

MAMMILLARIA THORNBER

"Whether fully aware of it or not, we human beings are immersed in a world of insects." T. Eisner

Espinas y Flores

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

VOLUME XXIX NUMBER THREE, SATURDAY, MARCH 12, 1994 @ 1:00PM

Special Insect Issue The Good, the Bug & the Ugly!



Woodblock print by artist Fritz Eichenberg from "Endangered Species and Other Fables with a Twist", Stemmer House Publishers, Inc. c.1979. See page four for the delightful fable titled "AFTER THE BLAST".



Insect Issue

*"Go, poor devil, get thee gone!
Why should I hurt thee?
This world is surely wide enough
to hold both thee and me."
--Laurence Sterne*

How come an insect issue in a succulent newsletter? For several reasons: because insects have a long history, having evolved in lockstep with the flowering angiosperms; because they are partners in the biota, together with other players ranging from the animate, such as bacteria and fungi, to the inanimate rocks and gases; because life on earth, including plants, would not survive without them; because some succulents need them or must confront them.

Our gardens and pot plantings bear little resemblance to the natural habitat and biota that our plants have called home. Sterile! Most would die without our supportive care. As to the importance of insects, Professor Edwin O. Wilson (Harvard ecologist, twice Pulitzer prize winner, good reading) estimates that without insects, the Ecosystem would collapse in about 6 months. This issue hopes to touch on the wonder of three-fourths of the world's biota. This is especially pertinent nowadays where man's depredations on the insect environment threatens their existence. These are dangerous times for Gaia. It has become safer to be in a gardenpot or behind bars in a zoo.

The insect articles in this issue speak up for them. We humans find insecticides necessary to combat insects that have adapted to our monocrop agriculture, necessitated by a booming human population, itself a monocrop. Insects are part of the diversity of nature which must be seen as a whole if even a part is to be understood.

THE ANZA BORREGO THROUGH DROUGHT AND ABUNDANCE **MARCH PROGRAM BY EDWARD NOLAN PHD**

BE PREPARED FOR UNIQUE ENTERTAINMENT, EXCELLENT PHOTOGRAPHY, AND FRIENDLY ENTHRALLING DIALOG DELIVERED WITH ALL THE VERVE AND PERSPICACITY OF A MODERN DAY JOHN MUIR - ANSEL ADAMS HYBRID! ED SEEKS OUT THE UNUSUAL IN THE USUAL AND CAPTURES INTRINSIC BEAUTY BEAUTIFULLY. IN A WORD HIS PHOTOGRAPHY IS "SATURATED". EVERYONE WILL ENJOY THIS EDUCATIONAL AND ENVIRONMENTALLY RESPONSIBLE PROGRAM ABOUT OUR OWN BACKYARD: THE ANZA BORREGO DESERT. WE LOOK FORWARD TO SEEING YOU & YOUR GUESTS IN THE MAJORICA ROOM 101 OF THE CASA DEL PRADO, BALBOA PARK AT 1:00 PM ON SATURDAY MARCH 12, 1994.

ABOUT OUR SPEAKER: Ed Nolan serves on SDC&SS Board of Directors - most of you know him, his wife Karla & son Shane (our youngest member)! Ed graduated from Indiana University and earned his PhD in molecular biology from USC. He presently works in endocrinological research at UCSD, and previously he worked with Karla at CALTEC. While attending USC he visited a CSSA Show at the LA Arboretum; there he was bitten by the "Cactus & Succulent Bug" (*or was it a C&S Coleoptera?*)! Ed collects both cacti & succulents; his acute interests are cacti, dudleyas, caudiciforms, camping, geology, backpacking and photography.
HIS PHOTOGRAPHY IS AWESOME!!!



FOR YOUR INFORMATION FOR YOUR INFORMATION

FOR YOUR INFORMATION FOR YOUR INFORMATION



A special thanks to Steven & Rowena Southwell for a very enjoyable February program. We look forward to the second half of their African Adventures in 1995. ☹ Unfortunately, we just found out that Rowena was in a very serious automobile accident the week following their stay in San Diego. We understand she'll be immobile for several months due to the inconvenient location of her broken bones. Rowena, we wish you Godspeed in your recovery - may your healing be as painless and timely as possible. Afterall, you can't miss our June Show!!!

Some changes in your SDC&SS 1994 Calendar: July Picnic & Rare Plant Auction has been moved to September (one of the very best months in San Diego - clear, warm, and most of our wonderful tourists have returned home to their respective states). We are very honored to have as our July speaker, Myron Kimnach, editor of CSSA Journal, presenting a program on his recent trip to Madagascar. Our August speaker will be Miles Anderson from Mile's To Go Nursery in Tucson, Arizona instructing on Grafting - Unique Propagational Procedures. Our October speaker will be Brian Kemble, horticulturist from San Francisco speaking on the Aloes of Namibia, South Africa.

A Message from Herman Schwartz MD: "By the way I have printed several hundred of the Lemaire's prints - and I am giving a print suitable for framing with each Lemaire book. Anyone who purchased a Iconographie descriptive DES CACTEES by Charles Lemaire should contact me to get a print." THE EUPHORBIA JOURNAL, Strawberry Press, 227 Strawberry Drive, Mill Valley, CA 94941.

On Saturday, March 5th, SDC&SS Board Members Dylan Hannon and Michael Buckner volunteered their time and expertise working at the U.C.Irvine Arboretum Rare Bulb & Plant Sale. Major focus of this research center is the exalted flora of South Africa, especially bulbous and cormus plants. Among these are many rare and endangered species of such genera as *Babiana*, *Cyrtanthus*, *Ixia*, *Lachenalli*, *Haemanthus*, *Geissorhiza*, and many others. The botanical garden is directed by Dr. Howard Koopowitz, who is a noted authority on the flora of South Africa, especially bulbs, and the orchids of the world. Dr. Koopowitz will be leading a botanical expedition to Namaqualand, "The Rarest Garden on Earth", August 13-31, 1994. Contact the arboretum for further information. To become a friend of UCI Arboretum and receive their newsletter send \$25.00 (regular) or \$15.00 (senior /students) to: Friends of the UCI Arboretum - Gene Bank School of Biological Sciences, Irvine, CA 92715-9788.

Would each of you who has paid for LOTUS LAND please leave a message for Joyce @ 222-3216 (or contact her at the meeting) and relate ☉ the individual names of each paid participant and ☺ choice of soft drink and sandwich. Thanks!!

After the Blast

The End had come. The world was laid to waste
by one last man-made cataclysmic blast.
Mankind, beast, reptile, fish and fowl,
turned into ashes-gone to their reward.
Peace, after all, had come, and silence reigned supreme
on land and sea.

Millenia have passed-
nature has mercifully healed the scars,
has clothed the hills and vales in luscious green,
and in some hidden caves one hears a whisper,
scratching of tiny feet, a rustling of wings.
A race of hardy insects has survived the blast,
calls an assembly, and seems well prepared
to reestablish the Establishment.

Chairperson by concensus, Reverend Mother
the Praying Mantis, gives the invocation:
"We thank thee, Master of the Universe,
for having freed us of the human race,
a plague of unbelievable dimensions.
Having survived their poisons, traps and fumes,
we have achieved sufficient stamina
to rule the world. We are the Master Race!
All power to the Insect!"

Here she bangs the gavel.

"Let us proceed," she says, "to draft a constitution,
based on nonviolence, equality of sex.

No bites or stings except for peaceful use,
no slavery, and, of course, a vegetarian diet-"
Here some voices rise, and angry cries are heard:
"Out with the pious one! She ate her husband!
Let's put the Bee on her! Long live the Queen!"

Her Majesty the Bee ascends the rostrum:
"My fellow subjects! No great monarchy
could possibly survive without the help
of its great labor force, its woman-power,
ceaselessly working without pay"

A howl goes up: "We don't want slavery!
Down with the Queen, up with the workingman
who uses head and hands. Let's get the Spider!"
Between two trees the Spider spins his net.

"Your vote of confidence is all I need!"
he grins, and grabs a juicy fly.

"Out with the rascal!" buzz her fellow flies.
"Don't you remember? No more meat for you!"
"Whom are we getting now? Beauty without a sting,
the Butterfly!" The audience claps and cheers
and catches the Admiral. "Careful!" he lisps,

"my wings are fragile-please don't touch!
I live on dew, flutter from rose to rose-
so sorry, kind of restless, can't stay long,"
and takes his leave among some boos and hisses.

The latest candidate considered is the Flea.
"At least," some voters say, "he'll keep us hopping."



SEEDS R' US

by Kelly Griffin

In regards to the seed exchange, it is my intention to help make seed available and share seed knowledge among our membership. To all those who are curious but have never tried growing from seed, stay tuned — Dorothy Byer will be telling us the ins & outs of seeding in April! Mostly, it's not as hard as you may think, and the reward of growing a plant from a seed the size of a grain of sand to full maturity & flower is quite satisfying.

This is my first crack at this, and I'm very open to suggestions! I would like to thank Joe Quijada for bringing in seed. So far, we have a decent start. With that in mind I submit the following outline and initial seed list:

- 1) Seed will be offered in packets of 20-25 @ .50 cents (exceptions for rare seeds)
- 2) For each contribution of 100 seeds (except for rare seed) a one packet credit will be issued. [Please don't swamp me with 1000 seeds of *Echinocactus grusonii*!]
- 3) Please have the correct botanical name: genus, species, subspecies, variety or hybrid X, if applicable - also harvest date if available. [Nothing worse than that little bastard seedlings - except maybe old dead seed.]
- 4) Any excess seed will be forwarded on to the CSSA seed depot.
- 5) Proceeds from sale of seeds will be used to acquire new seed from the CSSA & other sources and for supplies (seed envelopes, etc).

SUCCULENT SEED:

Agave victoria reginae
Aloe bainsii
Aloe cryptota
Aloe thraskii
Aloe vanbalenii
Brachychiton populneus
Cercidium peninsulare
Lapidaria margaritae
Manfreda maculosa
Parkinsonia aculeata
Pelargonium graveolens
Pleiospilos nellii
Yucca whipplei

CACTUS SEED:

Astrophytum ornatum
Echinocactus grusonii
Notocactus leninghausii
Rebutia x Grandilacea

GRAB BAG:

Argyroderma sp?
Cleistocactus sp?
Echinofossolocactus sp?

Please feel free to help us out & get the ball rolling. I will admit the cactus seed assortment is a bit meek!

Thanks, *Kelly*

REFRESHMENT VOLUNTEERS - MARCH

Liz Koch
Herb Stern
Sarah Jervey
Judy Hannula
Olga Holtzer
Curt Hammel

Ethel Standish
Susan Barber
Mary Ellen Holman
Midred Richter
Alan Weiss
Diana Peterson

Cactus of the Month

Uebelmannia

by Kay Quijada

According to the botanical world, it is uncommon to find new species of a genera, but totally surprising to find species forming a new genus. One of the most exciting events in the cactus world is the recent discovery of a whole new genus called *Uebelmannia*. Discovery of the first few plants began in 1966 and were thought to be related to the genus **Parodia**. In 1973, the Dutch botanist Albert F. H. Buining created the genus for the species, and named it after a well known German cactus importer with the peculiar name of Uebelmann (literally, man-throwing-up.)

All 6 species of **Uebelmannia** are found in Minas Gerais, Brazil. The plants grow on granite and quartz rocks, in areas of high humidity, in the decaying foliage of lichen, terrestrial bromeliads, bushes and trees. The lower part of the plants are said to be often covered with lichen, due to numerous summer rains.

Uebelmannia pectinifera Buin.

(Pectinate = Arranged in a comb-like manner)

Globular, maturing to slightly columnar, up to 6" in diameter and 1 1/2' in height. Body is initially blackish-brown, tinged with dark purple, maturing to whitish-gray due to tiny, wax-like, minute scales, which give an interesting, pebble-rough skin texture. The 14-18 sharp-edged ribs are composed of dark central spines closely set in whitish-wool areoles, forming distinct vertical combs. No radial spines. The flowers are small and sulphur-yellow, and the fruit is described as cylindrical, wine red, and berry-like. Location: Brazil, Minas Gerais, near Diamantina.

This species is regarded as the most beautiful, and was discovered in 1966 by Horst and Baumhardt. Due to the white-gray body coloring and sharp ribs this plant was first thought to be related to **Astrophytum**, then to **Copiapoa**. Later examination of the flowers showed it to be a new genus. Syn: **U. ammatrophus**, **U. multicostatus**.

Uebelmannia pectinifera var. pseudopectinifera Buin.

Similar to species except the body color is greenish, and said to be without many spots. The ribs are very similar but the spines are not comb-like (pectinate), but radiate in a lateral manner. Flowers are yellow.

Uebelmannia pectinifera var. horrida Braun

From Northern Minas Gerais, this plant is similar to the type species but is green with whitish-gray spines that radiate in a wider (not pectinate) fashion. The flowers are yellow and are nearly hidden by the spines.

Cactus of the Month

Uebelmannia

by Kay Quijada

Uebelmannia buiningii Donald

This globular plant is reddish-brown (maroon to me) to dark green, 3 1/4" in diameter and up to 4" high, with minute waxy scales, 16-18 ribs that are strongly tubercled (small wart-like swelling or growth), with whitish to reddish-brown spines heavily set in close-spaced areoles. The funnel-shaped flowers are yellow. Location: Brazil, Minas Gerais, Serra Negra.

This is the smallest and slowest growing species of the genus. (The photographs and descriptions in the various publications show a markedly wide variation, so it will be interesting to see your specimens you are encouraged to bring to the meeting!)

Uebelmannia flavispina Buin. & Bred.

Solitary. Globular to elongated, up to 4" in diameter and up to 14" high, body color light green, multi-ribbed, whitish, closely-set, woolly areoles, with yellowish spines. Location: Brazil, Minas Gerais, W. of Diamantina. (Description is suspect; I could find only one brief description in my research.)

Uebelmannia gummifera (Backeb. & Voll.) Buin.

Described as globular, slightly elongating up to 4" high, 2 1/2-3" in diameter, dull greenish body, 32 bumpy ribs, tubercled, having small grayish-white areoles with 3 radial spines; 2 pointing up, the other downward. The central spines initially are light gray, then become darker gray tipped in brown. Crown is woolly, with small, bright yellow flowers. Location: Brazil, Minas Gerais, Serra de Ambrosia.

Synonym: ***Parodia gummifera*** (Backeb. & Voll.) For a while this plant was thought to be identical to ***Echinocactus centeterius*** Pfeiff. as it is from the same habitat in Brazil.

Uebelmannia meninensis Buin.

Globular, later becoming elongated, greenish or reddish-brown, up to 4" in diameter and up to 1 1/2' high, maturing with 40 markedly tubercled ribs. Areoles are brownish, with 2 stiff, grayish-black, 3/4" radial spines pointing up and down. The flowers are light yellow. Location: Brazil, Minas Gerais, near Pedra Menina.

This plant often grows in higher elevations, and is sometimes completely covered by lichens.

Cultivation: Sunny position for all species except ***U. buiningii***, which needs slight shade. Extra heat loving, likes warm soil. Minimum temperature is 59 F. High

humidity requirements, (they are said to love frequent misting). Grow in highly permeable, acid soil with a generous proportion of leaf mold or humus. (Innes & Glass recommend a "calcareous compost" (calcareous= of or containing lime or chalk) for **U. pectinifera**, a "slightly calcareous compost enriched with humus" for **U. gummifera**, a "porous acid compost" for **U. buiningii**, and a "slightly acid cactus compost" for **U. meninensis**.

References: Kay Quijada

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"Cacti for the Connoisseur", John Pilbeam, Timber Press, 1987
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"The Encyclopedia of Cacti", Cullman, Goetz & Groener, Alphabooks, 1986
"Cacti, The Illustrated Dictionary", Rod & Ken Preston-Mafham, Sterling Publishing, 1991

★ In Memory of Joyce L. Tate, September 28, 1909 - January 30, 1994 ★ Fellow of the Cactus & Succulent Society

Joyce Tate was an honorary member of SDC&SS
- the following reprinted from Espinas y Flores June 1980 by Marcia Monroe:

Joyce Tate was born Dallas, TX; when she was ten her family moved to the Hemet-Jacinto Valley area in California. Here she received her formal education; she attended UCLA majoring in botany & history. She married Harry Tate in 1932; then they became members of CSSA. They joined the Southwest Cactus Growers in 1934, a Los Angeles adult education class with Don & Murray Skinners as instructors. Later the group's name was changed to the LA C&S Society of which the Tates are Charter & Honorary members.

Joyce helped organize the Gates C&S Society in 1959; as a Charter member she served as president and CSSA Affiliate Representative for many years. In 1961 she was appointed to the CSSA Board of Directors and remained as "Plant Uses Chairperson" through the '80's. In 1965, with the Gates Society's backing, she proposed that CSSA sponsor a Cactus & Succulent Show at the LA County Arboretum. The Show was so successful that it became an annual event. Also, Joyce judged numerous shows.

In 1969 the SDC&SS's Board of Directors made her an Honorary Member, a distinction of which Joyce is very proud. As "Plant Uses Chairperson" for CSSA she compiled the CACTUS COOKBOOK which contains recipes with succulent plant ingredients; first published in 1971 by the CSSA - this successful cookbook went into its fourth printing in 1978.

Donating her collection of 200 Aloes to Jurupa Mountains Cultural Center, Riverside, CA in the early '70's, they are now housed in the Centers Botanical Garden. Joyce worked at several Riverside nurseries as well as the Desert Nursery. She lectured on succulents throughout the Southwest, usually relating them to historical events; she addressed the SDC&SS on "Native Uses of Succulents Around the World" in 1978. She also wrote for publication. Representing the CSSA, Joyce & Harry Tate attended "Aloe 75" in Rhodesia. They enjoyed seeing these plants in habitat. One of their most unforgettable experiences was an unexpected visit to the Namib Desert in Southwest Africa to view the remarkable Welwichias.

Joyce was a Fellow of CSSA; this honor was awarded to her in May of 1979 at the Society's 50th Anniversary Convention for her devoted work on "Economic Uses of Cactus & Succulents", and the CSSA's CACTUS COOKBOOK. Belonging to CSSA and SDC&SS, Joyce was also a member of the following societies: Gates C&S, Los Angeles C&SS, Henry Shaw & Tucson C&S Societies, Colorado Cactophiles; Desert Botanical Society (Phoenix), California Native Plant Society; Aloe, Cactus & Succulent Society of Rhodesia; South African Aloe & Succulent Society; Botanical Society of South Africa (Kirstenbosch); and the National C&S of England.

SUCCULENT OF THE MONTH - GASTERIAS

by MARYLYN HENDERSON

9

Gasterias are a large genus belonging to the Liliaceae family. They are drought-resistant, shade-loving, shallow-rooted plants with stiff, tongue-shaped fleshy leaves. The leaves may be spiraled in a rosette, or remain distichous, like the pages of an open book, although most varieties have a tendency to spiral. They may remain solitary, or proliferating from the base, forming mats, and most of them remain stemless. The leaves are never prickly, but may be jeweled with white or light green papillae, or smooth white spots, with edges that are usually smooth, but very tough. The leaves may be grooved, and may have a single, or double keel.

Gasterias are endemic to Southern Africa, growing from sea level up to the cooler mountain slopes, usually growing in the shade of other bushes. They are a relative of Aloes, with a tubular perianth. Their most noticeable feature is the swelling at the base of the perianth tube which gives the genus its name, i.e., *gaster* = a belly. The pendulous flowers are light coral to pink, usually with greenish tips, and are very attractive to hummingbirds. They can bloom several times during the year.

Gasterias were first described in 1809 and the genus has always been a problem. It has been split, and added to, and lumped -- arriving at approximately 100 species at one time. Jacobsen listed 76 species in the 1975 edition of the Lexicon. It has been found that many species change dramatically from the juvenile to adult stage. The species have been very difficult to identify, due to this remarkable difference that occurs between the young and the mature plants, and in some species, both forms may bloom. Clive Innes, in his *Handbook of Succulent Plants*, states "care must be taken not to presume correct naming, as only a few can be easily recognized."

The latest revision, by Ernst van Jaarsveld, was just printed in 1992. He lists only the following 16 species with a few varieties:

G. batesiana is a small rosette of triangular (to almost linear) densely tuberculate leaves. It has a flower to 1 3/8" long, which is one of the larger. Of similar growth, but growing some distance away and with a different flower, is *G. ellaphieae*. And from still another area is *G. vlokii*, a small rosette with asperulous leaves (like shark-skin).

G. croucheri is a large-growing species, in a rosette of triangular-lanceolate smooth leaves. From a different area, but similar growth, is *G. acinacifolia*, one of the largest-growing species, and may have leaves 15" in length. *G. excelsa* has similar growth, but differs in having smaller flowers.

G. pulchra has ascending linear-triangular leaves. *G. nitida* var. *nitida* has a rosette of smooth, short, triangular-lanceolate leaves; var. *armstrongii* is a flat-growing distichous form with dark green, tuberculate lorate (strap-shaped) leaves.

Seeds of *G. Armstrongii* were sent to the botanical garden in Vienna in 1912, from which 12 plants were grown, and they have spread from there to other botanical gardens and private collections.

G. carinata var. *carinata* is a rosette of keeled leaves with white tubercles; var. *verrucosa* is a distichous form with very large white tubercles; var. *retusa* is a distichous form with truncate, tubercled, lorate leaves.

G. pillansii var. *pillansii* and var. *ernesti-ruschii* have distichous lorate leaves with asperulous texture, otherwise with smooth white spots, the latter being a dwarf species. They form dense groups by proliferating from subterranean stolons. *G. disticha* and *G. brachyphylla* are similar but do not proliferate from stolons, *G. brachyphylla* has leaves with a smooth shiny surface; it is divided into two varieties, var. *brachyphylla* with leaves longer than 50 mm with an acute apex, and var. *bayeri* with shorter leaves and an obtuse apex.

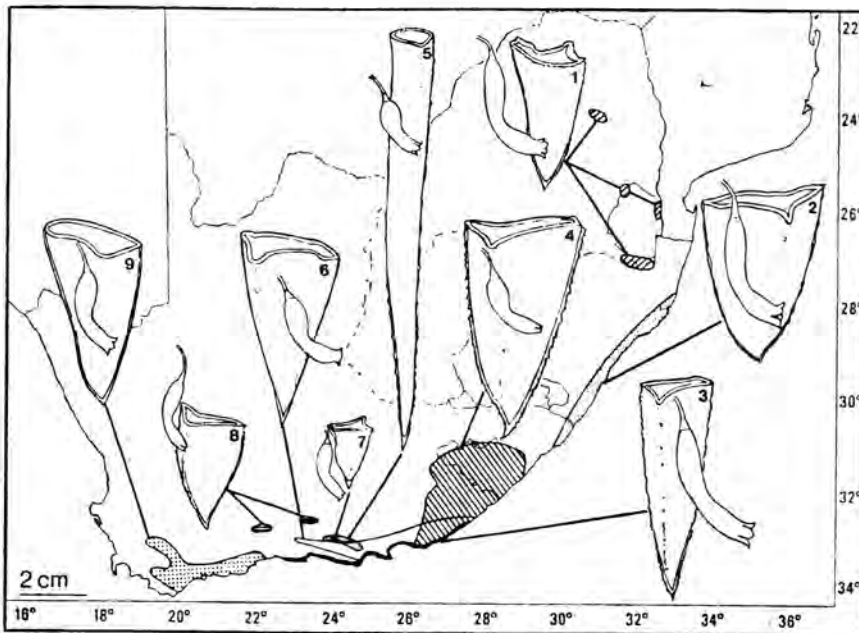
SUCCULENT OF THE MONTH GASTERIAS by Marylyn Henderson

G. bicolor with *var. bicolor* and *var. liliputana* has smooth shiny lorate leaves, distichous or spirally distichous, but differs from the latter in always having a short leafy stem. The two varieties differ mainly in size, with *var. liliputana* having leaves 60 mm or less in length.

G. baylissiana is a dwarf species with short distichous leaves with tubercled surface. Resembling this is *G. glomerata* with glaucous, asperulous-tubercled, lorate to oval leaves.

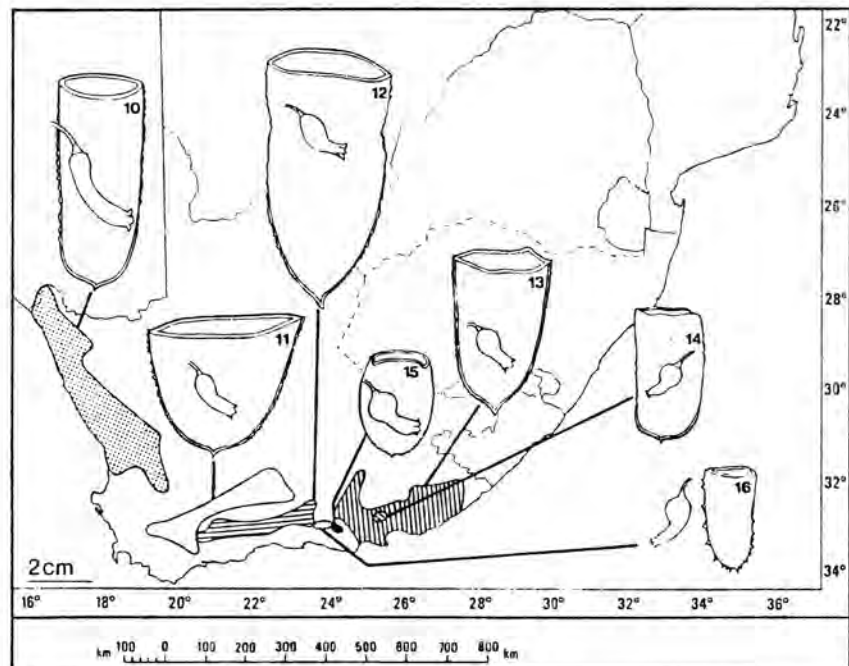
G. rawlinsonii is endemic to a mountainous region where the long pendulous branches hang on cliffs, and may grow 2 m in length. The leaves may be distichous or spirally distichous and have an asperulous texture.

South Africa Maps showing distribution of Gasteria Species



- 1. *Gasteria batesiana*
- 2. *G. croucheri*
- 3. *G. acinacifolia*
- 4. *G. excelsa*
- 5. *G. pulchra*
- 6. *G. nitida*
- 7. *G. ellaphieae*
- 8. *G. vlokii*
- 9. *G. carinata*

- 10. *G. pillansii*
- 11. *G. disticha*
- 12. *G. brachyphylla*
- 13. *G. bicolor*
- 14. *G. baylissiana*
- 15. *G. glomerata*
- 16. *G. rawlinsonii*



Gasterias will grow in any reasonable soil with good drainage. They are most undemanding, slow-growing, and can be grown in a shaded location, and in your home. You can grow them on the coffee table -- if you don't give them too much water or fertilizer -- just enough water to keep the leaves from dying back at the tips. But you can't grow them in the dark; even Gasterias need light for photo-synthesis -- their process of making food. Cultural information also states that they can take 40 degrees, or lower, if they are kept dry. I do think their being cold and wet is the reason for black spots developing on the leaves, which is the most common problem in their culture. Although, I feel that some species are more susceptible to this damage than others.

Gasterias cross-pollinate very easily, and many in cultivation are very likely hybrids, but most are all good plants worth growing. Plants that have hybridized with Aloes are known as *Gastrolea*, and plants that are crossed with Haworthias are known as *Gastworthia*. They are all very easily grown from seed, offsets, leaves, or even pieces of leaves.

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Gordon Rowley, *The Illustrated Encyclopedia of Succulents*. Salamander Books, 1978.
Clive Innes, *The Complete Book of Cacti and Succulents*. Van Nostrand Reinhold Company, 1977.
Ernst van Jaarsveld, *The Genus Gasteria, A Synoptic Review*. Aloe, No. 1 1992, Journal of the Succulent Society of South Africa.




VIVA aMaTeUrS!

You don't have to be a professional or taxonomist to be a contributor to the wonderful world of knowledge. You only have observation and communication skills. Amateur contributions are important and enormous. Darwin was an amateur. Botanical and zoological gardens and museum showcases are interesting, but rarely show how flora and fauna do their dance of life. It is not necessary to be a passenger on the HMS Beagle to contribute, and your observations need not be revolutionary. Many little steps lead us to knowledge.

An insect example comes to mind: Last year my neighbors' garden was visited by a large colony of colorful, slow flying Blister Beetles (*Family Meloidae, Tegrodera species*). According to insect books, they produce a blistering chemical (once used as an Aphrodisiac, Spanish Fly), and they have a curious way of parasitizing insect larva. In a few days, the entire colony had cleared out; after a search, they were found about 100 feet away in another bushy area. We handled these Blister Beetles freely; they flew very slowly -- the adults came in several sizes. Several days later they moved to a new site before finally disappearing. These habits were unknown to the entomologists that we contacted.

For an extremely intriguing interesting book on the close-up observations of insect life by a self-taught amateur (before publication of the theory of evolution and the descent of man!) - indulge yourself by reading "The Insect World of J. Henri Fabre" by Edwin Way Teale, c.1949, 1991 edition Beacon Press. Also, a contemporary (1993) non-fiction on insect lives which is delightful and well worth seeking out is "Broadsides from the Other Orders, A Book of Bugs" by Sue Hubbell, c.1993, Random House. We solicit your flora and fauna observations. Keep your senses on the ready and send us your findings. Viva ala Amateurs!!



The Games Plant People Play

Test your Botanical knowledge by matching the following common plant names to their scientific name. Developed by D'erdra A. Smothers PhD.

- | | |
|---------------------|--|
| 1. Coral Cactus | A) <i>Hypocyrtia</i> (related to African Violet) |
| 2. Coral Plant | B) <i>Astrophytum asterias</i> |
| 3. Crab Cactus | C) <i>Hydrocharis morsus-ranae</i> (aquatic) |
| 4. Fishbone Thistle | D) <i>Hakea laurina</i> (Protea) |
| 5. Fish Grass | E) <i>Justicea brandegeana</i> (shrub) |
| 6. Fishtail Palm | F) <i>Mammillaria heyderi</i> |
| 7. Frog's Bit | G) <i>Schlumbergera truncata</i> |
| 8. Goldfish Plant | H) <i>Caryota</i> |
| 9. Sea Urchin | I) <i>Cirsium diacantha</i> |
| 10. Shrimp Plant | J) <i>Russelia equisetiformis</i> (shrub) |
| 11. Silver Dollar | K) <i>Stapelia asterias</i> (succulent) |
| 12. Starfish Flower | L) <i>Cabomba caroliniana</i> |

D'erdra originally developed this for SD Tropical Fish Society newsletter "Tropical Breeze".
THANK YOU D'ERDRA!!

FEBRUARY BRAG TABLE WINNERS Judged by: Steven & Rowena Southwell

CACTI:

- FIRST: Don Patterson's *Mammillaria tayloriorum*
SECOND: Shirley Berry's *Mammillaria hahnii* "superba"
THIRD: Ed DeLollis's *Mammillaria spinosissima*
THIRD: Kay Quijada's *Mammillaria humboldtii*

SUCCULENTS:

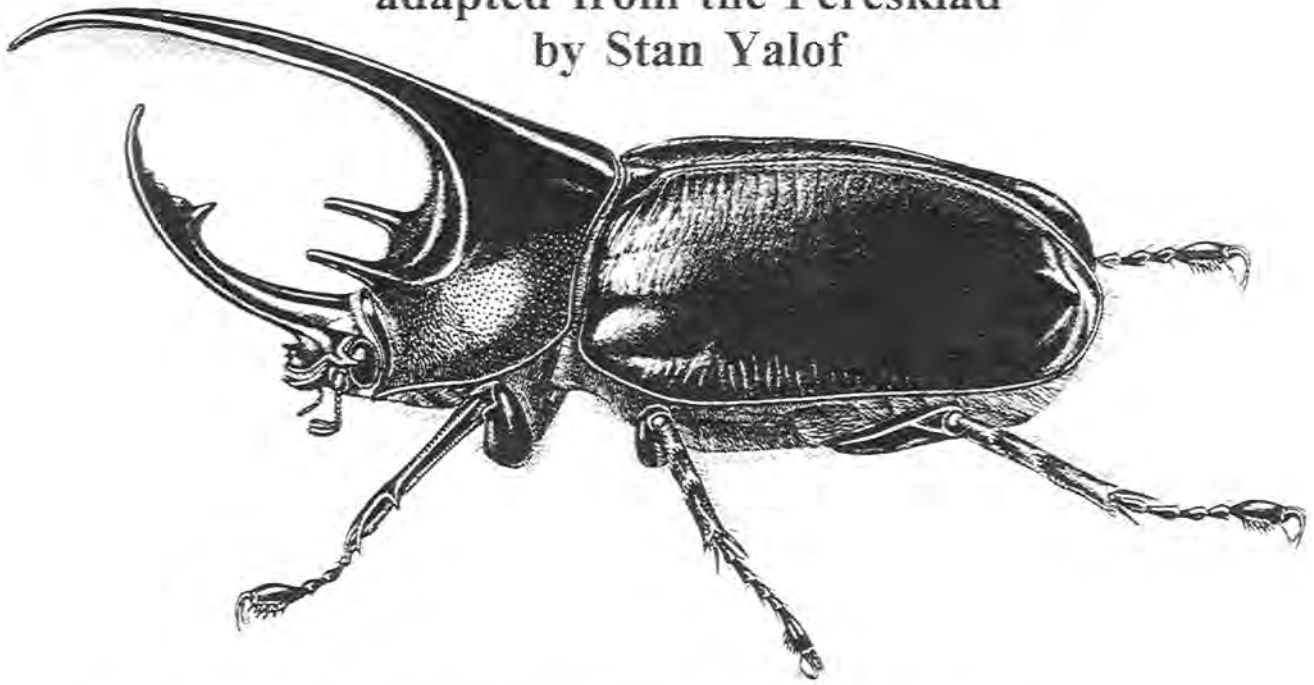
- FIRST: Alan Weiss's *Pachypodium brevicaule*
SECOND: Alan Weiss's *Psuedolithos migiurtinus*
THIRD: Marylyn Henderson's *Echeveria altamae*
THIRD: Shirley Berry's *Euphorbia misera*

ANSWERS: 1. F; 2. J; 3. G; 4. I; 5. L; 6. H; 7. C; 8. A; 9. D,B; 10. E; 11. B; 12. K.

WE INSECTS HAVE HAD IT !!!

adapted from the Pereskiad

by Stan Yalof



Quenton Xerophyte was the founder of the field of psychotaxonomy. Its main tenet was that many of us were plants in past lives, a memory retained and to be developed in group therapy. Dr. Xerophyte's methods were periodically ridiculed, at the other extreme, adulated following a major discovery, then swinging back after a new assertion, such as Quenton's discovery that his ancestor back in Devonian times was a fungus. To arouse pride in fungal ancestry, he had a sign "Fungi Pride" set out over his doorway. Some thought his daughter equaled, perhaps exceeded, his oddness. She learned through psychotaxonomy that her ancestor was the original cyanobacterium that became the first chloroplast, the engine of photosynthesis. She changed her name to Chlorella to honor this event. "Hey, if Shirley MacLaine thinks that an ancestor was a queen or a duke, and a million people believe her, isn't it equally believable that we got here from earlier sources because of ancient cooperations? If the original Chlorella, 3.5 billion years ago didn't decide to cooperate with symbiotic mutualism, none of us would be here! And that includes you too, Shirley!"

At this moment, Quenton was leading a new therapy group. In the group was Perry Wollcott, hired by Crowder [see Pereskiad, Chapter 3] to keep a private eye on Dr. Xerophyte. For professional reasons, Wollcott acted like a tough Shamus, to the point of taking actors workshop lessons to enhance his style. Privately he preferred his roses.

Quenton never knew which direction a session might take. He began, "We need to look outside of plants to understand them. Consider: 1. Working together.

What do we call that?"

"Symbiosis."

"Correct. And, 2. Diversity. We plant people cannot ignore our close co-inhabitants of Gaia, like insects. Without them, life on earth would die, some say in less than 6-months. Yet, who loves 'em? Anyone here? Anyone?"

Perry didn't know why he raised his hand. He didn't know why he said, "I love those babies." Afterwards he thought it was to fit in. Other hands came up.

Xerophyte continued, "Individual plants in pots, plants without mates, plants without their communities, without their fungi, their insects...they are like, like sort-of-living rarified objects of art. A community feeds off of each other in a relationship, a web. Community is ecology, a collection of populations or species. While food defines communities, sex defines species, the ability to breed together. Perry. What do you think about insects?"

"Well, they're not too smart, not too big..."

"Fellow groupies. Do you think we can see the world as they do? Can we meditate and see the world as they do. Perry, give it a try."

"Anything to fit in," Perry thought. "I guess I should shut my peepers." When he opened his eyes a blink later they viewed a different world, a very different world! "Wow!"

WE INSECTS HAVE HAD IT continued
A forest giant, weakened by 200 years of fires and infestations swayed wildly in the raging storm before plowing into the ground, shattering into pieces from logs to splinters. Racing for the open light were the young replacements, their roots frantically searching for fuel among the humus...and there wasn't much. Only one sapling could survive and fill the hole.

A major asset was one formerly large log which was settling into a pile. Just as guilds of life populate the forest - from the ground through the canopy, a parallel and not dissimilar group lives from the ground through the several inches of humus. Sitting on the log pile was a giant beetle with large pincers, about the size of a pocket book. It had been a tiring morning for this great coleopterid, having chomped and masticated wood fibers. Thankfully, its interfiber pectin had been fortunately digested by some anaerobic bacteria and right now the digested cellulose were being digested by gut friendly bacteria. A perfect warm afternoon to snooze and digest thought the coleopterid as he drifted off, dreaming of his life as an egg hatchling, then as a grub tunneling through logs, then as a pupa to allow his until then suppressed adult development center to take over and rearrange matter into adult parts.

"Good plan. As a grub I can take my time, years, munching on hard to digest raw cellulose. As a flying adult I can pick and choose. Wonder if I can still lift off with all this bulk and my giant horns. Must try it some other day. Good old grubs. A long time ago. I wonder where grubs came from. They look different, a bit like arthropods, hmmm...What's that racket!"

A smaller walnut sized beetle emerged, quickly slicked its fringed antenna with combs built into its first two legs, alternated its fringed antennae up and down, smelling and listening with its several sensors, and beginning to open its elytra (wing covers) before noticing the Giant Coleopterid. "Hello old one."

"Plenty of chomping material," the giant said invitingly.

"Can't, old man, perhaps another time."

"Beautiful day, what's the rush?"

"We're having a protest meeting. Can't be late!"

"What's it about?"

"We've had it with humans."

"Oh Ho, sounds interesting. They can be a problem, have it on best authority - my genetic memory, but here in our forest, they're...permit me a little joke, they're far away. . . no problem."

"A joke! A joke! Not far away! Are you getting buggy? Look across the road: slash and burn,

plantings of monocrop corn and wheat, what humans call amber waves of grain, Ha, more like an ecological desert, ...and we are next!"

"Humans wouldn't do that. Hell's fire, these great trees, the Great Diversity that speaks in thunder and acts in lightning, it taught us all to live together, also told us that we all must sometimes die. That is the sharp wedge that makes evolution. Ah, smell these great trees. Full light at the canopy, less as you go lower, levels of life, from the canopy to the roots. There is a beautiful proportion and harmony to it...guilds of mammals, birds, plants, fungi, worms, microbes..."

"And we insects."

"Why this soil has in reduced scale its own canopy, midlayer, and ground floor, with a similar gradient of light to the above grounders. This laterite soil would bake into rock if the undergrowth and the giants didn't shelter it. And even a young beetle like you, just graduated from pupahood, should know that this great forest creates a glorious climate [uniform 85 F], and overhead anchors rain weather."

"The problem's over there!"

"You're needed right here. Better get busy chomping this log if these new trees are going to get enough black humus to fill that 'ole hole in the sky."

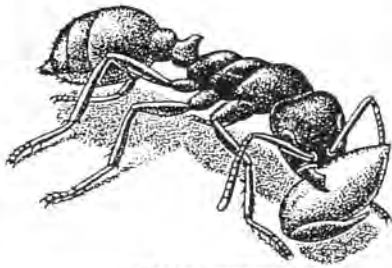
"By Gaia, get your head out from that log. Humans have been bad news for a 100,000 years... Did you hear something?"

Both sets of antennae triangulated on a spot on the log. A wasp's head chewed through. It emerged long and slender, with an even longer tail drill.

"You beetles are noisy. What's this about a protest meeting. Any chance for action?" it hummed while stroking its drill.

"Uncle Hercules here wants us to bury our heads."

"Sonny, I've been around a long time. That's why I'm called the Great Coleopterid. Nothing can conquer insects. We are versatile, adaptable, determined, cooperative, and something else that I can't quite remember. It'll come. Anyway, we insects are simply amazing. We raise crops, we herd and milk aphids, we are architects, carpenters, papermakers, soldiers, slaveraiders, honey makers, honeypots, undertakers, navigators, pollinators, fungus farmers, seed collectors, beggars, detritus recyclers, and then some. Life on earth would stop in 6 months without us! Why, we're three fourths of the Earth's biomass. We buzz and Gaia listens. And people must know that we keep things on an even keel. If one species overbreeds, something will trim the excess, like you do with that tail thing..."



SEED COLLECTORS

Many ants, known as harvesters, live by gathering seeds. Shown above is the Texas harvester, the largest of its kind, and a hoarder of great quantities of small seeds in storerooms in its mound. If these seeds should sprout, they are dumped outside the nest, where they grow and provide more seeds for the ant. The bite of the Texas harvester is painful to humans.



FUNGUS GROWERS

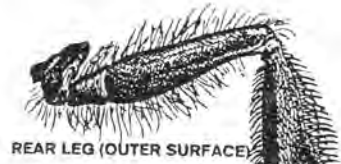
A medium-sized reddish ant, the fungus grower, or leaf cutter, common from Texas to North Carolina, builds mound-like nests a foot wide. It lives by chewing up leaves into a mulch and then cultivating a kind of fungus on the mulch, eating small bulbs put out by the fungus. The fungus can be cultured but will not put out bulbs unless it is tended by the ants.



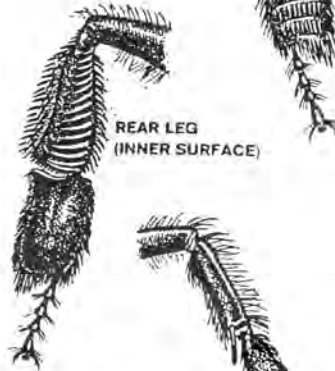
LEGIONARIES

America has its army ants, called legionaries, which differ from true army ants in that they do not move in a mass but run rapidly in single file. They also stay in their bivouacs much longer. They live by hunting other insects, storing their meat and carrying it with them when they move—usually at night under a cover of leaves. Most legionaries are almost blind.

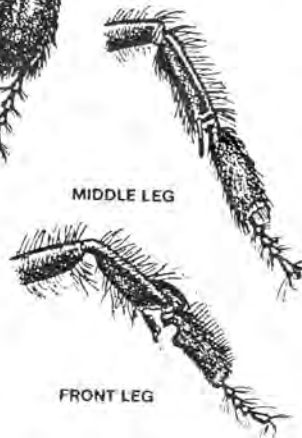
WORKSHOP OF INSECT LEGS



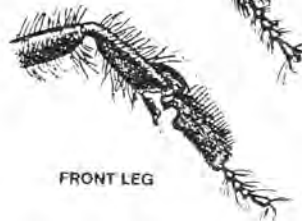
REAR LEG (OUTER SURFACE)



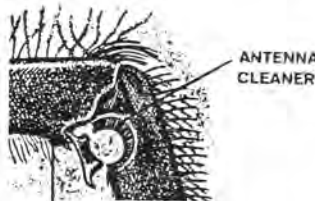
REAR LEG (INNER SURFACE)



MIDDLE LEG



FRONT LEG



ANTENNA CLEANER

EYE COMB

Each pair of a bee's legs performs a special function. The rear legs scrape pollen from each other and deposit it on pollen baskets (shaded in green at top). The stiff hairs of the middle legs brush pollen from the thorax and front legs. The sharp little spur (in green, center) removes wax from wax glands on the abdomen. Each front leg has branched, feathery hairs for collecting pollen. It also has a special joint (enlargement, bottom) with a comb for cleaning the eyes, and a hairlined notch through which antennae are drawn for cleaning.



STORERS OF HONEY

These are ants of the Southwest desert. They have dark abdomens and yellowish or brownish heads. Because of the aridness of their environment, they have worked out a way of storing sweet juices during good times in the flexible bodies of certain young workers. These workers swell and swell, as nectar is poured into them by foragers, reaching maximum size in about a month.



DAIRYMEN

One common garden ant throughout most of the northern states is a dairy ant, a herder of aphids. It builds the small sand mounds seen on paths and tennis courts. It is small, brown in color and, for an ant, good-natured. Most of its energies are taken up tending aphids, moving them around and protecting them from enemies, but it occasionally raids other ant nests.



THIEVES AND BEGGARS

These are tiny yellowish ants, found in eastern and central states. They live underground, often in the nests of other ants, making small subsidiary tunnels that their larger hosts cannot enter. In many nests they are tolerated although they live by killing their hosts' helpless larvae and pupae. Today they are common scavengers for food scraps and dead insects in houses.

"Ovipositor."

"Amazes me how you can exactly position a grub down in the wood and plunge that thing right into it, planting an egg every time."

"We've got it down."

"Do any of those grubs use countermeasures?"

"I dunno."

"A moth was telling me that its fuzzy coat absorbs bat sonar. But for good measure it jinks around."

"Yeah, we're clever, but we may not be around to gloat over it. You should get off your fat carapace and fly across the road. We may be next."

"You younglings worry too much. Man is a newcomer, foreign to us, and I suppose us to them. They'll learn to appreciate us. Loosen up! Don't take them so seriously. There were those big lizards, em..."

"Dinosaurs."

"Right! They were going to take over the Earth. The new world order. I haven't heard of them for 65 million years."

The little beetle retorted, "People aren't dinosaurs. They are going to suck the juice out of the earth if they aren't stopped. Here they are, going off to outer space, don't even know how the earth works, ignorant about us, the most numerous and most important class of life. Well, gotta fly. How about you, woodwasp?"

"Eat my buzz, beetle!"

The first insect flight, indeed the first flight through the air, was made in Carboniferous time 400 million years ago by Douglas Dragonfly. Doug had some useless flaps left over from his annelid ancestors (paranota) on his thorax which, working long eons evolved into wings. Using muscles as rubber bands, Doug pulled in rhythmically on the second and third joints of his thoracic exoskeleton, first top to bottom, then side to side. The wing tips traced a figure eight, similar to the sculling motion of rowing. The latest insects to fly were the Lepidopterids and the termites, acquiring their wings during the dinosaur age. While later flight systems have a variety of improvements and specializations, the dragonfly system is still the death of flies caught on the wing. Flies, Order Diptera, can land unerringly upside down, having developed another first, twin gyroscopes, halteres, transformed by evolution from their rear wings. Having only two wings hasn't hampered their

acrobatics, flat-out speed, or energy efficiency. They probably would take gold medals in all of these categories. Minute Hover Flies can stay aloft in a swarm in almost one spot all day; delta winged Deer Flies fly at 25 mph. If that doesn't sound fast, consider that:

1. human engineering has only managed this in this century;
2. the fastest jet, the SR 71, travels its 80 foot length about 65 times in a mile. At 2,200 mph, that amounts to 144,000 lengths per hour. The 0.5 inch Deer Fly at 25 mph travels about 6.5 million lengths per hour. On a reduced scale basis, the fly is 45 times faster.

Speaking of reduced scales, all successful flying insects beat their wings at very similar reduced frequencies, $F(r)$. $F(r)$ is proportional to the product of actual beat frequency and the wing aspect ratio (wing length divided by its average chord). Thus the long, narrow winged dragonfly beats slower than the stubby delta winged deer fly.

Aerodynamicists have "proven" that the bumblebee shouldn't be able to fly. This would be the case if the bee held its wing at a high aspect angle as with fixed wing aircraft when climbing. Under these conditions, a chaotic vortex of turbulent air would gradually build up at the trailing edge above the wing, killing lift. But insects don't keep their wings at a high angle for long, only long enough for a heavy lift in new, undisturbed air. The stalling attack angle, A , for aircraft is about 15 degrees. If exceeded, a plane would suddenly fall like a dead weight! Insect wings don't stall up to $60^\circ A$, after which lift gradually falls off. In addition to sculling repositioning and a superior wing shape, insects have developed other advanced flight adjustment mechanisms.

"That's another thing. We insects were the first to fly through the air, and we're still pretty good at it." Beetle said, "The meeting's probably started. If you can make it, it's at the large stump."

"Against the giant Hemlock."

"Aha" trailed the wasp and small beetle faded away.

"Hmmm, I'd better investigate that human activity. It's been a long time since I operated these wings. Let's see: Elytra up, check; unhinge and outstretch wings, check; get a little flutter going to get the wrinkles out, the lymph flowing, the muscles warmed; and wowie, rev 'em up, and scull up into the air."

[INTERPRETIVE NOTE: Insect flight muscles must be warm and limbered up to operate properly. In flight, internal thorax temperatures can rise 30 F. Some insects warm up by vibrating their wings. Some can go "off line", like bees, vibrating their muscles without moving their wings.]

At first barely moving, the Great Coleopterid rose with the sound of a hundred bees. Falteringly, it rose higher and caught an air wave. The old sculling rhythm began to return. Two sets of flight muscles alternately pulled on segments 2 and 3 of the thoracic exoskeleton to which the wings were attached. The wings moved with the segments in a rhythm which aerodynamicists marvel at.

While the Coleopterid was winging toward nearby human activity, he mused over insect flight prowess. "By changing the sculling rhythm, insects can dive, turn, back up, and hover. Two-winged insects such as flies (Diptera) have given up two of their wings by modifying them into gyroscopic stumps for aerobatics. An advantage of sculling flight is the reduction of trailing edge drag vortices which kill lift in fixed winged aircraft. That's why bumblebees can fly, and rather well, to the puzzlement of aerodynamicists. All successful flying insects have the same wing beat reduced frequency, i.e., wing length times beats per second. Insects came, as did all life, from the sea. Ancestors...who knows: perhaps a crustacean, probably an annelid worm, maybe more than one starting point."

The Coleopterid beat hard to keep from colliding with a large sign, which read:



EMERALD CITY FORESTS
A Trees for People Project
A Burke International Enterprise



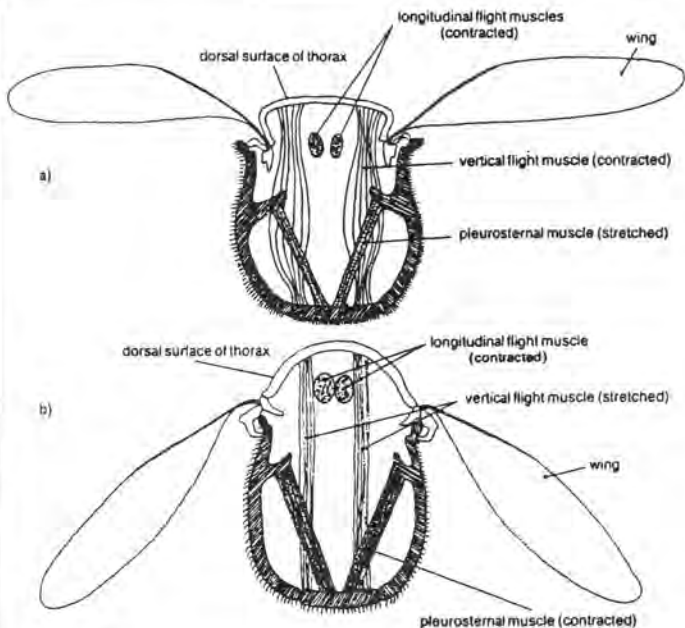
PESTICIDES AND YOU

by Michael Buckner

Pesticides, aaah, no! No matter what your plant collection - orchids, succulents, geraniums, posies, whatever - sooner or later you are going to have to utilize a chemical control. The word pesticide is used to designate any substance that is registered for pest control by the Environmental Protection Agency, the E.P.A. Most of us are familiar with the insecticides that specialty nurseries employ to produce their commercial crops. When it come to cacti, very few insecticides are actually utilized. The proven problem solvers are Malathion (never use on Crassulas), Orthene, Carbamates such as Sevin (carbaryl), Cygon (dimethoate - an excellent all purpose systemic used to curb aphids, mealy bug, thrips, scale and mites), Diazinon (sprecicide - a phosphate used for root mealy), and Avid for mites, now that Kelthane has been removed from the market.

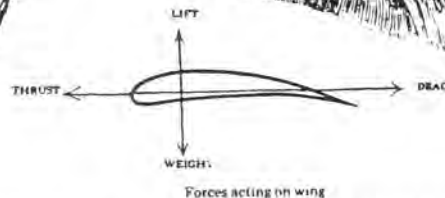
Many of these "cides" are *very, very dangerous* to use. There are certain safeguards that we all should be aware of to protect the health of ourselves, other humans, our pets, our plants, and the biosphere in general. Before using any chemicals ask yourself these questions:

- ① Is it safe for me? **READ THE LABEL** completely; understand what you are actually using. Use rubber gloves, a respirator, and protective clothing. Never come in contact with the chemical. Always wash your hands thoroughly after use - shower!! Never smoke while handling pesticides. Do not eat or drink around insecticides. Clean everything that comes in contact with insecticides thoroughly with proper detergents.
- ② Is it safe for my neighbors, incidental intruders like children, pets and wildlife? Do not spray on windy days when you might possibly have chemical drift. Always dispose of mixed insecticides properly - better to use them up than to flush them into storm drain or sewer. Completely wash out containers with detergent before throwing in trash. Always store pesticides in locked area - away from children. Never burn containers.
- ③ Have I measured or calculated the proportions correctly? It is best to follow the recommendations of the label exactly, no more - no less. Re-read the label prior to mixing any pesticide.
- ④ Am I being environmentally responsible? Obviously, you do not want to spray if there are other measures that could produce the same result. Consider non-toxic methods: beneficial insects, fatty-acid safer insecticides, and organic pest controls. Use insecticides judiciously! Prevention is best. Examine your plants regularly and keep them healthy. Healthy plants do not attract as many pests as unhealthy plants.
- ⑤ Am I spraying for the target pest? Never spray just as a matter of course. Utilize the pesticide that will best control the targeted insect you want to eliminate.



The wing movement mechanism in advanced insects. a) During upward wing-beat, the longitudinal flight muscles expand (stretch) while the vertical flight muscles contract (shorten). This in turn induces stretching of the pleurosternal muscles and the forcing out of the thoracic wall, pushing the wings up out of their restraining catches. b) In the downbeat, the longitudinal flight muscles contract (shorten) and the vertical flight muscles expand (stretch), raising the dorsal surface of the thorax; the pleurosternal muscles contract (relax), pulling in the thoracic wall and the wings onto their catches and down.

Some true flies, particularly hover-flies (Syrphidae), are quite superb masters of flight control. A hover-fly can at one instant dart away at a speed almost too fast for the eye to follow and, at the next, hover with the body almost completely motionless and with wings that are a mere blur of movement. Such acrobatics involve much faster wing movements than are possible in other, four-winged, insects, whose flight mechanism is generally of a simpler kind. In groups such as dragonflies, mayflies, grasshoppers, cockroaches and beetles, the wings are moved by two sets of muscles directly attached to their bases: they work in harness and in opposition, alternately pulling the wings up and down by contraction and relaxation of each set of muscles. Flies, bees, moths and other more advanced fliers employing more rapid wing movements have, on the other hand, flight musculature which does not directly articulate with the wings at all but thrusts them up and down by alternately depressing and raising the upper surface of the thorax



Lift is further increased if the leading edge of the wing is raised at an angle to the airflow. This angle is called the "angle of attack." The larger the angle of attack, the greater the lifting properties of the wing, though this gain cannot be exploited indefinitely. Eventually a stage is reached when the smooth airflow on the upper surface breaks away and becomes turbulent. At this point, the "critical" angle, the wing, loses its lifting properties and stalls.

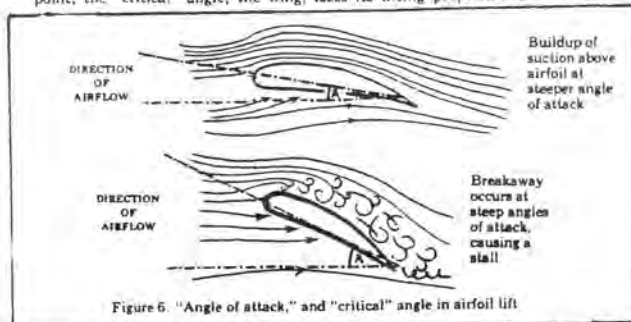


Figure 6. "Angle of attack," and "critical" angle in airfoil lift

The stalling angle for aircraft is about 15 degrees. If this is exceeded, lift diminishes dramatically and the plane falls like a dead weight. This is what makes landing a plane a precise maneuver, since in order to fly slowly the pilot requires a high angle of attack to compensate for the low airspeed.

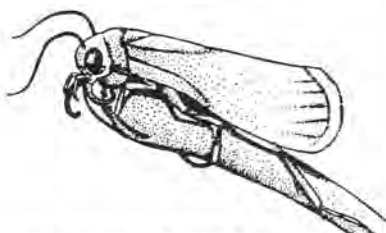
The wings of insects, however, do not stall until they reach much higher angles of attack—up to 60 degrees in the fruit fly. And even when these extreme angles are reached, lift falls off gradually rather than suddenly. In this way insects receive ample warning to avert a stall. In fact, so advanced and automatic is the flight adjustment mechanism of most insects that they are

DEER FLY VS. SR-71



Mutualism is a relationship between living forms that is beneficial, occasionally vital, to both. The tiny yucca moth (above) cannot get along without the yucca bloom that it lives on. And without the moth, the desert-blooming yucca would die out.

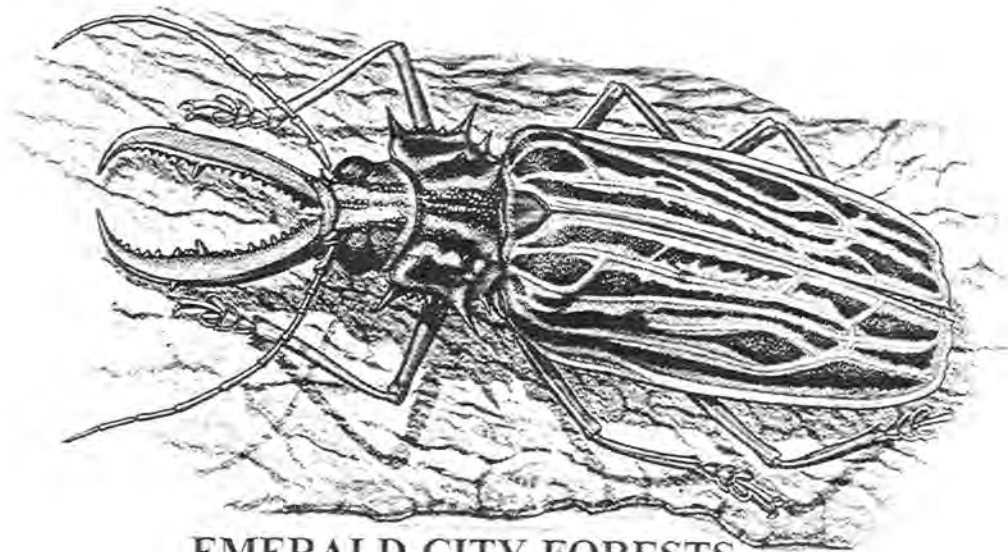
A CLASSIC OF SYMBIOSIS



The moth plays its part in the relationship by gathering pollen from the yucca's anther (above) with its special curved proboscis and carrying it in a ball to another blossom, which it fertilizes by forcing the pollen down the stigmatic tube of the flower.



The plant cooperates with the moth by providing seeds as food for the insect's larvae. After the insect deposits its eggs at the base of the ovary (above), they hatch and the larvae consume the seeds, leaving a surplus to ensure the plant's survival.



EMERALD CITY FORESTS
A Trees Are For People Project
A Burke International Enterprise

"...and God gave man dominion over all living things" - PAGE 19 -

On that day, Sir James Burke was there reviewing this recent addition to his portfolio with Alf Crowder, his American agent.[Pereskiad, Chapter 1]. He stood atop a recently felled forest giant, surveying the cutting and burning operations in the background.

"We're moving fast, Sir James. Those Congressmen told the President to keep hands off. And the public didn't kick up much dust. But you never know. And you're being British..."

"Oh don't you worry, Crowder. We're all patriots here. Wasn't it an American that said 'we have the best Congress that money can buy.' What's that noise?"

"Sounds like a Copter...there it is," pointing to the Coleopterid, beating with determination in their direction.

"Now it looks more like a bird, a crow..."

"My god, Its a giant beetle...what a trophy!"

Acting quickly, Crowder yelled to the workmen below, "\$100 for that creature."

A moment later, the Coleopterid found itself flying through flak with stones grazing its body. A shot gun blast created enough turbulence to spin it on its axis...a pellet pierced its wing covers. Stunned, it stopped sculling and almost dropped from the sky into the blazing and smokey underbrush.

It was now concentrating on escape. Building speed on descent, it soared upward on the singeing currents of flaming air, surveyed the scurrying humans below and prudently took a ground hugging arc away from them before setting course toward his homeland... and the protest meeting.

Crowder was angry. "It shouldn't have escaped!"

We shouldn't let ourselves get carried away. My fault. Our Yahoos could have pulverized it."

"Did you notice Crowder how quickly it took avoidance action. It seemed to know what it was doing, and it escaped that-a-way. Interesting. Bears investigating."

"Sir James, I'll gather a squad and head on over! See if I can't get you that trophy."

"I like your initiative. I'll stay back at the command post."

Crowder barked, "Twenty loggers, on the double, bring chain saws, machetes, and flame throwers, single file, line up!!"

In a few minutes, Crowder was at the column's head, marching in the direction where the Great Coleopterid made its escape while Sir James watched from an observation tower.

Meanwhile, the Coleopterid was sorting out its rusty direction finding methods. "Let's see, the Hemlock, should be that way according to the polarization of light. MiMoSuPa [an epithet for minerals, moisture, sunshine, and partnerships, referred to in the August 1993 "Those Sexy Succulents" article, *ibid*], I can smell it with my antennae, my tympanic membranes on each foot have vectored the meeting...a lot of participants, not only arthropods... getting close, time to make an impressive entrance." Buzzing the stump, the Coleopterid attempted a slow turn, bounced off the tree and crashed on the stump, landing upside down. The assembly quickly recovered from the disorder and after great effort managed to right the Great Coleopterid..

After being righted and folding its wings within their covers it felt that its dignity had been restored enough that it could announce "I decided to come." The insect assembly was all abuzz with the size of their fellow arthropod whose existence was a legend. The stump was actually an enormous slab of serpentine rock through which a giant Hemlock's roots cracked through to a reservoir of water and nutrients. The rock cleared a fire break, supported the ancient trunk, leaving the tree a massive canopy without competition. Its freedom from want and fire damage allowed an ancient age.

Against the tree was a mark which in English would translate to AHOI, for "The Ancient and Honorable Order of Insects." Standing on a platform before the sign was a large black and yellow wasp, wearing what looked like a soldier's helmet.

"You're the Great Coleopterid, I'll warrant. You're certainly welcome...and needed. I'm the Sarge. The Commander will be here in a few moments. Our scouts reported that you came in from the direction of the humans. What's the buzz?"

"I barely escaped. Look, I'm a Hercules Beetle that has lived a long life, kept my mandibles clean, and raised many generations of MiMoSuPa respecting grubs. My secret is that I don't get involved!"

"Interesting philosophy, but we're in a rush..."

"Just a few more points. This is a beautiful world, built on the bodies of one-celled sea animals who coupled with photosynthetic cyanobacteria to begat algae. Algae begat plants; plants supported Arthropods, like we insects, and in most of our guts we harbor bacteria that work for us, like converting chewed wood to sugars, like making vitamins..."

"Where is this talk going?"

"Quo vadis? How can we go anywhere unless we know where we've been. I just wanted to make the point that even though we are all opportunists, we also are useful to each other. Adam and Eve, Romeo and Juliet are nothing compared to the marriage of fungi and algae in lichens which digest inanimate rocks to release minerals and make soil."

Mildew complained, "The world's burning and he's talking philosophy."

"What's going on across the road," yelled a soldier ant.

"An ugly sight, ugly people, cutting and burning, they must have an ugly ancestry, out of obscurity, unlike our own. Our early early ancestor was a multilegged segmented animal, which converted some of its legs into mouthparts and tailparts, till they resembled our larva. Modern insects, like most of us, with complete metamorphoses go through four stages of development: egg, larva, pupa, and adult. In our development, we recapitulate our evolution. Within the larva, we have development centers for both larva and adult growth. In the pupal stage, the adult growth centers actively build the adult, dissolving the largely unneeded pupal parts. This is good. The larva and the adult can have completely different food habits, life styles, and time tables."

"This isn't the time for a history lesson."

At that moment Sgt. Fungus called out, "ATTENTION! Here comes the Chief." A large termite wearing a military helmet marched in, his shirt lettered Chief Termite. All went quiet as the Chief barked, "Sgt. Fungus, Call the role." Reading from a clipboard, Sarge began:

"Beetles?...Here!

Moths?...Here!

Ants?...Here!

Mildews?...Here!

Wasps?...Here!"

After completing the long list, Sarge saluted and reported, "All present and accounted for."

The Chief began, "I hear we have, as usual, a problem with these human fiends. What's it now?"

The woodwasp spoke up, "Chief, last week I was trailing a delicious odor, but instead of leading to a night of love, I was led into a metal funnel, which I barely averted."

Sarge spat out the words, "Pheromones, a nice word for chemical warfare."

The woodwasp shuddered, "They're tinkering with our love life! I smell my lady love calling me...yoohoo...but what do I find, a funnel leading into a barrel of death! Is nothing sacred to these human fiends?"

Mildew blurted: "But what can we do against their flames and saws?"

They all turned toward the Chief. He began: "I don't deny we're between a bird and a lizard. But some of you delegates sounded as if you were ready to give up, to lie down and be stomped on. Lie down, never I say! Be stomped on, if that's what it takes to destroy this threat to the natural balance that our biota members have strived from Devonian times to put into balance, well I'm ready! Between a bird and a lizard...we've been in some toughies before, haven't we Sarge? As the woodwasp said, they are unnatural...and they have gone much too far. Now, we all represent tribes that have had some disagreements. But someday I may even live to see one of our tribe marry one of yours."

That remark drew incredulous responses through the massive group. The Sarge called out for order, quiet returned, and the Chief continued: "Why not? From what I've seen here today, I'd be proud to have a mildew in the family!"

Enthusiastic cheers of "Hear, Hear" greeted that remark.

[NOTE: This is not as unusual as it sounds. Nature could not survive without remarkable cooperations, such as: unique beneficial bacteria within all termites (and also within ourselves); the marriage of algae and fungi to form lichens; the invasion of eubacteria by cyanobacteria to form chloroplasts, and the beginning of the plant Kingdom and our oxygen environments, etc.].

Continuing on, "Now we've done a damned fine job in preserving the natural order, in recycling nutrients, in pollinating...a damned fine job...and also raised generations that follow our traditions faithfully. But...all this will end if this disgusting human horde, this disgusting monocrop spreads. Are we going to let it?"

The Crowd chorused in unison, "Hell no!"

"Sgt, sound the call to battle. Comrades, call out your hordes. This is war! Great Coleopterid, can you lead the way?"

"I'm buzzing to, but those unspeakables have blasted holes in my elytra. I can barely lift off."

"Then stay at the command post. I'm itching for this one."

"I'd like to lead the marching chorus."

EMERALD CITY FORESTS by Stan Yalof continued...

The Chief nodded assent. The insect horde formed tight columns moving slowly behind the Coleopterid. As they circled the ancient stump, they solemnly chanted:

Burned ashes.
Soil to dust.
If we don't stop 'em
They'll leave nothing to us.
They take take take
And leave nothing...
...nothing to us.

Then they broke into a song which sounded like the Marseille: [INTERPRETIVE NOTE: Possibly its human composer plagiarized the Marseille from an inebriated cricket, or more charitably received inspiration from nature.]

Children of Gaia,
The attack time has arrived,
Petty cares are set aside,
In what may be suicide,
To swarm, to swarm,
We may buy the farm,
Onward to victory.

The flying insects launched upwards; the surface creatures rushed out toward the approaching people; the Great Coleopterid climbed upwards to the first branch of the Hemlock, aided by a small beetle that reluctantly stayed behind as his aide. Sir James was at the same height, peering toward the beetles through an observation scope. Whether he actually saw them is not known. The beetles likewise seemed to detect him with their antennas, which contained marvelously sensitive sound and smell organs. To Sir James, other than collecting the Great Coleopterid, the expedition was quite routine, a profitable harvest for mankind, as sanctioned by numerous holy writs. "Reverence for life" was an interesting but impractical theory.

The small beetle began, "About the people..."

"They're coming!"

"Who will win?"

"In the end, we all lose. In the short term, they will. But in a far age, when they poison the world or our sun has cooled and our Earth has cooled, people will be gone, and some of us will be preening in the fading light."

The small beetle thought out loud, "Gaia is like us, our bodies, it all works or none of it works, if anything fails, everything fails!" The Great Coleopterid waved its antennas in a nod. A great understanding had passed between them.

Crowder, being in the lead, had the honor of being the first to have blood drawn, being enveloped by a swarm of delta winged deerflies flying at 25 mph. "Flame throwers", he yelled. Stinging bees and furious mosquitos joined the melee, threading through the searing flames and choking smoke. Tens of thousands were crisped but the survivors managed to encompass Crowder's column in an angry cloud. The area began to crackle with burning greenery and chunky sparks at the time of arrival of the ground army of ants, termites, centipedes, velvet ants, in columns and as freebooters. At first unnoticed, they quickly made their marks as they clambered under protective clothing and bit hard, injecting bacterial and fungi infested acids, particularly into tightly fitted areas. The wounds were excruciatingly open and raw. If that weren't enough, puffball fungi, which normally pop open to release spores when triggered by raindrops, released their choking clouds of spores which made their way into the lungs of Crowder's men, their hyphae quickly recognizing a comfortable opportunity, spreading quickly.

In the midst of chaos, pain, choking smoke, searing flames, and the sudden insect ferocity, the column disbanded in confusion. An old alligator was surprised when a human threw himself into the pond and practically swam down his throat. Crowder crawled to the remains of his crew, two men, and gasped "Get us out of here". No one else escaped. Sir James watched in disbelief.

Perry's life as the Great Coleopterid was fading. His revised focus was within a circle of anxious faces. He was back.

Quenton asked, "Are you OK?"

Feeling for his now missing antennas, he nodded.

"What did you find?"

"A proud world...and I learned that if anything fails, everything fails!"

Many reference works and conversations were folded into this article, too many to mention here. I would like to acknowledge the considerable assistance of the Rancho Bernardo Branch of the SD Public Library in the research involved, and particularly Eunice Au (who is an entomologist), Sue Keighley, and Julie Olson.

by Stan Yalof

- PAGE 21 -

RAINBOW GARDENS BOOKSHOP

PROUDLY ANNOUNCES SOME FORTHCOMING PUBLICATIONS FOR 1994

REMARKABLE AGAVES AND CACTI - Park Nobel. Details the unique characteristics/uses of the many species of agaves and cacti. Includes the biology of agaves and cacti. 75 illustrations, 4 color plates. 176 pages. 5 1/2" x 8 1/2".
N-101A Softbound - \$19.95 (in March) N-101B Hardbound - \$39.95

ERIOSYCE (CACTACEAE) - THE GENUS REVISED AND AMPLIFIED -- Fred Katterman. 125 color photos (24 color plates), 27 b/w drawings, 17 b/w SEM plates, 13 distr. maps. 176 pages. 7" x 10", softbound. \$39.95 (in May)

CACTI IN THEIR HABITAT -- R. Preston-Mafham. Supposedly full-color throughout. Estimate: under \$30.00 (in May)

EUPHORBIA JOURNAL, VOLUME #9 - Euphorbia Soc. 300 color photos, 30 b/w photos, 250 pages, 7" x 10", hardbound. \$44.95 (in May)

SENECIO & OTHONNA - Gordon Rowley. 200 color, 30 b/w photos. 250 pages, 7" x 10", hardbound. \$47.95 (in May)

BRADLEYA 11 - British C&S Soc. Estimate: \$21.95 (in May)

CACTI AND SUCCULENTS - Hans Hecht. 325 color photos, 160 pages, 8 1/2" x 11", hardbound. \$24.95 (in June)

SUCCULENT BOOK (title unknown) - Urs Eggli. In German. Full color throughout. Hardbound. Price unknown (in July?)

CAPE BULBS, THEIR CULTIVATION AND CONSERVATION - Richard Doult. 75 color photos, 52 b/w line drawings, 100 maps. 240 pages. 8 1/2" x 11", hardbound. \$35.00 (in July)

SUCCULENTS - M.Sajeva/M.Costanzo. Reportedly 1,200 color photos of succulents only. Hardbound. Price estimate: \$44.95 (in July?)

GASTERIA - E. van Jaarsveld. 22 full-page color illustrations (drawings), 60 photos, maps. Hardbound. Price estimate: \$50.00 (in July?)

A GUIDE TO PALMS AND CYCADS OF THE WORLD - Lynette Stewart. 325 color photos, 140 line drawings, 100 maps. 240 pages, 8 1/2" x 11", hardbound. \$35.00 (in July)

HASELTONIA 2 - Cactus & Succulent Society of America. Price estimate: \$24.95 (in August?)

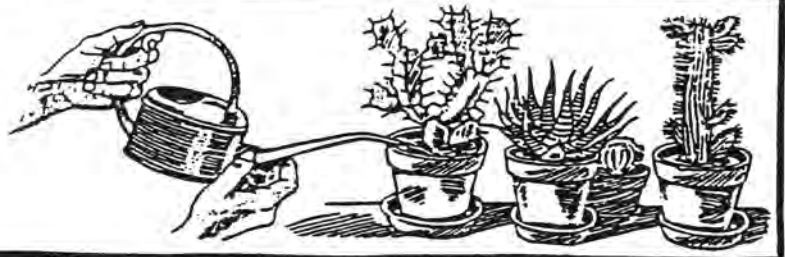
SUCCULENTS OF MADAGASCAR (Vol. 1) - W. Rauh. 2,000 color photos. 395 pages, hardbound. Price estimate: \$90.00 (in September)

LANDSCAPING WITH DESERT PLANTS - Huntington Botanical Gardens. Full color throughout. Price unknown (in December?)

GROWING SOUTH AFRICAN SUCCULENTS - (new Kirstenbosch Lecture Notes Series). Price unknown. (in July?)

ALOES OF ZIMBABWE (1992) - Revised edition of: Aloes of Rhodesia. 32 full color photos, 21 b/w photos. 107 pages. Price unknown. (in July)

FROM ALL CORNERS
by Shirley Berry



Advice for plant vegetative propagation usually instructs us to "dip the cutting in a hormone (preferably with fungicide) powder". Do we adopt this mysterious hocus-pocus on faith, or is there something really affecting a change in this piece of plant which once was a part of a growing organism? What action of the powder can increase its chances of growing again?

The U.S. Department of Agriculture issues a publication explaining how plant hormones affect root formation. It says, "Plant hormones are formed in one tissue or organ of the plant and are translocated to other sites. Very small quantities of these hormones cause marked effects on plant growth".

"These hormones can promote, inhibit, or otherwise modify physiological processes in plants. Plant responses depend on the kind and concentration of the chemical, the length of time the tissue is exposed, and the age of the plant. There are many known plant regulating chemicals, but one of the most widely studied is indoleacetic acid, a naturally occurring hormone."

"Indoleacetic acid and certain other natural and synthetic chemicals with similar properties are known as auxins. (Auxins are plant regulating compounds which can induce cell division and growth). They produce elongation and division of stem cells, stimulate flower formation in some plants, and stimulate adventitious root formation. (Roots that arise from parts of the plant where roots would not ordinarily develop.)"

"Scientists do not know exactly how auxins stimulate root formation, however, their application usually accelerates this process, and thus reduces the time required for rooting. Applying auxins does not cause something unnatural to occur, but rather speeds up a process that would in time have occurred naturally. There are, however, a few differences between naturally produced roots and those induced by application of auxins. Naturally occurring roots are fewer in number and longer; roots produced by auxins are more numerous but shorter, making the plants better suited for transplanting. The effectiveness of auxins in root initiation has led to their widespread use in asexual propagation of plants (reproducing by vegetative parts)."

However, the Department of Agriculture warns us that fungus diseases may occur from dipping cuttings in hormone SOLUTIONS. Since water is an effective carrier of many kinds of pathogens, it should not be used as a dip in cutting treatments. All plant cuttings should be dusted instead.

Consider ... participation!! For those of you members that need to get a life - We still need your positive input - VOLUNTEER. We need help with the Wild Animal Park - Baja Hill and new Aloe Garden - call SDC&SS president Joey Betzler. Also, we need volunteers for our June show: labeling plants, security, cashiering, the judge's lunch. And then there's the Del Mar Fair - which is really a lot of fun!! If you are ready for the real thing - commitment - please call Michael @ 222-3216.

MEMORABLE MOMENTS

A Baja Adventure by Frank Thrombley

We left Mexico Highway 1 at San Augustin and went west. Our destination was Punta Catarina, the demarcation point of the large blocks of onyx, mined at El Marmol. It is a mystery to me how, in the 1920, 1930 and 1940's these miners could transfer these bathtub size onyx blocks from trucks to boats on the shore for transshipment to the ships anchored in the Pacific.

The dirt roads going west are seldom used and one can lose his way easily, for there are more roads than are shown on the maps. This is hilly country with many washes and arroyos, the highest point is Pico San Miguel with an elevation of 3598 feet. The chapparel and desert shrubs are prevalent in the low lying areas and as we came up over a low hill a valley below us was awe-inspiring. It was so beautiful there was complete silence among us. Joan Miller was probably the first person to react in our six passenger truck. Joan was out of the truck with camera in hand and must have taken four pictures before any of us could collect our thoughts.

On my list, Joan Miller is a definite, in the top five of the all-time good campers. However, she is always the last to slip into the sleeping bag at night, willing to stay up - feed the campfire and never seem tired. Joan is the last to pack her belongings into the truck and then the last to get in herself when it is time to move on. If we went swimming she was the last to get wet and the last to come out of the water. On the flip side, however, Joan was always the first to volunteer to help with camp duties; we washed many dishes together.

Why did the panoramic view across this valley cause us to react as we did?

At the very least there were one-thousand Pachycormis discolor all in flower. Colors ranging from white to pink and on to rose red. It was truly an artist splash of muted colors on the landscape. Those with cameras wished that they had a wide angle lens. Ira L. Wiggins in his monumental work, Flora of Baja California describes these members of ANACARDIACEA, Pachycormis discolor var. pubescens.

Come on Joan, get in the truck, it is time to move on. Please!!

We did take the wrong road and arrived at Punta Canoas, a high overlook of the Pacific Ocean. It was late in the afternoon, so we decided to camp on the beach just south of Punta Canoas. The supper that Tom Parks served was consumed with delight. We were hungry and the food was delicious. The dishes were done, the campfire keeps us warm but Tom is still working the Coleman stove. What a surprise when Tom serves his dessert, Apple Turnover made with flour tortilla and sprinkled with sugar. What a day to remember. Joan, stop feeding that fire and go to bed!

⊗ NEW MEMBERS ⊗ 1994 ⊗ WELCOME ⊗ WELCOME ⊗ WELCOME ⊗

RICK ABBOTT
LEE & PAM BADGER
CONNIE CHAPPELL
MICHELLE HECKATHORN
BETTY KING
SUSAN McFENRIDGE
ANNETTE NEEDLEMAN

KEN & DEENA ALTMAN
JOHN & ANNETTE CAMACHO
THALIA CHRISTO
CHRISTINE & VINCENT GUERRERO
SOL KLEINMAN
CAROL & JAMES McFERRIN

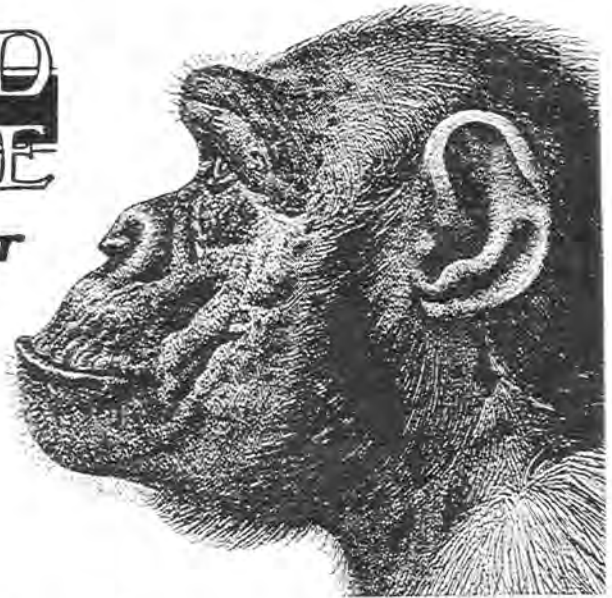
We also have a new foreign member! DR. VICTOR YA.KUZEVANOV from the Irkutsk State University Botanical Gardens of Siberia!

SORRY!!!! IN THE WE'RE NOT PERFECT DEPARTMENT WE ARE MISSING CORRECT ADDRESSES FOR: BETTY KING, CLAYTON TSCHUDY & CHARLES NICHOLS!!! PLEASE CALL JOYCE @ 222-3216.

WISE AND OTHERWISE

by Michael Buckner

Ladybird, ladybird
Fly away home,
Your house is on fire
And your children all gone;
All except one
And that's little Ann
And she has crept under
The warming pan.



"The truth is that people *like* ladybugs, and there are few insects that they do. Ladybugs look as if they were designed by a children's-book illustrator, and they make us smile. They ladybug is a design motif in toys, fashion, jewelry, pottery. Our relationship with the cheerful-looking little beetle is long and affectionate. Ladybug. Lady beetle. Lady bird. . . . Of all the puzzling rhymes in Mother Goose, this is the one of the darkest and most peculiar. What is the meaning of the house on fire? And who is Ann? . . . Some German folklorists believe that the ladybug rhymes may have their roots in beliefs about the scarab, the sacred beetle of Egypt whose name is derived from the same root as the word "become" and was associated with the fiery orange of the sun. The nursery-rhyme authorities Iona and Peter Opie explain that the verse may be "a charm to speed the sun across the dangers of sunset, the house on fire symbolizing the red evening sky." Others have suggested that the rhyme referred to the burning of hop vines in England, a practice that may have killed many ladybugs. The Opies also point out that a good way to get rid of witches is to tell them that their house is on fire, but since ladybugs are so universally linked with good luck and happiness the Opies are reluctant to consider the pretty little beetles as witches' familiars. In the end, the Opies are as puzzled about the rhyme as anyone else and can only conclude that it "is undoubtedly a relic of something once possessed of an awful significance."

BROADSIDES FROM THE OTHER ORDERS - A BOOK OF BUGS BY SUE HUBBELL

"When asked what he had learned about the nature of the Creator from his studies, the great British biologist J.B.S.Haldane is said to have replied that "God has an inordinate fondness for beetles" There are more beetles than anything else in the animal kingdom. In numbers of species described, they represent the largest group of animals on the planet, more than 25 percent of them. Some 370,000 species have been named so far, and Terry Edwin, of the Smithsonian, estimates that there are probably ten million kinds of beetles now living.

South American Indian mythmakers may have sensed the truth behind Haldane's witticism; in addition, they neatly put mankind in its proper place in relation to beetles. According to their stories the Creator was a very large beetle, who made men and women from the grains of earth left over after he had constructed the rest of the world. Not only are beetles very many, they are very successful, having adapted to nearly every environment the planet has to offer-water, land, and air. They also have been around for much longer than many other insects-longer, in fact, than most animals now alive. Something rather beetlelike has been scuttling about for more than 225 million years, ever since Permian times, at the end of the Paleozoic era."

FROM BROADSIDES FROM THE OTHER ORDERS - A BOOK OF BUGS BY SUE HUBBELL, c.1993, RANDOM HOUSE 25



WISE AND OTHERWISE

"The idea for the insectarium (a museum of bugs) came to Steve Kanya, owner of Steve's Bug-off Exterminating Co. in Philadelphia, when he began to display the "catch of the day" in his shop window. He'd sit upstairs doing the books and hear cars pull up in front as people looked at the daily display--a big cockroach, for example. One day he decided to go "big time."

Kanya built a 6,500-square-foot museum above his shop and then collected tarantulas, an ant farm, a bee hive, even a six-inch-long African roach that hissed. The museum was great for kids; they got to do all kinds of interactive stuff, including guessing their weight in fruit flies or lightning bugs.

The main attraction, though, was a model kitchen and bathroom in the middle of the museum. People peered through five-foot-high electrified Plexiglas walls that surrounded the model and gazed in rapt attention as an attendant reached over the wall with a long pole and opened the cabinet doors. Then the audience recoiled, as out of the cabinets popped 30,000 to 40,000 roaches.

Everyone was delighted with the display, except Kanya. There just weren't enough roaches. "By this time, we expected to have a couple hundred thousand," he said last summer. The disappointing reproduction rate continued, despite the fact the insectarium kept its roaches warm, moist, and fed the best rotting bananas, moldy bread, and even corn on the cob. Said Kanya, "They eat better than the employees."

So Kanya hired John Moore, a full-time entomologist formerly with the Philadelphia Zoo, to tend his upstairs creatures. Moore put in 50 new live displays, including a five-inch beetle and an insect that has oars for legs. But what about the roaches?

According to Moore, "They just needed a little more protein." These days the kitchen is a little more crowded: The roaches are fatter, more relaxed, and a little sexier on a diet supplemented with dog food and fish flakes.

Who would have guessed?"

WILDLIFE CONSERVATION MAGAZINE, SEP/OCT'93, ARTICLE: FAT, RELAXED, AND SEXY BY MICHAEL TENNESEN

"The order of mites Acari is distributed throughout the whole earth, except for the polar regions. There are over 10,000 species so far recorded. Some of them do not achieve a length of one tenth mm. In their life-cycle they pass through an unusual number of forms. Mites are found almost everywhere in nature, on land and in water. They live on animal and plant debris, or are parasitic on animals and plants. Only a few species attack man. Among the most notorious is the Itch Mite, Acarus siro or Sarcoptes scabiei. It measures about 0.25 mm, so that it cannot be detected with the naked eye. Today, there are effective and reliable ointments against the itch mite. However, in ancient times and in the Middle Ages it was far worse, and kings, popes and other notables (Herod, Antiochus, Philip II and Clement VIII) died of the affliction known as acariasis subcutanea. We can well understand how terribly people used to suffer from this pestilence. On the body of the patient, boils up to the size of an egg would form under the skin, which were filled with living mites of the species Harpyrhynchus tabescentium. At a given moment in their development, great streams of larvae would pour out and infect the entire surroundings of the patient. After a hideous death, the corpse had to be sewn up in leather sack before the ceremonial funeral could take place.

THE PICTORIAL ENCYCLOPEDIA OF INSECTS BY V.J.STANEK,C.1969, HAMLYM HOUSE, FELTHAM, MIDDLESEX, ENGLAND

WISE AND OTHERWISE

From "the lives and times of Archy & Mehitabel" by Don Marquis, Doubleday, Doran Inc, c.1927. Thanks to Holly & John Gallagher for gift copy. In 1916 Don Marquis invented his Vermin Voltaire, Archy the office roach, who leapt upon the typewriter keyboard at night - and was unable to depress the shift key, hence all his copy was in lower-case type. Thousands of people were reading the New York Sun every afternoon to see what Archy might say about this & that. Archy and his immoral companion, Mehitabel, the cat, wove tales of comic wisdom; no holds are barred; nothing is sacred in this wisest collection of American irreverence written in the twentieth century.

what the ants are saying

dear boss i was talking with an ant
the other day
and he handed me a lot of
gossip which ants the world around
are chewing over among themselves

i pass it on to you
in the hope that you may relay it to other
human beings and hurt their feelings with it
no insect likes human beings
and if you think you can see why
the only reason i tolerate you is because
you seem less human to me than most of them
here is what the ants are saying

it wont be long now it wont be long
man is making deserts of the earth
it wont be long now
before man will have used it up
so that nothing but ants
and centipedes and scorpions
can find a living on it
man has oppressed us for a million years
but he goes on steadily
cutting the ground from under
his own feet making deserts deserts deserts

we ants remember
and have it all recorded
in our tribal lore
when gobi was a paradise
swarming with men and rich
in human prosperity
it is a desert now and the home
of scorpions ants and centipedes

what man calls civilization
always results in deserts
man is never on the square
he uses up the fat and greenery of the earth
each generation wastes a little more
of the future with greed and lust for riches

north africa was once a garden spot
and then came carthage and rome
and despoiled the storehouse
and now you have sahara
sahara ants and centipedes

toltecs and aztecs had a mighty

civilization on this continent
but they robbed the soil and wasted nature
and now you have deserts scorpions ants and centipedes
and the deserts of the near east
followed egypt and babylon and assyria
and persia and rome and the turk
the ant is the inheritor of tamerlane
and the scorpion succeeds the caesars

america was once a paradise
of timberland and stream
but it is dying because of greed
and money lust of a thousand little kings
who slashed the timber all to hell
and would not be controlled
and changed the climate
and stole the rainfall from posterity
and it wont be long now
it wont be long
till everything is a desert
from the alleghenies to the rockies
the deserts are spreading
the springs and streams are drying up
one day the mississippi itself
will be a bed of sand
ant and scorpions and centipedes
shall inherit the earth

men talk of money and industry
of hard times and recoveries
of finance and economics
but the ants wait and the scorpions wait
for while men talk they are making deserts all the time
getting the world ready for the conquering ant
drought and erosion and desert
because men cannot learn

rainfall passing off in flood and freshet
and carrying good soil with it
because there are no longer forests
to withhold the water in the
billion meticulousations of the roots

it wont be long now it won't be long
till earth is barren as the moon
and sapless as a mumbled bone

dear boss i relay this information
without any fear that humanity
will take warning and reform archy

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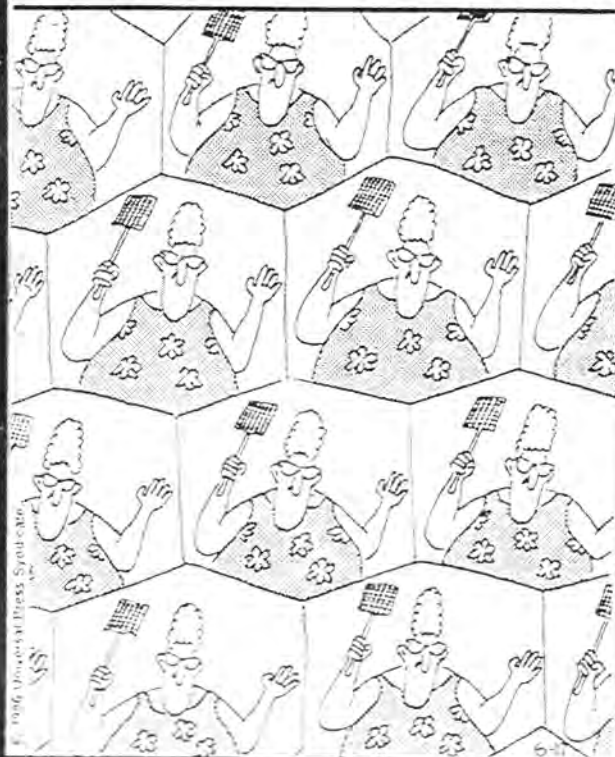
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THE FAR SIDE

By GARY LARSON

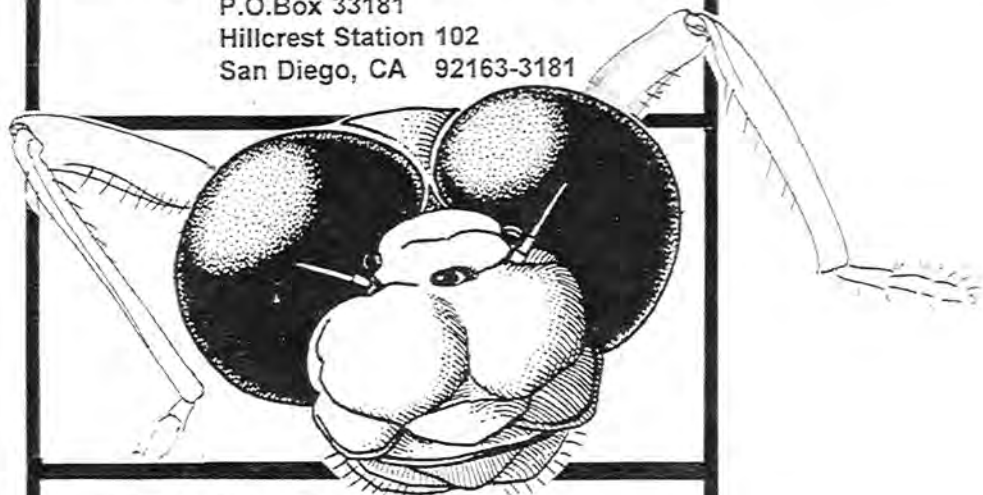


The last thing a fly ever sees

VISITORS WELCOME

San Diego Cactus and Succulent Society, Inc.

P.O. Box 33181
Hillcrest Station 102
San Diego, CA 92163-3181



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The San Diego Cactus and Succulent Society, Incorporated is open to all persons interested in growing cacti or other succulent and exotic plants. Meetings are held the second Saturday of each month at 1:00 PM in room 101, Casa del Prado, Balboa Park. Board of Directors meetings are held at 11:30 AM prior to general meetings. Annual dues are \$10.00 per single member per year, and \$5.00 for each additional member within the same household. Single copies of Espinas y Flores are \$1.00 per copy sent within the U.S.A.; foreign subscriptions are \$20.00 - 3 mailings per year. Affiliated with the Cactus and Succulent Society of America, Incorporated. Fax available - please call editor @ (619) 222-3216.

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