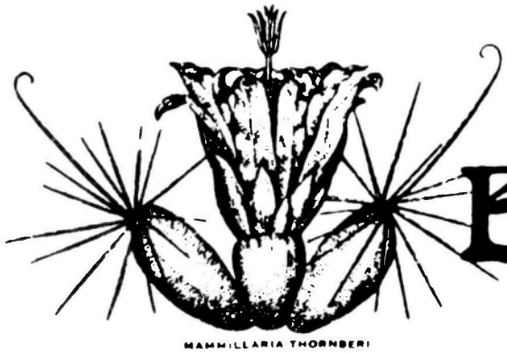

Espinas y Flores

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

Volume XXIII, Number 3 March 12, 1988

MARCH MEETING

Saturday March 12, 1988

1:30P.M.

Casa Del Prado, Room 101, Balboa Park

PROGRAM

SOUTH AFRICA AND NAMIBIA
by Myron Kimnach

Myron Kimnach, Just retired from the Huntington Botanical Gardens in San Marino, where he was the Curator of the Botanical Garden for 25 years. He has made 18 expeditions to Mexico and others to the West Indies, Venezuela, Bolivia, Peru, Most of Central America, Namibia, South Africa and Somalia.
This months program will feature slides of the vegetation and flora of South Africa and Namibia. These photographs were taken during a month long visit to those two countries in the spring flowering season of 1985. by Mr. Kimnach on a joint trip with Drs. George Lindsay and Frank Almeda of the California Academy of Sciences.

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IF ANYONE HAS ANY PEDIOCACTUS WOULD YOU PLEASE BRING THEM TO THE MEETING

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Bud and I are going away for the Easter week, so I will need items for the paper early again.
DEADLINE FOR THE APRIL MEETING - - - - - March 19, 1988 Thanks

The Haworthia Cooperii Complex

This is one of a series comparing Bruce Bayer's, John Pilbeam's, and Charles Scott's taxonomic treatment of the genus Haworthia.

Haworthias comprising the cooperii group are found in the dry grasslands of the eastern Cape region of South Africa. There is considerable and continuous variation in leaf size and shape, ranging from pointed to blunted, and smooth to bristled, leaf forms, as well as diversity in rosette size. Color is most often an attractive blue- or gray-green, although many clones acquire a reddish tinge or shades of purple or brown in good light.

Presumably it is this variation which occasions the considerable differences between Bayer, Scott, and Pilbeam in classifying the plants which might fit into this complex. They differ not only on what fits into the complex, but also on how a taxon may fit. This review uses Bayer's definition as a starting point, since it is the broadest.

Bruce Bayer:
1. H. cooperii v. cooperii: Making an exception only for H. cooperii v. leightonii, Bayer sees one continuously changing species. The complex begins with the smooth, obtuse-leafed forms near the coast (previously pilifera, dielsiana, et al), changing into acute-leafed, bristled forms (vittata is a discarded name still seen), as the complex moves northward eventually to become H. bolusii v. blackbeardiana.
2. H. cooperii v. leightonii: This form grows in a limited area near the coast. It is distinguished by its red veins near the end of the leaves. In good light, almost the entire rosette will take on a reddish hue.
3. H. obtusa: This is definitely not a name recognized by Bayer but deserves mention here as the subject of taxonomic outrage so gross that my domestic advisor would not believe it even after I invoked Bayer, Pilbeam, and the Cactus and Succulent Journal as testimony. Mr. Haworth himself introduced this name in 1825, and his imperfect description since then has been interpreted to apply to a member of the H. cymbiformis group. With one exception. In 1948 a Dutch taxonomist, one A.J.A. Uitewaal, looked at a painting of "H. obtusa" done by a Haworth contemporary, decided that the painting, rather than the written description, was a a true portrayal of "H. obtusa", and rewrote Haworth's description to correspond to how he, Uitewaal, saw the painting. The rewrite described a number of members of the obtuse cooperiis and, thus H. obtusa, with its 1925 priority date, came to refer to these forms. What is unfortunate is that today, even fourteen years after the Bayer/Pilbeam unveiling of Uitewaal's irresponsibility, the name "obtusa" is still occasionally used to label a cooperii form. What is even more unfortunate is

that when a name laden with such ambiguity is used, the collector cannot be certain whether it applies to a true haworthia or is a label pulled out of thin air without validity for the plant being identified.

John Pilbeam
1. H. cooperii v. cooperii fa. pilifera: Because of the "considerable difference in appearance of the extreme forms," Pilbeam maintains the use of fa. pilifera for the "blunter, more round-tipped" forms. As with most of his differences with Bayer, this is a concession to the collector rather than the consequence of a purely botanical judgement.
2. H. cooperii v. cooperii fa. cooperii: The acute-leaf forms fit here.
3. H. cooperii v. leightonii: This matches Bayer's form.

Charles Scott
1. H. cooperii: This comprises the acute-leafed forms which Bayer includes in H. cooperii but extends one more step northward to include Bayer's H. bolusii v. blackbeardiana.
2. H. batteniae: The foregoing sentence requires some modification. H. batteniae is a form described by Scott, which he considers related to H. cooperii. Both Bayer and Pilbeam, however, consider H. batteniae to be a redescription of H. bolusii v. blackbeardiana.
3. H. pilifera: This matches Pilbeam's fa. pilifera.
4. H. leightonii: This matches Bayer's and Pilbeam's H. cooperii v. leightonii.
5. H. altilinea: This is a plant described by Haworth, without any location given. Scott writes that he has found it in habitat, and, while he does not see it as related to H. cooperii, Bayer believes that it is merely another form of H. cooperii not worthy of separate status. Scott has made this plant available and, with all deference, the coloring and form of the plant strongly suggest its inclusion in Bayer's H. cooperii. As a footnote, the problems with the use of the name "altilinea" do not stop with the above. Pilbeam, striking out on his own, has identified another, unrelated form which he believes is the true altilinea. The characteristic is, of course, a ridge line down the center of the upper leaf end. There are plants in collections here which have this ridge line and are somewhat close to the other identifiers Pilbeam provides. Until he makes his clones available here, however, there is no way of knowing whether they are all the same. Scott takes matters further by including other altilinea varietal names under H. mucronata, which appears essentially to be the name Scott applies to the form which Bayer calls H. habdomadis v. inconfluens (and in which Bayer includes one altilinea form). If the reader has followed this far, he can understand why Bayer has written that the name altilinea "must be rejected as a source of confusion." The word "morass" might be a good description.

When we look back at the taxonomists' use of pilifera, cooperii, and blackbeardiana, we see that each recognizes essentially the same variations and the continuity of many of

these variations. But at crucial points, one of them may discern continuity while the other identifies a cut-off. Neither Bayer nor Scott, however, provides a full explanation of his judgements and conclusions (a textual shortcoming not limited to the cooperii complex), thus leaving the student with some knowledge, but little understanding, of their views.

-Bob Kent 2/88

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NEW BOOKS IN THE LIBRARY

International Asclepiad Society, Asklepios 38-40
Sheila. Collenette, An Illustrated Guide to the Flowers of Saudi Arabia
Bruce J. Hargreaves, Succulent Spurges of Malawi
Paul T. Isley III, Tillandsia
Marga Leue, Epiphyllum, The Splendor of Leaf Cacti
John Pilbeam, The Instant Guide to Healthy Cacti (2)
John Pilbeam, The Instant Guide to Healthy Succulents (2)
Gordon D. Rowley, Name that Succulent

---Rick Latimer, SDCSS Librarian

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SHOW SCHEDULE FOR MARCH AND APRIL

Mar. 18,19,20	San Diego Co. Orchid Soc. 42nd Spring Show (Scottish Rites Mem. Bldg. -Mission Valley) Admission: $3.00	Preview: Sat:9am-9:00pm	Fri:7pm-10:00pm Sun:11am-5:00pm
Mar. 19 & 20	Ikebana International 20th Exhibit/Show	Sat;11am-4:30pm	Sun:11am-4:30pm
Mar. 26 & 27	Balboa Park African Violet Club 13th Show	Sat:Noon-5:00pm	Sun:10am-4:30pm
Apr. 2 & 3	Exotic Plant Society 10th Show	Sat:11am-4:30pm	Sun:11am-4:30pm

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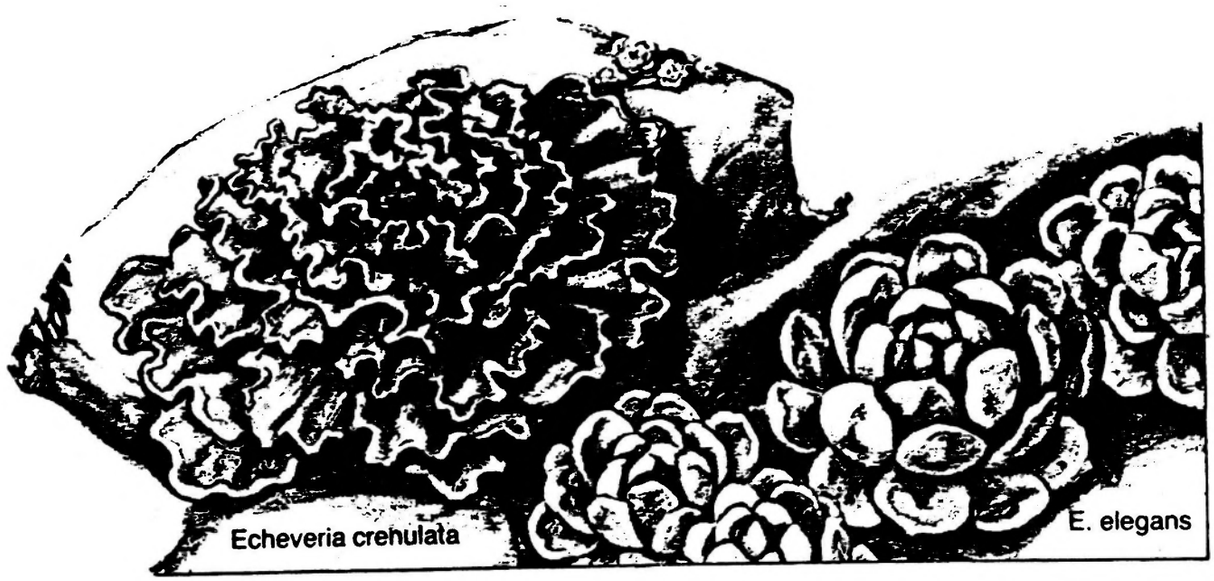


SUCCULENT-OF-THE-MONTH

ECHEVERIAS

Dorothy Dunn

Echeverias are among the most beautiful of all succulent plants, their most outstanding feature probably being the infinite range of leaf color in almost all shades imaginable, as well as a variety of leaf textures. In addition to this, they are easy and reliable bloomers, and with a fairly representative collection it is possible to have some in bloom almost all year 'round. The flowers range in color from red through orange, pink, and yellow, and in some species are quite large and conspicuous. Most species are quite hardy out-of-doors in California, and these are useful as colorful and maintenance-free bedding plants for borders and rock gardens. They also make excellent pot plants.

The genus Echeveria belongs to the large Crassulaceae family, which consists of at least 25 genera including Crassulas, Cotyledons, Adromischus, Dudleyas, Kalanchoes, Sedums, Sempervivums, Pachyphytums, Graptopetalums, Aeoniums, etc. It was established in 1828 by the Swiss botanist Augustin de Candolle and named after Anastasio Echeverria, the gifted botanical illustrator of the Flora Mexicana. At that time only three or four species were known, but today there are at least 150 described species as well as innumerable hybrids and cultivars. Eric Walther's monograph on Echeveria, published in 1972 (posthumously) after many years of work, lists 143 species, which he divided into fourteen series according to each plant's individual characteristics. It does not include several more recently-described species such as E. lauii, E. lilacina, E. minima, E. pruinosa, etc., but still stands as the acknowledged authority on Echeveria.

Echeverias have a geographical range of well over 4,000 miles, extending from southwestern Texas to northwestern Argentina. The greatest concentration occurs in Mexico, where about 120 species are now known. Only one species - E. strictiflora - is native to the United States and this occurs in Texas, which is the northernmost extent of the genus. Many California plants were at one time classified as Echeverias, but they have since all been transferred to Dudleya. Their typical habitat is generally the high mountainous areas of Mexico and Central and South America, between elevations of about 3,000 to 14,000 feet, where they often grow in close proximity to Sedums and Pachyphytums. In their native habitats they are accustomed to summer rains, and a dry, almost completely rainless winter, as well as a great fluctuation in rainfall. For instance, one species (E. australis) which occurs in Costa Rica, may receive as much as 12 inches of rain in September alone, while on the other hand there are some species which may get as little as 10 inches annually. They have a definite preference for rocks, cliffs, steep slopes and recent lava flows, and they almost always seek the shelter of low bushes and the shady north slope of a hill with denser tree cover and more humus deposits.

Some species, such as E. elegans, E. agavoides, E. pulvinata, and E. setosa will stand considerable frost. None of them like high humidity, and the kinds with large, cupped leaves may start to rot or develop unsightly leaf spots when the leaves remain cold and wet in winter. In fact, some authorities recommend watering from below (that is, standing the pots in a shallow container of water) to avoid getting water on the leaves, as many Echeverias are covered with a waxy bloom which causes the water to collect in drops on the rosettes, which in turn leads to rotting. Also, our notoriously hard water can leave a deposit of salts on the foliage which spoils their appearance. Hailstorms are devastating - it may take plants almost a year to fully recover from the damage caused by wind-driven hail, and by then you usually have another hailstorm! Another disastrous event is the occurence of a sudden heat wave following days or weeks of cool, overcast weather such as we often experience as part of our typical southern California spring. The plants simply cook.

Echeverias can be watered in moderation all year 'round as they do not require a winter rest period. They do like good ventilation and strong light. While many species will tolerate full sun, which gives them better leaf color, some of the more tender hybrids and the fuzzy-leaved varieties (notably E. ciliata, E. setosa and its hybrid E. 'Doris Taylor') prefer more shade.

Principal pests are mealy bugs (between the leaves) and aphids on the flowers. Some species are also susceptible to root nematode.

Your soil mix can consist of the usual 1/3 coarse sand or pumice, 1/3 good garden soil, and 1/3 well-rotted leaf mold or other organic material. Echeverias like a fairly rich but well-drained soil.

Propagation is by offsets, leaf cuttings, or beheading and re-rooting the larger, taller species when they become too lanky. You can also sometimes root the spent bloom-stalks after removing them from the plants. It's possible to grow Echeverias from seed, but most authorities don't recommend it as they hybridize so freely. However, in the case of some species which seldom if ever offset (E. lauii) or are practically impossible to grow from leaves (E. minima, E. lauii) seed-growing is the only alternative. Echeverias also hybridize easily with other genera, especially Pachyphytum (xPachyveria), Graptopetalum (xGraptoveria), Sedum (xSedeveria) and Dudleya (xDudleveria). This has resulted in some extremely beautiful plants which are characterized by the most outstanding and desirable features of both parents.

Literature consulted:

Carruthers, L. and Ginns, R. Echeverias
Chidamian, Claude: Book of Cacti and Other Succulents
Walther, Eric: Echeveria

THE GENUS PEDIOCACTUS

by Joan Johnson

This small genus of mainly tiny plants is native to the Western United States. There are currently eight species and four varieties described and it's quite likely that more will be discovered in the future. The genus is highly diversified, specialized and much misunderstood. It was even combined by Arp in 1972 with Sclerocactus into a single genus. But much work has been done on the genus before and since then by Lyman Benson, whose work was published in a revision of pediocactai in the Cactus & Succulent Journal in 1961, and again updated for his "Cacti of the United States and Canada" in 1982; by Ken Heil, Barry Armstrong and David Schleser, in a review of pediocacti published in the Cactus & Succulent Journal in 1981; by Prince Pierce and many, many others.

Most species have very limited ranges and are as difficult to find as any known species of cacti in the U.S.

They range in size from a dime (P. knowltonii) to that of a medium sized barrel cactus (P sileri and the P. simpsonii complex). They are in fact Echinocactanae. Species were at one time included in Echinocacatus, Mammillaria, Navajoa, Pilocactus, Toumeya and Utahia until Benson noticed the one overriding characteristic of all the species: the method of seed dispersal. The top-shaped fruits dehisc when dry through a vertical slit in the ovary wall.

Geographically the distribution of pediocacti divides easily into two separate groups. P. knowltonii, P. bradyi, both varieties of P. peeblesianus, P. winkleri and P. despainii are 'River System' plants and all are found within a few miles of the Colorado River or a major

tributary. P. sileri and P. paradinei, though from the Kaibab Plateau and near the North Rim of Grand Canyon and desert plants, are not located near any major river. All these species are found mainly in the Navajoan Desert at 3400 to 5900 ft elevation, in gravelly, limestone soils. The 'Mountain ' species, the various varieties of P. simpsonii, inhabit the Columbia River basin, the Great Basin and the Rocky Mountains, from Eastern Washington and Oregon to N.E. Nevada, Idaho, the Coloraado Rockies, and the mountains of Nevada, New Mexico and Utah. The elevations range from 1500 to 5000 ft east of the Cascades to 8800 to 11000 ft in Colorado, and I can't even breathe at eleven thousand feet!

Generally, the 'River System' plants are found at lower elevation and under desert conditions. P. paradinei, so similar to 'river system' species in everything but habitat, is found mainly in sagebrush desert in gravelly soil among limestone pebbles on the Kaibab Plateau. P. bradyi comes from the Navajoan Desert near Marble Canyon, Az. P. peeblesianus var. peeblesianus occurs in limestone soils on gravelly hills near Hollbrook, Az. P.p. var fickeiseniae is confined to exposed ledges of canyon cliffs along the Colorado and a few other scattered locations. P. knowltonii, the smallest of the genus, is found in pinyon-juniper woodlands and sagebrush flats in far nothern New Mexico. P. winkleri's habitat is on south-facing slopes of alkali hills in the Navajoan Desert in Wayne County, Utah. P. despainii, also a Utah native, hails from Emery County, among scattered junipers on rolling, grassy hills among lime chips and grama grass.. And P. papyracanthus, which Heil et. al. don't consider a pediocactus at all,

but Benson does, occurs on red, sandy soils of open flats and grass in juniper-pinyon woodlands, in central eastern Arizona and west and north central N. M. And fianlly, in sandy gypsum soils, sometimes on pure gypsum crystals on the Kaibab Plateau is the habitat of P. sileri, the largest pedio.

So much for habitats and geography! In several species, ie. P. sileri, both the P. peeblesianus, P. paradinei, P. bradyi and P. papyracanthus the stems are solitary. In the rest the stems cluster with greater or lesser maturity. There are no ribs, but the tubercles are quite prominent. Flowers occur on upper ends of areoles on new growth only. Flowers are large for such a small plant, campanulate with a short tube. The colors vary from lemon yellow to cream to pink and magenta. Fruits are at first green, usually turning to brownish or yellow, dry at maturity, top-shaped and dehisc along a vertical split in the ovary wall. Seeds are surprisingly large, very few to each seedpod, black or brown. Dispersal is limited because the pods do not attract birds or rodents. Wind or rain distribute the seeds, which results in widely scattered colonies with high density.

Finally, as to culture. Since the plants, particularly the desert species, come from areas of low rainfall and extreme summer heat, low humidity and winter temperatures down to -30º F, they are difficult to establish in other climates, and the roots are very subject to rot. Theyshould be grafted or seed grown since the numbers are quite limited in all species except the mountain forms. Best season for grafting is spring to early summer when both stock and scion are in active growth. 'River System' plants are dormant in the heat of summer,

become dessicated and pull into the soil. Growing from seed is actually the best way to propagate them; they do best in cultivation. However, the seeds need a period of stratification, either by keeping them in a dark, dry place for up to 2 years, or freezing dry seeds for for about 30 days at 30º F. When ready to plant, seed should be pressed lightly into moist planting mix of ½ peat and ½ #20 sharp sand, leaving part of the seed exposed. Keep evenly moist till germination, which occurs in 1 to 2 weeks at 90º F.

The desert forms begin growth in very early spring, flower and set seed, then enter summer dormancy. They shrivel markedly and will rot easily if watered. By early August watering can be started, but water only when dry and then thoroughly, early on a dry, hot day. Low nitrogen fertilizer can be used now. Buds form by early fall and plants expand now. The potting medium must be extremely well-drained, alkaline and granular. Crushed lava rock, coarse sand, with added gypsum is preferred. Underpot specimens and raise them above natural soil level. They need a cool, dry winter environment, and just a little water occasionally to keep the buds forming.

The mountain forms are quite different, much easier to grow. A basic well-drained cactus soil with a little humus added is preferred. P. simpsonii doesn't really like low elevations and neither it or P. knowltonii need a summer rest.

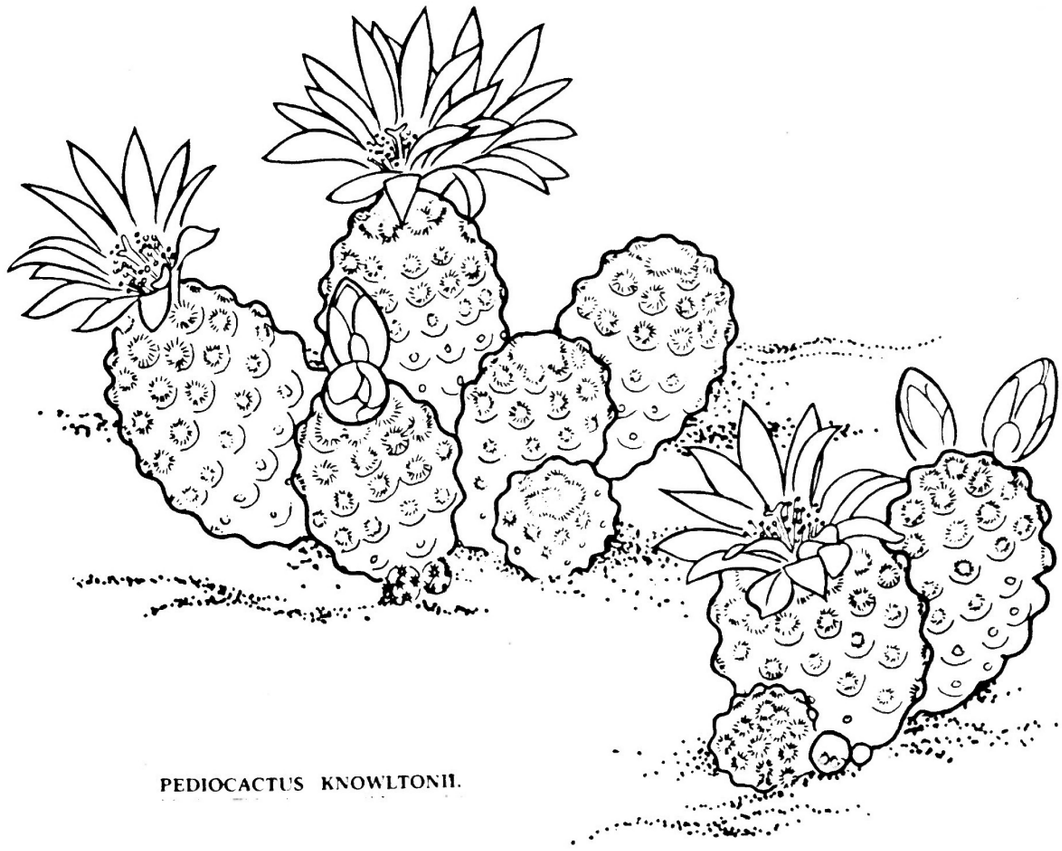
And now that you know all about Pediocacti, I wish you and ME GOOD LUCK!!!

Literature cited, used extensively and quoted:

Lyman Benson, Cact. Succ. Jour. 'A Revision of Pediocactus' 1981
v. 33:49-54, v. 34:17-19, v. 34:57-61, V. 34:163-168

Lyman Benson, 'The Cacti of the United States and Canada', 1982
v. 749-771

Ken Heil, Barry Armstrong & David Schleser, Cact. Succ. Jour.
'A Review of the Genus Pediocactus'
v. 53:17-39, 1981



PEDIOCACTUS KNOWLTONII.

NEWS NEWS NEWS NEWS - - - - -

WELCOME TO NEW MEMBERS - - -

Tom Hanig - Vista
Ed Blackman & Bess Goertz - La Mesa
Tom and Corenne Parks - San Diego
Bob Vinton - San Diego

* * * * * * * * * * * * * * * *

Those who have volunteered to bring refreshments for March are:

Cathy & Sandy Frost
Susan Clements
Robyn Natwick
Dana Adams
Olga Holtzer
Mark St. Clair
Thomas DeMerritt
Teresita Lime
Evelyn Chetham
John Williams
Mike Cullen
Mary Aubuchon

Thanks

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John Pasek wants us to know that he appreciates being elected as life member.

Thanks to Flo Warner for her donation of her plants to Balboa Park.

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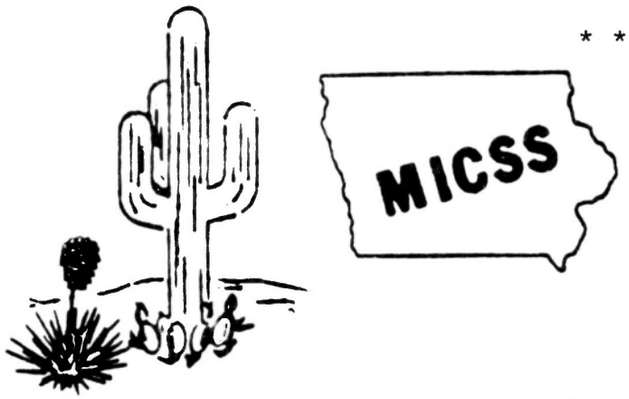

COMING IN JUNE -- The 2nd MID-AMERICA REGIONAL CONFERENCE to be held at the Airport Best Western Inn in Des Moines.
Date - June 17-19, 1988
Place - Airport Best Western Inn
Tentative list of speakers - Seymour Linden, Dr. John Donald, Frank Bowman, Woody MInnick, Neal Bohlman, and Dr. Wm. Nixon
Hosts - Mid-Iowa Cactus & Succulent Society

If interested - Laura Gray, Sec. Mid-Iowas Cactus & Succ. Soc.
2420 Reynolds Lane, Des Moines, Iowa 50317

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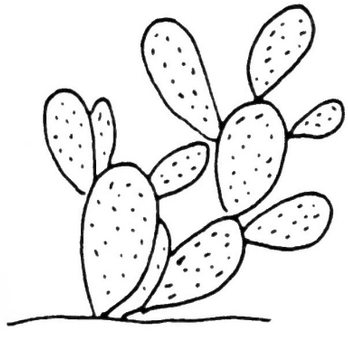
BRAGGING PLANT WINNERS.....



1st Place - Dorothy Dunn for her Gasteria liliputana

2nd Place - Carl McLeod for his Espostoa lanata monstrose/crest

3rd Place - Joe Wood for his dish garden of Sedum and Echeveria

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Program: Joan Johnson
Jim Dice
Joe Clements

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

Editor
Mary Aubuchon
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Chula Vista, CA 92011

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