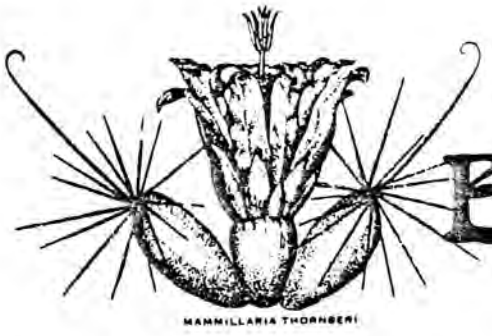

Espinas y Flores

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

Vol. XV, No. 3. March, 1980

March Meeting

Saturday, March 1st, 1980
1:30 pm
Casa del Prado, Room 101, Balboa Park

"Stapeliads: Orchids of the Succulent World"

by Dr. Gerald S. Barad

Dr. Barad's presentation will demonstrate by macrophotography and photomicrography, the very unique pollenation mechanism of the Stapeliads. The program will also show some of the unusual habitats in which he collected these plants; then there will be a series of outstanding pictures of the beautiful Stapeliad flowers.

In This Issue . . . . . Page

Cactus-of-the-Month

Ferocactus Britton & Rose, 1919

Frank C. Thrombley

Ferocactus (fē-rō-kăk'-tŭs).
Echinocactus Group

A genus of globose to cylindric cacti from the United States and Mexico. The name of March's Cactus-of-the-Month is derived from latin "ferus" (wild). It is a 'ferocious cactus', and this describes the spines very aptly.

The spines are variable from subulate to flattened. The central spines are straight to curving or even sharply hooked. The spines vary in colors from white, yellow and red. In general they are very impressive with their relative stiffness, strength, and in some cases, with lengths in excess of 9 inches.

The flowers are borne on the upper or inner part of the young areoles near the center of the plant. All flowers are relatively short, glabrous and scaly. The colors are white, yellow, yellow-green, red, violet or intermediate tones.

Borg included 34 species of ferocactus in his descriptions prior to his death in 1945. These are described in the 1976 reprint of Borg's handbook of cacti. Where ferocactus occur they seem to favor areas of uneven rainfall, low humidity, high air and soil surface temperatures with great daily and seasonal fluctuations. The species have a shallow root system and grow in rocky, well-drained soil, usually on slopes. Occasionally the tall heavy species will not have a sufficient root system to support them in severe storms with strong winds.

Ferocactus Wislizenii, the commonest and most widespread of our southwestern barrel cacti, is one of the greatest seed producers in the cactus family. From eight to fifteen or more yellowish fruits crown the top of each plant, and each normal seed pod will yield approximately 1,600 seeds.

The two species native to San Diego County are ferocactus acanthodes and ferocactus viridescens. Ferocactus acanthodes occurs on the rocky slopes leading to the Borrego Dessert. The spines are white, yellow or straw colored and red. Their growth is very slow, and may occur only at long intervals, dependent upon the rain falls. Ferocactus viridescens is very small and low in comparison with its relative from Borrego. It occurs in the coastal range of the County. It lives on the chaparral hillsides north to Escondido and south into northern Baja California. Its range inland from the coast probably does not exceed 20 miles. The name "Viridescens" refers to the greenish flowers which appear in spring, followed by spineless yellow fruits which contain quantities of black seeds.

Pot culture of these stately plants should not be difficult. Gritty soil, prepared for cactus with good drainage, is important to prevent water pockets. They will take full sun and need as much light as possible. When watering, water thoroughly so that water drains through the pot. However, be cautious that you let the soil dry between waterings.

References used:

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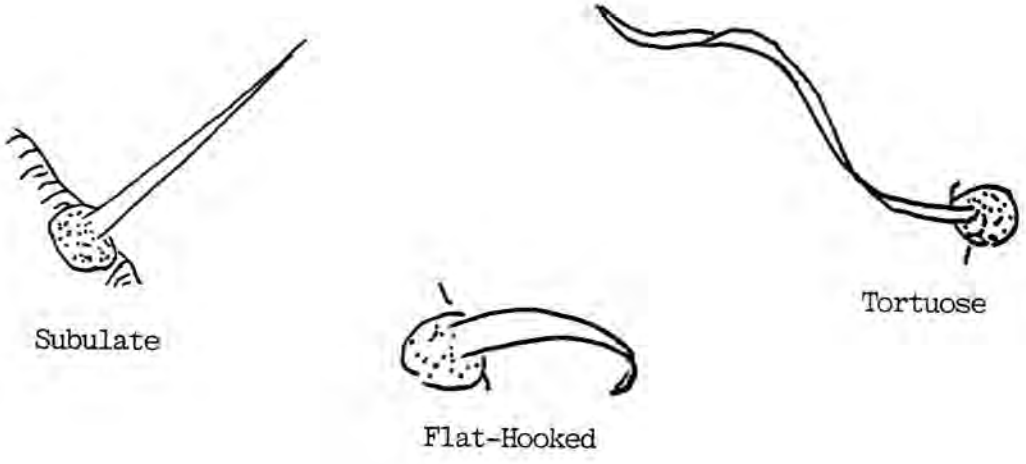


SPINES

All the members of the San Diego Cactus and Succulent Society wish Suzanne Taylor and Gerald Dice a speedy and early recovery from recent illnesses.

Inflorescence of *Gasteria*

GASTERIA

Rick Latimer

The Lily family is divided up into a number of tribes (29 according to Hutchinson) of which tribe number nine is called Aloineae. Some of the others are Anthericeae (#7), Hemerocallideae (#8), Aspidistreae (#12), Asparageae (#20), Tulipeae (#22), and Scilleae (#23). One can easily deduce some of the genera that are members of these nonsucculent tribes. One of the lower numbered (more primitive?) tribes contains the genus Bulbine. This genus is of interest because of at least two succulent species. B. asphodeloides is a windowed succulent that mimics the stone-dwelling mesembs, and B. caulescens whose flowers have fimbriate stamens (as does at least one Cyanotis). This last species has yellow flowers, but there are two hybrids: 'Hallmark' with orange flowers and 'Virginalis' with white flowers. One of the higher numbered tribes includes the genus Scilla. S. volubilis is the popular "Climbing Onion". The climbing part of the plant is the flower stalk. The leaves are ephemeral. According to Cynthia Giddy, this plant is quite poisonous!

The first genus in the Aloineae that is separated from the others is Lomatophyllum. When not in flower, plants of this genus look like aloes. The fruits of Lomatophyllum are fleshy berries rather than the "dry capsules" of the other genera of this tribe. Lomatophyllums are not too well known or commonly grown and are endemic to Madagascar and Mauritius.

The next division separates Aloe and Chamaealoe from the remaining genera. These two species have stamens that are the same length or longer than the tepals, whereas the remaining genera have stamens that are shorter than the tepals. Chamaealoe is a monotypic genus native to the Cape of Good Hope region. C. africana is a small plant that forms mats. The leaves are narrow and bluish-green. The flowers are white with green stripes.

The next step separates Haworthia, Chortolirion, etc. from Gasteria. The outstanding feature of Gasteria is the shape of the flowers. Gasteria flowers have a swelling at the base of the flower (like some Ceropegias), giving the flower an appearance of a stomach (gaster). The genus is native to Southwestern Africa. This genus hybridizes easily with itself and the closely related genera in its tribe. There are Gastroleas (e. g. G. beguinii=Aloe aristata X G.verrucosa), Gasworthias (e. g. G. 'American Beauty'), Gastrolir-

Gasteria. Propagation from leaf cuttings

Gasteria batesiana

ions, Lomaterias, and even Lomataloes. Gasteria species can be difficult to determine, since young plants look sometimes quite different from full grown ones. The leaves of young plants are usually arranged in two opposite pairs (like Aloe plicatilis). This arrangement may persist to when the plant blooms for a few years. With continued aging, the leaves then may often become rosulate (like Aloe suprafoliata). Gasteria leaves may be a smooth skinned green with white spots (like Aloe variegata) or green with white warts (or pearls) as in the case of G. verrucosa. A mature Gasteria may be as beautiful as G. batesiana or as hideous as G. armstrongii (looks like something out of The Exorcist). A popular miniature species is G. liliputana. Gasterias are more shade tolerant than Haworthias.

Bring a Gasteria, a Gasteria Hybrid, a Chortolirion, a Chamaealoe, a Lomatophyllum, or even a Bowiea or Bulbine to the March meeting!

REFERENCES:

Ron Ginns, "Some Less Common Liliaceae", Excelsa, No. 4, p. 55-60.

J. Hutchinson, The Families of Flowering Plants, 1973, 3rd ed.

Hermann Jacobsen, A Handbook of Succulent Plants.

Werner Rauh, "Many Windowed Succulents", CSSA Journal, (46:1).

Special Announcements

QUAIL GARDENS SPRING SALE—Audrey Johnson would like to thank those members of the S.D.C. & S.S. who helped in the most successful Christmas Sale to date!

Audrey suggests that all interested parties should start rounding up plants for the Spring Sale. Members are encouraged to view and enjoy the beautiful gardens while they are at the Sale.

SOUTHWESTERN DESERT PLANT SALE—Second annual sale at the Living Desert Reserve 47-900 South Portola, Palm Desert, on Saturday, March 22 at 9:00 am. Each plant will have descriptive information. Phone(714) 346-5694.

WILDFLOWER FIELD TRIP to the Red Cloud Mine Road area of Cottonwood Springs. Meet at the Reserve, 47-900 South Portola, Palm Desert, March 15 at 9:00 am. Bring a lunch. The field trip is free. Phone(714) 346-5694.

DESERT BOTANICAL GARDEN 33rd ANNUAL CACTUS SHOW—In the Garden's Webster Auditorium Papago Park, Phoenix, Arizona, March 22 through March 30.

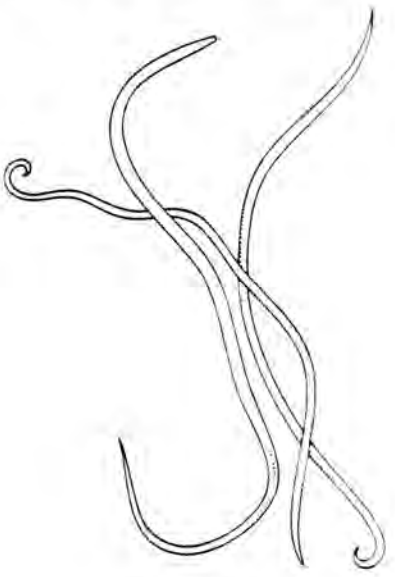
Pests of Succulent Plants

Part XIII. Nematodes

Dr. Ronald E. Monroe

Nematodes or eelworms are very common animals in most soils, regardless of composition, and several plant parasitic species have been the direct or indirect cause of plant damage or mortality in both nurseries and collections. Still, they are seldom implicated because of their microscopic size and the symptom(s) of disease may not be obvious to the untrained eye.

Systematics -- Nematodes, for the most part, are too small to see with the naked eye. Commonly called roundworms, they live in soil and water and most are free-living; however, many species are parasitic on plants (Norton, 1978) or animals (Cheng, 1973). Superficially, they resemble a whitish worm with a smooth cuticle and with few gross morphological distinguishing characters. Only by microscopic examination can any real morphological differences be found, and often a family, genus or species may be determined by behavioral damage or by anatomical differences in the males. Therefore, there are thousands of species belonging to numerous genera of the Class Nematoda, and new discoveries and revisions are occurring at a prodigious rate. Some of the common names and corresponding genera of plant parasitic forms are:



Nematodes

Spiral nematodes	Helicotylenchus
	Rotylenchus
	Scutellonema
	Peltamigratus
	Aorolaimus
Lesion nematodes	Pratylenchus
Cyst nematodes	Heterodera
Root-knot nematodes	Meloidogyne
	Hypsoperine
	Meloidodera
Bulb and stem nematodes	Ditylenchus
Seed nematodes	Anguina
Stubby-root nematodes	Trichodorus

. . . . . plus dozens of others too numerous to mention (Jenkins and Taylor, 1967).

Two genera identified as causing diseases in succulents are the cactus cyst nematode (Heterodera cacti) and a root-knot nematode (Meloidogyne sp.) reported by Gilbert (1956) and Hague (1972).

Plant damage -- Nematodes are both endoparasites (causing internal injury) and ectoparasites (causing surface injury); Jenkins and Taylor, 1967. Damage is commonly attributed to disruption of flow of water and nutrients in the xylem system, formation of root galls or "knots", death of epidermal cells and the outermost layers of cortical cells, stunted growth and as vectors of plant disease such as fungi, bacteria and viruses (Metcalf et al., 1951; Jenkins and Taylor, 1967; Ware, 1978). Damage in succulent plants has been described by Gilbert (1956) for Meloidogyne sp. (the worm enters the roots near the growing point and feeds on the interior tissue causing a typical root gall) and for Heterodera cacti (enters the root zone and causes only slight swelling with formation of sand-sized cysts). Hague (1972) indicated that several genera of succulents are attacked and that Zygocactus truncatus was especially vulnerable (wilt symptoms and stem tops turning reddish in color). Although wilting, decreased growth or stunting is the most common symptom of nematode damage, it must be emphasized that considerable mortality is caused by secondary invasion: fungus, bacterial or virus infections.

Biology -- The biology of nematodes is extremely variable depending upon the species studied. Suffice it to say, however, that after mating, the females lay several hundred eggs which hatch into immature worms that closely resemble the adult. These juvenile worms may then penetrate the plant tissue and become free-living in soil before becoming parasitic themselves or, as in some species, they merely stay within the plant gall, etc. and mature in situ. The larvae normally moult (shed their outer cuticles) two or more times before becoming adults.

Control -- The best nematode control is prophylaxis (or prevention). By using only soil/sand mixtures that have been steam-sterilized, the worms seldom cause anyone a single problem or worry. Too, plants purchased should be repotted and their roots examined for damage (if galls or root-knot is observed, the infected parts should be cut off and destroyed). Soils used in nurseries or field growing areas may be treated with a good nematocide such as 1, 3-dichloropropene and 1, 2-dichloropropene or ethylenedibromide (soil fumigants) or by spraying the plants directly with a good systemic organophosphorus insecticide such as Disyston^{R} or Thimet^{R} (Ware, 1978).

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Cheng, Thomas C. 1973. General Parasitology. Academic Press, New York. 965 pp.

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Hague, N.C.M. 1972. Nematode diseases of flower bulbs, glasshouse crops and ornamentals. In: Economic Nematology, ed. by J.M. Webster. Academic Press, New York. p. 409-434.

Jenkins, W.R. and D.P. Taylor. 1967. Plant nematology. Reinhold Publ. Corp., New York. 270 pp.

Metcalf, C.L., W.P. Flint and M.A. Metcalf. 1951. Destructive and useful insects, their habits and control. McGraw-Hill Book Co., Inc., New York. 1071 pp.

Norton, Don C. 1978. Ecology of plant-parasitic nematodes. John Wiley and Sons, New York. 267 pp.

Ware, George W. 1978. The pesticide book. W.H. Freeman and Co., San Francisco. 197 pp.

Plant Exchange, Not a Trash Dump

Whose heart has not beat a little faster in a lottery when one's number is called to receive a prize? At one time there were worthy prizes awaiting us on The Plant Exchange Table which displays gift plants from our members to other members of the Club. Not so anymore. We need to refresh the purpose and raise the standards of this once popular activity of our club. Perhaps our members were not informed of any standards, hence this should reach all of you who like to participate.

First of all, each plant or cutting should be named whenever possible. If you choose not to spare a tag for this, a piece of masking tape attached to the cutting or pot, or the cutting placed in a plastic bag with an identifying paper insert will do. Secondly, plants should be healthy, free of pests, and dirt removed from the roots if not potted.

Needless to say, no one should remove a gift plant from the Exchange Table until the drawing begins and his number is called. In order to insure the fair distribution of these plants, the person supervising the table will now be calling the ticket numbers in groups of only three or four numbers at a time. When your number is called you will be expected to present your ticket to the person calling the numbers before you select your plant.

For the benefit of the new members who are not aware of the way the Plant Exchange Table works, whether you bring one or several plants, when you give them to the person managing this table you will be given only one numbered ticket. At the close of the meeting we hold the drawing. When your number(only the last three numbers on the ticket are called) comes up, you are privileged to select one plant.

Please try to give attractive, clean cuttings or plants so that we can all make welcome additions to our collections with no cost to any of us!

Shirley Berry

Member Interviews: Joan Johnson

by Marcia Monroe

Joan Johnson was born in Vladivostok, Siberia, where her father was serving as a YMCA representive. Afterwards, the family traveled extensively; then they settled in Michigan where Joan attended local schools, and, later, she majored in political science and minored in anthropology at the University of Michigan. She met her husband, Paul, in college. He joined the Marine Corps in 1945 and following his term of duty, he became an agent for Allstate Insurance Company. The Johnsons are currently "gentleman farmers" and they are permanently settled in Fallbrook, California, where they are building a new house on one of their two avocado groves. They have four grown boys, ranging in age from twenty to thirty-one.

At the age of twelve, Joan developed a "green thumb" and an intensive interest in landscaping and gardening. Later in her life, she took many camping trips to study the leaf colors and textures of succulents and cacti in habitat. Currently, Joan is a member of the Mexican Cactus and Succulent Society, Cactus and Succulent Society of America, and the Affiliate Society of San Diego. Showing her numerous plants on the East and West Coast, Joan has been called on to judge the Carlsbad Flower Show, and to clerk at the Cactus and Succulent Society of America's Annual Show. Joan has been a member of our Society since the early seventies, and she is a past member of the board. Now, she is treasure of the San Diego Club.

Having a keen interest in Mexican globular cacti and caudiciforms, the Johnsons have taken many four to six week camping trips into Baja California and Mexico researching cacti and succulents in their natural habitat. Here are some of the areas that they visited and a few of the cacti and succulents that they found there:

A. North Central Mexico.

1. Ixmiquilpan, Hidalgo area:
   Ferocactus latispinus, Echinocactus ingens, Coryphantha clava and C. pallida, Thelocactus aff. leucacanthus, Mammillaria compressa with long yellow central.
2. Huizache Jct. area, north of San Luis Potosl:
   Astrophytum myriostigma, Mammillaria aff. uncinata, compressa, formosa, Ferocactus uncinatus, Opuntia microdasys, Thelocactus tulensis, T. longispinus, Neolloydia conoidia, Echinocactus ingens, Echinofossulocactus coptonogonus.

cont.

3. Barranca de Venados, Hidalgo: 75 miles north of Mexico City. Stenocactus dumortieri, Agave xylonacantha, Neobuxbaumia polylopha, Astrophytum ornatum, Ferocactus glaucescens, Selenicereus spinulosus, Thelocactus horripilus, Ferocactus hystrix, Mammillaria longimamma, M. sempervivi, M. humboldtii, M. geminispina, M. schiedeana, M. obconella, M. herrerae, M. uncinata, M. wildii, Coryphantha connivens, C. erecta, Fouquieria fasciculata, and Cephalocereus senilis.

B. Valley of Tehuacan.

1. South of Mexico City:
Ferocactus robustus, Echinocactus grandis, Coryphantha pallida, Mammillaria conspicua, carnea, sphacelata, viperina, mystax, napina, Cephalocereus hoppenstedtii, Beaucarnea gracilis, Agave gilbeyi, A. macroacantha, A. verschaffeltii, Sedum stahlii, Echeveria heterosepala, E. nodulosa.
2. Roads to Oaxaca and the Valley of Oaxaca:
Mammillaria elegans, M. karwinskiana, Echeveria nodulosa, Ferocactus recurvus, Coryphantha pallida, Senecio praecox.
3. Zopilote Canyon, South of Taxco on the road to Acapulco:
Stenocactus mescalensis, S. beneckei, Mammillaria beneckei, M. guerreronis, M. albilanata.

Another concern of Joan's is pre-Columbian culture. She is especially fascinated with the Mayan and Southwestern United States (Navajo and Hopi) development and she has a large collection of kachina dolls. These dolls, representing different spirits, were given to the Hopi children for educational purposes.

With their support and assistance, the Johnsons have been an inspiration to the Cactus and Succulent Society of San Diego.

Anza-Borrego Spring Bus Trip

Springtime is an ideal time for the members to take a nature walk in the Anza-Borrego State Park to view the many desert wildflowers and cacti in their natural habitat while they are still blooming.

Interested members should contact Warren Buckner at the next meeting to make reservations for the Anza-Borrego Bus Trip on Sunday, April 27 at 8:00 am.

News of Interest

Members with potential, but unidentified, show plants should bring them to the next meeting; check with Ron Monroe for getting these plants identified.

It is that time of year that members should be thinking about potting up those cuttings for the San Diego Cactus and Succulent Society's Annual Show, June 7 and 8. Your contributions will be welcomed.

If you have not already done so, you should pick up your 1980 membership card from Treasurer Joan Johnson, as they will be required in the future to check out books from the library.

Members should remember that there is a four book limit per person, and that a fine of 25 cents for overdue books is charged.

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

1st: Mike Burkhardt - Euphorbia crispa
2nd: Catherine Engel - Euphorbia bougheyi
3rd: Wilma Johnson - Pelargonium cotyledonis

Members, who win a 1st, 2nd or 3rd place during the year at the "Brag Table", will receive one extra free plant through the lottery at the Annual Christmas Meeting.

The following members have signed up to furnish refreshments at the March meeting:

Irma Adolphson, Henrietta Jensen, Jacklyn Warne, Elizabeth Glover, Cathy Summers, Sophie Loyland, Phil Helton, Michael Blood, Vangie Englert, Ruth Stockton, and Doris Rake.

Thank you Sandra Buck for that unique display on "relationship" at the V.I.P. table in February.

Sandra will be taking charge of the "Very Important Plants", table.

On behalf of the San Diego Cactus and Succulent Society the Editor would like to thank Martin Mooney for his excellent work as Chairperson of the V.I.P. table.

Deadline for April is March 14

Marcia Monroe
5635 Severin Drive
La Mesa, CA 92041

Address Correction Requested

San Diego Cactus & Succulent Society

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