in CACTI, ETC written by Carol
Wujick, a TCSS member from
California who attended the
conference. At this time, we could
give you no better summary of the
conference. We are delighted with
her enthusiasm and happy that she
learned from, and enjoyed, the
conference...

SEE PAGES 8&9 INSIDE!

If you are able to share photos or summaries of your experiences at
“Stuck on Tucson”, please contact



Desert Breeze



December, 1996

Volume 1 Issue 10

Wisdom of the West

"The coyote watched the first sunrise
He's watched several million more
He'll watch the last with a tear in his eye
As he thinks back on days of yore"

There's a lesson known to all who've been
A part of the winter, the snow and the wind
Who've known the world in the freshness of spring
Marveled at the flowers, heard the birds sing

This lesson is a treasure that all may attain
Who know not the wet but the joy of the rain
Who've walked in the mountains, felt the snow fall
And have felt not the cold by the joy of it all

The westerner knew with each season that came
That the cold and the heat were just part of the game
He enjoyed the eagle that sailed high above
The bear at the creek in the land that he loved

Though the eagle took a chick, or the bear took a foal
He knew this was only a part of God's goal
He might shoot the bear, for denying him food
But if the bear got away, he still knew life was good

He learned to accept it the best way he could
To go on with life, as he knew he should
He learned there was no good or bad in the land
Only the touch of the Almighty's hand

If we love mother earth and treat her with care
All of her treasure in bounty she'll share
But cut down her forest and kill off her game
You'll kill your grandchildren by that act of shame

If you kill the forest, the deer, too, will die
And then all the rest while we wonder why
We must learn the lesson not to burden the land
With more of our children than her riches can stand

Ken Watson

INSIDE: HOLIDAY STRESS BUSTERS & TAKE TIME TO SMELL THE FLOWERS



*As a child I understood how to give. I have
forgotten this grace since I have become civilized.
Chief Luther Standing Bear*

TCSS HOLIDAY HAPPENING

**SUNDAY, DECEMBER 15, 1996
PORTER HOUSE,
TUCSON BOTANICAL GARDENS**

PROGRAM: HOLIDAY POTLUCK

SET UP at 12:30 pm

BEGIN SERVING at 1:00 pm

*TCSS will provide Turkey, Ham, Rolls, Drinks and Cups.
Members and guests will need to bring a Plate, Utensils,
Dish to Share, and a Gift to exchange.*

*The Gift will be a Plant, Pot or Related Item.
It must be Wrapped; worth at least \$3-5.*

*The Dish - bring what you like!
Bring enough to feed yourself, your guests and six more.
To aid planning, we encourage you to RSVP by
December 13 to Dick (885-6367).
Everyone is WELCOME, whether you RSVP or not.*

Stop and Smell the Cacti

By Anna Cornett
San Diego Cactus and Succulent Society

Scent is probably our most evocative and least understood sense. For animals, smell is the most important of the senses. Turtles and salmon use it to return to their natal spawning spots. Predators use it to locate prey, while the prey use it to be aware of the hunter, even producing alarm scents to warn others of danger. Dogs are able to read in urinary messages the social and sexual status of canine passers-by.

Although our olfactory sense can sometimes surprise us by overwhelming our emotions when we catch a whiff of a half-forgotten smell, humans have pretty much lost the ability to consciously analyze scents. Aside from the sensations of sweet, sour, bitter and salty, the taste of food is dependent on the sense of smell. This would account for so many scents being described in terms of food - honey, mint, chocolate, plum, curry, spice, almond, coconut, vanilla, lemon, pineapple, etc.

People smell things differently. Some can catch the faintest of scents, others only appreciate the strongest. Brunettes are said to smell things more acutely than fair-haired people because the olfactory mucous membranes are lightly pigmented. The ability to identify different colored freesias by smell has been shown to be genetic, so if one is not born with the ability, no amount of sniffing will enable one to distinguish some scents.

Several parts of plants may be scented. **Roots** - some Iris roots smell like violets, while *Sedum rhodiola*'s smell like roses, but I have not heard of any fragrant cactus roots. **Leaves** - While the leaves of some succulents such as *Dudleya viscidya* and *Bursera* species have marked aromas, this would not be likely for cacti for the obvious reason. **Fruits** - the fruits of cacti may smell quite delicious. *Opuntia leucotricha* (duraznillo) has fragrant, edible fruit. But it is in the **flowers** where most cactus scents are found.

Fragrances are extremely complex. They consist of a number of compounds

such as aliphatic terpene alcohols and aldehydes which fluctuate according to weather and time of day. The particular scent of a flower derives from various combinations of these compounds into essential oils known as "attars" which are stored in epidermals of the petals. Double petaled forms therefore are usually stronger-smelling than single petaled forms.



Nature seldom does anything without a reason, and the reason for fragrance is a common one - SEX. Since plants can not move around to seek and object for their affection, they have to attract intermediaries such as the birds and the bees. Scent plays a fairly minor role among day-blooming flowers, which generally depend on color and form to attract pollinators. Some plants do tip the odds by having sweet smells to attract bees and butterflies. The *Pereskia* has a definite smell of mildew. Perhaps it seeks to attract fungus gnats.

It is among the night-blooming flowers where the strongest scents are found. Not all of these are pleasant. Bat pollinated flowers are said to be without exception downright repulsive, with flowers that smell of cabbage, garlic, fish, or rotten meat. Examples are found in *Carnegiea*, *Pachycereus*, and *Stenocereus*. Since these are all large arborescent cacti one would have to try hard to sample the scent and would be unlikely to be accidentally offended. *Pterocereus foetidus* sounds like a plant to be especially avoided.

Moth-pollinated flowers are the most highly adapted and the most powerfully scented. The often huge, white blooms of the night-blooming cerei have earned them the title "Queen of the

Night". Brought inside, a single bloom will perfume the whole house, though close up the smell may be too overwhelming. Too much of a good thing -

I have tried to compile a list of plants which I personally know, have read, or have heard, are fragrant. It is very incomplete since books and catalogs do not consistently mention fragrance in their descriptions.

EPIPHYTIC CACTI: *Rhipsalis houllentiana*, *R. pilocarpa*, *Selenicereus coniflorus*, *Cryptocereus anthonyanus*, *Discocactus macranthus*, *Epiphyllum crenatum*, *Hylocereus ocamponis*, and *Nyctocereus serpentinus*.

Other Cacti: *Echinopsis multiplex*, *Echinopsis hamatacantha*, *Echinocereus davisii*, *E. scopulorum*, *Echinocactus texensis*, *Ferocactus latispinus*, *Leuchtenbergia principis*, *Mammillaria baumii*, *M. camptotricha*, *M. heidiae*, *M. melaleuca*, *M. weingartiana*, *Neoporteria krainziana*, *N. odieri*, *Notocactus bueneckeri*, and *Parodia rubristraminea*.

There are undoubtedly many more fragrant cacti out there. By being more aware of scents and sniffing them out wherever we find them, trying to identify and describe their qualities, we might be able to train our smell palates the way a wine-taster does his taste. So get out there and smell your cacti (carefully, of course)!

References

- Allardice, P. *The Scented garden*. Angus and Robertson. 1992.
 Haustenin, E. *The Cactus Handbook*. Chartwell Books Ltd. 1988.
 Lacey, S. *Scent in Your Garden*. Little, Brown & CO. 1991.
 Rowley, G. *The Illustrated Encyclopedia of Succulents*. Salamander Books. 1978.
 Stabler, A. "Some Perfumed Cacti", *Cactus and Succulent Journal* (U.S.) Vol. 58, No. 1, 1986.

Growing in the Cool Season

Thanks to Jane Evans, our speaker at the November meeting, we can all hope to keep our mesembs, haworthias and aloes alive longer. Jane defined the "cool" season as lasting from October through April, or when the night temperatures drop. "Cool season plants" actively grow... during the cool season! During the rest of the year, they're busy burrowing in, and just trying to hang on 'til things cool off, so it is imperative to pay attention to watering. When the plants are dormant, the soil stays wet, the roots rot, and the plant dies. Another caution is to know how your plant should appear when dormant. Don't throw it out when it shrivels and fades, unless you're really sure it's gone for good.

For lithops, look for flowering, which indicates the plant is actively growing. Start once a week, heavy, watering as soon as the plant leafs out. Water once or twice before fertilizing. After the plant finishes flowering, it will begin splitting (around Nov. - Dec.)- DO NOT WATER! The new leaves take all their

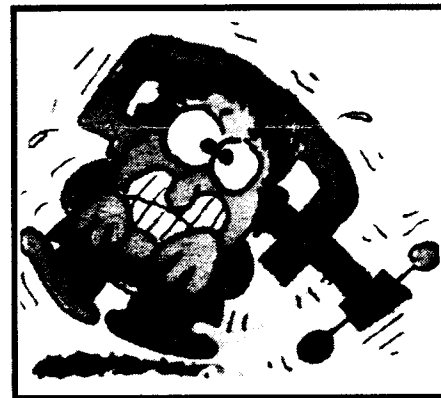
water and sustenance from the old ones. The roots are no longer functioning, and your plant will turn to mush if you soak with it now. Instead, Jane advocates light, infrequent misting - only if there is no moisture in the air for the rest of the cool season. Mesembs are hardy and do best with intense winter sun. Once summer arrives, she increases her imitation of a fog machine as often as three times a week, late in the day.

Haworthias are cool season growers, but they are not hardy. They will require heat during the Tucson winter. Jane treats her Haworthias like mesembs, not watering during the summer, and keeps them under a bench for less light but with frequent light waterings. Other people water them along with their other succulents without problems.

Aloes are great for hummingbirds. You can grow a fantastic specimen in ten to twelve years, so that you can have a really beautiful plant before you desiccate it. In the landscape, aloes do best in a soil which drains quickly away from

the roots. Some protection from summer rains can also be garnered by surrounding the aloe with summer growers, like salvias. For protection from the cold, consider grouping aloes under palo verde or other protective cover. Most are hardy to the low thirties, but will need protection, especially of the spikes if you are hoping to propagate.

The cool season is also the time for propagation. Mesembs have tiny seeds which need not be buried. Instead use fine soil, very fine screened sand on the surface, and sow the seed on top. Start your seed in October/November, or possibly in March. Start haworthias in early fall or early spring, and aloes during the monsoons to get a jump on the growing season.



Developments at Tucson Botanical Gardens

Judy Davidson, the director of development at the gardens addressed the club at the November meeting. She explained that the site includes approximately 5.5 acres, of which half is currently developed. The new "master plan" which was adopted about a year ago, will cost \$2 million to bring to reality. There are three phases planned:

- 1) "first impressions": the focus will be on improving the front entrance, the Porter garden, the xeriscape area and the parking lot.
- 2) a new education center will

include two fifty-person classrooms with a removable divider, kitchens and patio areas.

- 3) a market plaza which will include the nursery, marketing and a cafe. Within this phase a wall may be added around the cactus garden.

TBG has collected a third of the needed funds needed. There is a brochure available which better details the plans in each phase and information about how to make donations.

HO HO HO LIDAY STRESSSSSSSS?
Pop some popcorn without putting on the lid. Find out what liver in the blender really looks like. Make a "TO DO" list of things you've already done. Dance naked in front of your house pet. Forward all your calls to "Dial a Farm Animal". Have your surname legally changed to "Your Highness". Put a bag on your head. Mark it "Closed for remodeling". Tell your boss to blow it out her mule, and let her figure it out. Stare at people through the tines of a fork and pretend they're in jail. Write a book entitled, "neurotic, compulsive, antisocial, manic-depressive, and paranoid, but basically happy"...but most of all: take time to smell the flowers.

Reports from October 1996 Conference

In future months we will be printing reports of some of the talks and workshops presented the the October 1996 conference. We thank the members of the TCSS who have compiled these reports.

Workshop: **Mounting Rock Figs**

Presented by: Gene Joseph

Gene Joseph demonstrated his step-by-step process of mounting a rock fig. He started by putting some soil into a shallow (approximately 10") plastic pot. He selected a rock large enough to achieve the desired affect. Then, it was like watching a sculptor at work as Gene removed the *Ficus petiolaris* from the pot, carefully spreading roots and removing the soil. He placed the fig on the "planted" rock draping and tangling the roots down and over the sides. To secure the plant, he packed damp un-milled sphagnum moss around the rock, covering the exposed roots. Gene tied tree staking tape around the moss to hold it on and told us not to be surprised if the plant dropped it's leaves. Monsoon time is the best season to do this and extra water and misting for awhile helps the plant to establish itself.

The final steps take place months later when you repot the *Ficus* and it's rock into it's "final" pot and remove the moss. Water it frequently for awhile. As you can see patience is essential for the project but Gene's results make me anxious for monsoon season so I can plant my own masterpiece.

Submitted by: Judi Gaston

Workshop: **Plant Photography: Close-up Work**
Presented by: Michael Stoklos

Being a professional photographer, Mr. Stoklos approached the subject from a professional point of view. All equipment for close-up studio work was shown and their purpose explained and demonstrated. Best film brands and types were discussed and studio techniques were demonstrated. There was a lively question and answer period afterwards. I am a rank amateur photographer, mainly interested in having a record of my plants, but I have a good set of notes just in case I really get serious about photography some day. It was a good workshop.

Submitted by : Sara Perper

Workshop: **Winter Growers: How to Grow, Pot-up
and Propagate**
Presented by: Jane Evans

I think my few winter-growing plants will thank me for attending Jane's Workshop! She first explained the growing process from start-up to dormancy; showed how to divide and repot, water and fertilize. Propagation methods by seed, cuttings and division were demonstrated. Jane is an excellent lecturer and was extremely helpful with attendees questions.

Submitted by: Sara Perper

Workshop: **Basics and More About Growing Cacti and
Succulents for the Landscape in the
Sonoran Desert**
Presented by: Mark Sitter

Although more general in applicability, this presentation was largely devoted to raising cacti and succulents in pots and small enclosures (as is the case for

starting growth in nurseries and for extended growth for many users).

The type of soil (sand, mulch, fertilizer, et.al) commonly used by nurseries and the Desert Museum locally is more than a simple collection of desert earth. The planting procedure is more than a move of the root package into a larger environment (the roots are freed from their original surroundings and spread out in the new soil; if there were two types of soil present, an inhomogeneous distribution of water would result, with local areas of dryness and wetness to possible excess).

The vulnerability to bugs is countered by covering the bottom of the pot with mesh, screening the holes where bugs would enter.

The speaker brought samples and demonstrated his points as he prepared and planted. The result was a graphic presentation of basic use to the novice, and a useful basis for comparison by those more familiar with the art.

Submitted by: Lloyd Perper

Workshop: **Landscaping with Cacti and Succulents**

Presented by: Judy Mielke

The author of two authoritative publications on this subject, the presenter showed a large collection of slides illustrating good and bad examples of cacti and succulents in landscaping design.

In some bad cases, the plants were so located that they would not have room to grow or would crowd out the users of the space. Aesthetically, it became apparent that a single type of plant or an absence of variety was less pleasing than a proper balance of shape and color.

The examples shown were largely drawn from the Phoenix area, where small spaces were available, and large, often displeasing living structures needed to be offset or partially hidden.

The listener was given a picture of what type of plant to look for to cover a variety of areas, what plants would go together and where to look for more detailed and specific information.

Despite a malfunction of one of the slide projector machines and the need to talk around the resulting delays, the speaker was able to make a well-rounded, cohesive, and memorable presentation.

Submitted by: Lloyd Perper



thanks

For the invitation, Boyce Thompson, we'll be droppin' by soon!

Plantas del Sol (Dorothy and John Pasek) for the door prizes:

- Agave verschaffertii*
- Beaucarnea recurvata*
- Cereria pygmaea*
- Fouquieria diguetii*
- Monadenium ritchiei*

Arid Lands for

- Ammocharis coranica*
- Drimia maculata*
- Tillinum caffrum.*

Our raffle plant was:

- Euphorbia cylindifolia.*

Free Plant: *Melocactus macrodiscus.*

ELECTION
TIME



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