

Espinas y Flores

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

Vol. XV, No. 10.

October, 1980

October Meeting

Saturday, October 4, 1980
1:30 pm
Casa del Prado, Room 101, Balboa Park

"Recent Trips to Arabia"

by John Lavranos

This early program will feature a presentation, with slides, by John Lavranos on his "Recent Trips to Arabia". John, an internationally famous lecturer, botanist and writer of scientific papers, is associated with the Goulandris Natural History Museum, Kifisia, Greece. Often with other distinguished collectors, he has described and/or discovered countless new species of plants and he has helped to put many of them into cultivation: Caralluma sarkariae, Caralluma hexagona v. septentrionalis, Caralluma shadhana v. barhana, Caralluma sinaica v. baradii, Aloe fibrosa, Aloe lensayuensis, etc., etc., etc.....

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Cactus-of-the-Month

Ariocarpus Scheidweiler

Frank C. Thrombley

Ariocarpus (ä'-rī-ō-kär'-pūs)
Mammillaria Group

A genus of cactus from the Chihuahua Desert in Mexico and northward into south west Texas. The name of October's cactus-of-the-month was chosen by J. M. Scheidweiler in 1838. The fruits of Ariocarpus reminded him of the Whitebeam Tree (Sorbus Aria), which is a species of the mountain-ash. Aria is the fruit of the Whitebeam and Carpus is Greek, meaning fruit.

Ariocarpus retusus Scheidweiler (T) was discovered and described in 1838 and therefore became the type plant of the genus.

Ariocarpus have a thickened tap-root and a flattened top, with large triangular tubercles. They are mostly broadly rounded and are greyish-green in color. As in Mammillaria, the flowers are borne around the apex, not in it, sometimes several together in a coronet. The flower tube is short and is immersed in the wooly formation of the areoles and are white, yellowish, pink or purplish in color. The fruit is a smooth, elliptical berry. The seeds are black and are retained for a long time in the dried berry amid the wool of the areoles.

This genus of cactus passed under three names between 1838 and 1897. Ariocarpus retusus Scheidweiler was first in 1838. Anhalonium kotschoubeyanum Lemaire was second in 1842 and Mammillaria fissuratus Englemann was third in 1856. Schumann, in his study of Ariocarpus, placed both kotschoubeyanum and fissuratus in the genus Ariocarpus in 1897 and 1894, respectfully. Britton and Rose recognized these three species and described them in their works "The Cactaceae". However, in 1925, Berger segregated these last two species as a distinct genera under Roseocactus. The genus Roseocactus was named in honor of Dr. J. N. Rose, co-author with Dr. N. L. Britton of "The Cactaceae". Berger did this because of the presence of the median wooly furrow on the upper surface of the tubercles. The genus Roseocactus also has flat tips on the leaf like tubercles instead of the pointed tubercles in Ariocarpus.

In 1941, a Mexican engineer, M. Castaneda, discovered and described a plant in the Chihuahua Desert near Tula. It was put in a separate genus and described as Neogomesia agavoides Castaneda.

In 1961, E. F. Anderson undertook a revision of the genus and placed both Roseocactus and Neogomesia under Ariocarpus as two subgenus.

Now stay with me because this is not the end. Curt Backeberg took exception to Andersons work and indeed thought that the unification was ill-considered. Hence, he kept all three genus separate and described them as such. His reasoning expanded Bergers and included the manner in which the flowers are borne on the plant. His justifications certainly seem reasonable to the layman.

However, Wilhelm Barthlott, in his 1977 publication "Cacti", placed all of the species under Ariocarpus.

If one recognizes all of these variants as belonging to Ariocarpus, there are nine species and three questionable varieties.

The cultivation of these species can also be confusing. In their habitat, they receive very little or no winter rains. The summer season brings tropical storms and at times torrential rains between July and September. In the dry periods, they will shrivel or shrink to the point of being level with the ground. In fact, the sandy soil can cover them for months as a result of the winds. Because of these facts, most amateur collectors do not give their plants enough water during the summer, or growth months, and expect the plants to look like fossils. I subscribe to most of the authors I have read that recommend, for pot culture, the following:

1. Ariocarpus must be grown in an open compost with additional gravel or grit added. A pinch of bonemeal is also recommended. Be sure to plant in a deep pot to allow for the tap root. Use a porous clay pot.
2. Water generously from spring to December in our climate. Do not water in the winter (January, February and March). Do not water at any time during a rainy period. This means in our area they must be protected from the winter rains.
3. Grow these plants in full sun, not in shade.
4. Repot these plants annually to replenish the spent soil due to the watering program. The porous soil will lose its natural plant food due to leaching from the watering in one season. This is also the reason for adding the pinch of bonemeal. Do not substitute bloodmeal or hoof and hornmeal, they are sources of nitrogen, not phosphorus - use bonemeal.

A healthy Ariocarpus should send out new tubercles every year, and the center of the plant should be green, with creamy new wool.

As a footnote, I would add that I received an Ariocarpus kotschoubeyanum Lemaire at the 1978 July SDC & SS picnic. It was a door prize and was given to me with a warning that it would probably not survive. It was planted in a plastic pot and I watered it through the winter. The prediction came true. However, after writing this article I am now rejuvenated and will try again, but this time will follow the four rules above.

References used:

- Backeberg, Curt 1977. Cactus Lexicon, Blandford Press, England
- Barthlott, Wilhelm 1979. Cacti, Stanley Thornes, England
- Borg, J. 1976. Cacti, Blandford Press, England
- Britton & Rose 1937. The Cactaceae, Dover Publications, New York City
- Martin, Chapman & Auger 1971, Cacti & Their Cultivation,
Charles Scribner's Sons, New York
- The American Garden Guild 1956. Taylor's Encyclopedia of Gardening,
Houghton Mifflin Co., U.S.A.



NOTICE TO PLANT IMPORTERS AND EXPORTERS
Endangered and Threatened Species Plant Enforcement

We have been advised by the U.S. Department of Interior that only the following Mexican authorities are eligible to issue Mexican documents for the international movement of plants under the Endangered Species Act of 1973 and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES):

Director, Aprovechamiento Forestal
Secretary De Agricultura y Recursos Hidraulicos
Aquiles Serdan 28-2 Piso
Mexico 3, D.F., Mexico

or

The Chiefs of the Forestry Programs
of Mexican Republic States

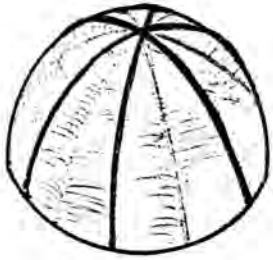
Accordingly, a Federal Register notice is being prepared to announce that effective on the date of publication of such notice, the U.S. Department of Agriculture will no longer accept Mexican documents for terrestrial plants unless they are issued by the specified Mexican authorities. It is anticipated that this notice will be published in the Federal Register on or about September 16, 1980.

Also, in a document to be published in the Federal Register, the U.S. Departments of Agriculture and Interior will announce a new policy concerning species of Cactaceae (cactus). Under this new policy, effective September 15, 1980, all specimens of species of Cactaceae (cultivated or found wild) regardless of where physically located, and regardless of the place of shipment will be considered to be listed in Appendix II of CITES and will be required to have appropriate documentation at the time of importation into the United States. All specimens of species of Cactaceae (cultivated or found wild) physically located in the United States are already considered to be listed in Appendix II of CITES and are required to have appropriate documentation at the time of exportation or reexportation from the United State.

Succulent-of-the-Month

EUPHORBIA

by Rick Latimer



Euphorbia obesa

The Euphorbiaceae constitutes a large family of flowering plants; including herbs, shrubs, and trees. It is divided up into eight subfamilies. The third subfamily is the Jatropeae and includes the genus Jatropha. The eighth, and most advanced, is the Euphorbieae, which includes the genera Pedilanthus, Monadenium, and Euphorbia among others. The Euphorbia family includes more than 250 genera and 6,000 species. This family has made its way to all parts of the world, except the arctic and antarctic regions and a few alpine heights. Most species are not succulent, but many are. The most famous genus for us is Euphorbia. Many of the over 2,000 species of this genus are not succulent either such as the Poinsetta, but sufficient quantities are.

This single genus Euphorbia rivals the entire Cactus family. As an outstanding example of convergent evolution, there are matching or at least similar shapes right down the line: Pereskia-E. splendens, Wilcoxia-E. sipolisi, Pachycereus-E. ingens, Astrophytum-E. obesa, Rhipsalis cassutha-E. tirucalli, Macheocereus gummosus spiralis-E. tortirama, Monvillea-E. graciliramea, Trichocereus spachianus-E. columnaris, etc. The only shape that the Euphorbias have not yet come up with is the Opuntia disk. Although the cacti are more outstanding in the spine department, especially with the many black, white, red and yellow species; the Euphorbias do have some outstanding horrors, all with a charm of their own. For example, E. aeruginosa is known as the verdigris Euphorbia. The spines are copper colored. One of the copper rusts is copper sulphate (green of Greece). Therefore, the plants look like rusting copper! Although some cacti have colorful skins, particularly blues, purples, and blacks; there are some colorful Euphorbia species: white-E. abdelkuri (and Madeline's E. horrida), blue-E. horrida var. nova, and brick red-E. platyclada. My favorite Euphorbias are those with patterned skins and thorny, such as E. samburensis, baioensis, Zig Zag, persistens, heterochroma, and like. There are tuberous cacti, but more can be done with such species as E. stellata, knuthii, and decidua. There are other species with no close equivalent in the Cactus family- E. trichadenia, bupleurifolia, and stenoclada. Of course there are also crested, monstrose, and variegated Euphorbias. This genus falls way behind the cacti in the flower department. Perhaps the only outstanding one is E. splendens with species and hybrids (and allied species) with white, yellow, green, pink, and red colored flower bracts.

How is it that there exists one genus with so many forms, while the Cactus family has been divided up into an infinite number of genera? Perhaps this is so due to the fact that the Cactus family is older (its flowers are more "primitive") and therefore has had time to "split up into many genera", while with the Euphorbias we have a more advanced group of plants that has none

the less somehow managed to develop its own myriad forms and species, but basically similar flowers. I do not think we have an artificial situation where one school of taxonomists have done the cacti(splitters), whereas another group (lumpers) have done the genus Euphorbia. Anyway I would hate to see this fine group of plants broken up! Surely there is something for everyone. (REMEMBER THAT EUPHORBIA SAP IS POISONOUS!)

COUNTING

Ounce, dice, trice, quartz, quince, sago, serpent, oxygen, nitrogen, denim.

-Alastair Reid, 1956

COUNTING 1980

Ceropegia, Aeonium, Portulaca, Trichodiadema, Euphorbia, Agave, Cissus, Echeveria, Hechtia, Nolina, Senecio, Epiphyllum, Welwitschia, etc... (starting with zero)

REFERENCES:

Hermann Jacobsen, A Handbook of Succulent Plants.

Alan L. Mackay, Scientific Quotations: The Harvest of a Quiet Eye.

Gordon Rowley, The Illustrated Encyclopedia of Succulents.

Special Announcements

Green Thumb Shows - - - - - at the San Diego Wild Animal Park

October 11-12-13

"Beauty & the Beast"
Plant Show and Sale

This year the "Beauty & the Beast" Plant Sale will offer numerous exotic plants that are not normally found in nurseries.

Zoological Society of San Diego - - - - - Botanical Members Nights:

October 1 & 8, 1980

Fall Botanical Tour
by Ernie Chew
At the San Diego Zoo

It is with great sadness that we announce the death of Peter Bally of South Africa. Mr. Bally was a highly respected botanist at the Coryndon Memorial Museum in Niarobi, Kenya, and he became well-known in the plant world for his botanical paintings (watercolors), for his book The Genus Monadenium and for his intense interest in euphorbias, monadeniums and asclepiads. Euphorbia ballyi and Echidnopsis ballyi were named in his honor. Too, he collected and introduced numerous new species of plants into cultivation.

Pests of Succulent Plants

Part XV. Fungi.

Dr. Ronald E. Monroe

The most devastating pests of cacti and other succulents could easily be attributed to the numerous plant diseases that attack them. All too often, seedlings or large prize-worthy plants are completely destroyed leaving one with a helpless feeling of complete defeat. Of the many diseases known, the fungi are foremost as they are the most commonly encountered in succulent plants in cultivation.

Systematics -- Fungi (Mycophyta) are plants that lack chlorophyll, are saprophytic or parasitic and cannot manufacture their own food via photosynthesis. The main body of the fungi is called a hyphae which produces a whitish, root-like structure known as mycelia. The mycelia penetrate the substrate and secrete enzymes which can digest proteins, carbohydrates and fats, and the fungus later utilizes these nutrients for its own growth. Reproduction may be by either asexual or sexual means or both, and in many cases dispersal is accomplished by wind-carried, aerial spores. The Mycophyta is divided into the following classes: Phycomycetes (black molds, downy mildews and white rusts), Ascomycetes (leaf curls, powdery mildews, etc.) and Basidiomycetes (numerous parasitic forms on plants). The fungi that attack succulent plants have been extensively reviewed (Wescott, 1950; Durbin et al., 1956; Streets, 1969 and Pirone, 1970), and some of the more common ones found are as follows:

- Damping-off fungi which attack seedlings and kill the tissues of stems and roots near the ground level (species of Pythium, Pellicularia, Fusarium and Botrytis).
- Anthrachnose appears as circular, depressed dark-colored spots up to one inch in diameter, bordered by a raised ring. The spots may run together (Glomerella cingulata in Agave, Mycosphaerella opuntiae in Cereus, Gloesporium cactorum in Mammillaria, etc.)
- Leaf spot causes characteristically-zoned light grayish-brown spots, reaching one inch or more in diameter. On them in concentric rings are large numbers of small black fruiting bodies, in which are formed the light brown spores (Coniothyrium concentricum and C. agaves in Agave).
- Root rot a fungus which causes the roots to rot and is particularly common in California (Pythium ultimum in Aloe).
- Wilt causes a brown spotting and wilting which begins at the base and extends upward (Pythium debaryanum).
- Fusarium wilt believed to affect Cereus and is a soft, black rot which begins at the tips and spreads downward (Fusarium oxysporum).

- Stem rot a very rapid rot which begins with well-defined yellow lesions that later become dark brown; entire plants collapse and die within 2-4 days. The fungus enters older plants through the stomata or wounds; it may penetrate the epidermis per se in younger plants (Helminthosporium cactivorum).
- Pad decay gaining entry through wounds, the spores, yellow in mass, cause stem and branch decay (Aspergillus alliaceus).
- Slimy collar rot causes a black, slimy, soft collar rot at the base of the plant; particularly a problem in sp. of Cereus (Phytophthora cactorum).
- Soft rot or gray mold causes slimy disintegration of tissue, and the whole upper surface gradually rots and collapses (Botrytis cinerea).
- Euphorbia stem rot causes dark-colored rotted areas which are soft and usually kills infected branches (Coniothyrium euphorbiae).
- Dry rot causes a dry rot in Carnegiea gigantea (Poria carnegieae).
- Leaf spot causes drying of infected leaf area with tiny, dark fruiting bodies (Sphaerodothis pringleri in Yucca).
- Leaf blight causes large, dry leaf spots with conspicuous pinhead-sized black fruiting bodies (Kellermannia anomala).

Recently, a strain of Fusarium oxysporum which is fairly resistant to many fungicides entered England from Malta and has caused considerable mortality in greenhouse-grown plants. Apparently, sporulation occurs in high temperature and humidity (at night) and enters the open stomata of the plants (Donald, 1979).

Plant damage -- In some cases plants are merely disfigured, decreasing their eye-appeal and, surely, killing their chances of ever being a show plant. Unfortunately, however, the usual end result is death of the infected plant. Once the fungus gains entry, the excellent growing substrate of the succulent's interior (darkness, moisture, nutrients) causes rapid growth and reproduction to the extent that the fungal disease rapidly spreads throughout the plant and often kills it within a few days (many plants are reduced to an interior mush with an exterior epidermal skeleton).

Biology -- The biology of a fungus differs depending upon the class being discussed. In some cases, their biology is complicated and involves both sexual and asexual reproduction. In some cases the spores are dependent upon some insect or nematode carrying them from plant to plant (thus, they are disease vectors) while other fungal spores gain entry only after plant attack by mealy bugs, sciara fly larvae, etc.

Control -- The very best control against any of the fungal diseases is a healthy plant that is somewhat hard grown. That is, not too much water, the right type of porous soil which allows for good drainage and absence of mealy bugs and sciara fly larvae. In some cases, a plant that has stem rot can be

salvaged by scraping out the infected area with a knife and then packing the wound with Captan® or Thiram®. Too, a plant with root rot or lower stem rot can often be saved by topping and grafting. Naturally, these two methods decrease the plant's chances at a show, but it does save valuable genetic material for the serious collector. One of the very few systemic fungicides, Benomyl® or Benlate® might be used as a prophylactic measure by spraying the plants during wet, humid winters, and preventative sprays of Kethane® has been used successfully in seedling flats (Durbin *et al.*, 1956). Regardless, one important thing to not do is to become a mechanical vector by spreading the disease from plant to plant — always destroy infected plants that you are not able to save and wash the pot in a solution of Chlorox® and water. Damp-off is best prevented by watering seedlings with Natriphene® or Consan 20®.

References

- Donald, John D. 1979. A new strain of Fusarium oxysporum in England. Personal communication.
- Durbin, R.D., Lily H. Davis and Kenneth F. Baker. 1956. A Helminthosporium stem rot of cacti. *Cactus and Succ. J. (America)* XXVIII: 46-49.
- Pirone, Pascal P. 1970. Diseases and Pests of Ornamental Plants. The Ronald Press Co., New York. 546 pp.
- Streets, Robert B., Sr. 1969. Diseases of Cultivated Plants of the Southwest. The University of Arizona Press, Tucson, Arizona. 390 pp.
- Westcott, Cynthia. 1950. Plant disease handbook. D. van Nostrand Co., Inc., New York. 746 pp.

Conservation Notes

The Republic of South Africa has submitted proposals to the Convention on International Trade in Endangered Species of Wild Fauna and Flora to transfer Pachypodium namaquanum from appendix II to appendix I. Technically, this means a transfer from threatened to endangered status (see: *Endangered Species Tech. Bull.* V: 14; 1980). If such a proposal is agreed to, a person wishing to import either plants or seed will need an import permit from the U.S. Fish and Wildlife Service, a USDA plant import permit and an export permit from the country of origin.

Member Interviews: Rick Latimer

by Marcia Monroe

Leaving South Bend, Indiana in 1956, Rick moved with his parents to La Mesa, California, where he attended local schools. At Helix High School he majored in science and math; he also was on the school's nationally famous math team. Subsequently, he attended University of California at San Diego where he majored in computer science and minored in art. At the present time, he works at General Atomic as a quality control inspector (checking material ordered by his employer to make sure that it is made to specification). In addition, Rick has three married sisters, and he lives with his father in La Mesa.

In the early 1960's, Rick became interested in collecting plants. About ten years ago his oldest sister worked in the gold & silver department at the Broadway in Fashion Valley. One day a lady walked in and said, "These are all very valuable, but not as valuable as my cacti". His sister said, "oh, my brother grows those". The lady said, "well, we have a society for cacti & succulents, he should come"; so he went. The lady turned out to be the Hospitality Hostess; she was the first member that he met -- Julianne Rice (Granny Annie) who vanished a couple of years ago never to be found again.



During his membership in our Society, Rick has held the following positions: 2nd Vice President, Board Member, Education Committee (Succulent -of-the-Month; he has also written other articles for Espinas y Flores), and, currently, he is 1st Vice President. Rick is a charter member of the San Diego Epiphyllum Society and a member of the Epiphyllum Society of America. He is currently the Editor of the San Diego Epiphyllum Society's Newsletter. Too, Rick is a member of Palomar Cactus & Succulent Society and he is a member of CSSA.

Rick has collected over 200 different kinds of epiphyllums and one of his favorite plants is Epiphyllum chrysocardium; it looks like a fern. Furthermore, he is interested in echeveria hybrids ("Chantilly", E. shaviana "truffles", etc.), lithops (he likes the short fat ones better than the tall thin ones) and Notocactus (N. buiningii, etc.) Rick has displayed some of his choice plants at different local shows (winning numerous ribbons), and he has been called on to judge at the San Diego Epiphyllum Society's Annual Show.

Rick is the San Diego Cactus & Succulent Society's Historian, and with his energetic support, cooperation and hard work as 1st Vice President, he has managed to bring to our Society some excellent speakers these last few years.

News of Interest

Members, who are bringing in gift plants for "The Plant Exchange Table", should name each plant or cutting whenever possible. Dirt should be removed from the roots if the plants are not potted, and plants exchanged should be in good health, free of bugs and in proper bags (plastic or paper).

Augie Pfeiffer will have a plant sale on Saturday, October 11th, 11 am to 3:30 pm at 5163 E. Bedford Dr., San Diego.

The CSSA will be selling stationery with four different succulent plants in a set of twelve for \$5.95. Interested persons should contact Virginia Shambeau, Treasurer, 8354 Woodlawn Street, San Gabriel, CA 91773.

We ran short of the California Cactus Growers Association 1980 directory. Interested persons should write to 27785 De Anza, Dept. X, Barstow Heights, CA 92311, to order their free copy.

We welcome this month the following new members:

John Egan, El Cajon
Ralph De Siena, San Diego
Margaret & Harry Blake, El Cajon

A reminder that the following members have signed up to provide refreshments for the October meeting:

Donabelle La France, Evelyn Chatham, Vangie Englert, Rena Conway, Peg Foret, Helen Bowen, Elsie Kelly, Geraldine Garrelts and Gail Clarke.

A special thanks to those members who brought in those extra cookies and cakes last month, this month and every month.

Winners of the "Bragging Plant" competition for September were:

1st: Douglas Diener - Stapeliad Display
2nd: Marcia Monroe - Pachypodium baroni v. windsori
3rd: John Pasek - Fouquieria purpusii

The September V.I.P. Table featured an excellent display of cacti (the study of obvious color adaptations of different cacti in their natural habitat) by Sandra Buck. A few of the plants on exhibit were: Copiapoa tenuissima, Horridocactus tuberisulcata, Echinocereus oklahomensis "crest" and Mammillaria hahniana.

-----Deadline for the next issue is October 23-----

San Diego Cactus & Succulent Society

Officers

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Elizabeth Athy, Shirley Berry, Dr. Ronald Monroe, Martin Mooney,
John Pasek, Dr. Leroy Phelps

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Activities: H. Warren Buckner
Audit: James Berry
Conservation: Dr. Ronald Monroe
Education:
Cacti - Frank Thrombly and Dr. Ronald Monroe
Succulents - Richard Latimer and Dr. Leroy Phelps
Exhibits:
Bragging Table - Shirley Berry
V.I.P. (Very Important Plants) Table - Sandra Buck
Historian: Richard Latimer
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Open House: Martin Mooney
Plant Exchange Table: Doris Bake and John Roth
Plants & Supplies Table: Carl McLeod
Programs: Richard Latimer
Publication: Marcia Monroe (ph. 461-8444)
Reception: Rose D'Attilio and Veryl Snowhill
Regalemt: Nancy Roth
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Balboa Park Desert Garden - John Pasek
Quail Botanical Gardens - Audrey Johnson
S.D. Botanical Garden Foundation -
S.D. Floral Association - Verna Pasek

The San Diego Cactus & Succulent Society is open to all persons interested in growing cacti, other succulents, and exotic plants. Meetings are held the second Saturday of each month at 1:30 pm in Room 101, Casa del Prado, Balboa Park. Board of Directors meetings are held after the general meetings. Annual dues are \$7.00 per family. Single copies of Espinas y Flores are 60¢.

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FIRST CLASS