CENTRAL SPINE

NEWSLETTER OF CENTRAL ARIZONA CACTUS & SUCCULENT SOCIETY

JUNE / 1998

FROM OUR PRESIDENT

I just received the May silent auction totals from our treasurer, Regina: ***$994.75!***

I continue to be amazed at how we surpass each previous silent auction's results! Several of you commented on the quality of the plants, which proves to me that we have many good growers among our members. Thank you, each and every one of you for donating plants and for supporting our club in this very important event.

This month, in addition to our featured speaker, Eric Anderson, we will be bringing back "My favorite plant" where anyone may bring in and talk about ONE of their plants they feel is special. Part of this club's mission is to share information on succulent plants, so please include any tips on how you grow it so that others may benefit. We also are looking for contributions to be published in this newsletter. We need articles of an advanced nature as well as ones for the beginning grower. Subjects may include culture of difficult plants, propagation, pest control, nurseries that specialize in hard to obtain plants, or anything else you think may be of interest to our members. You may want to talk about someone interesting you have met that had a lasting impact on you. After reading about Charles Glass' passing in the CSSA Journal this month, I recalled the time I met and talked with him and his associates last year at our show at Desert Bloom. It was an honor to meet a man of his importance and reputation, and there will never be anyone quite like him again. I have talked to several leaders in the field of cacti and succulents at previous conventions, like Woody Minnich, Jerry Barad, Herman Schwartz, and Steve Hammer, all of whom have been friendly and accessible, which says a lot about the people we share our hobby with. Next spring's convention in Las Vegas promises to be another great one, and if you have ever wanted to meet some of the great minds in our field, this is the time to do so.

See you at the meeting!

Scott B. McMahon

"Giraffe Rubber Tree"

Pachypodium lamerei

Aloe ramosissima

A. desmetiana

From the collection of:
Nick Diomede
Location: Central Phoenix

INSIDE THIS ISSUE

Fungal Infections of Cacti

http://cygnus.tamu.edu/Texlab/Flowers/cacti.html

Cactus Anthracnose (fungus - *Colletotrichum* (*Gleosporium*) *spp.*):This disease affects several kinds of cacti, Cereus, Echinocactus, Mammillaria, and particularly Opuntia (prickly pear). Infection results in a rather moist light brown rot which shows many light pink pustules on the surface. Spots are small at first, later enlarge and become covered by the small spore-producing pustules. Large areas may be affected, sometimes destroying entire plants. No satisfactory control is available, other than removing and destroying diseased cladodes as soon as noticed. In the greenhouse, soil from infected plants should be removed and benches disinfected. Spraying with a copper fungicide may help in checking the disease.

Dry Rot (fungi - *Phyllosticta concava and Mycosphaerella spp.*): Small black circular spots develop first, which later increase in size until they reach a diameter of one or two inches. Further advance is checked by the development of callus tissue. Minute fruiting structures are seen in the infected tissue. The disease is in part physiological, influenced chiefly by soil moisture. Remove and destroy diseased specimens.

Scorch or Sunscald (fungus - *Hendersonia opuntiae*): This disease is common and serious on prickly pear cactus (Opuntia). Spots at first are distinctly zoned, later enlarging until entire cladodes turn a reddish-brown and finally die. The center of the disease area is grayish-brown and cracked. Other fungi may also be present in the diseased area. No practical control has been developed.

Cotton Root Rot (fungus - *Phymatotrichum omnivorum*): Several members of the cactus family are susceptible to attack by the cotton root rot fungus. Infected plants die. When pulled from the soil the brown strands of the fungus can be found growing on the root surface. No control practice is available.

Soft Rot (bacterium - *Erwinia carotovora*): The bacterium enters tissue through natural openings and wounds. Under conditions of high humidity, the bacteria reproduce quickly, spreading to healthy parts of the plant. Diseased tissue is watery, soft, black and deteriorates rapidly. If environmental conditions turn dry, the development of the disease may be checked. The best control is to avoid wounds, treat broken surfaces right away with a copper fungicide and avoid having plants in places where humidity is high.

Nematodes (*Meloidogyne spp.*): Most of the cacti and succulents are susceptible to infection by root knot nematodes. Infected roots show small galls which are typical of the disease and serve to identify it when clean, washed roots are observed. Fumigate or sterilize soil before potting.

Other Diseases (fungi): Other fungi known to cause disease on cacti are *Fusarium oxysporum* (Fusarium rot), *Macrophomina phaseolina* (Charcoal rot), *Septoria spp.*, *Helminthosporium cactivorum*, and *Aspergillus alliaceus* (Stem and branch rot).

Scab (physiological): Particularly common on prickly pear cactus. Rusty colored, corky areas appear on the stems. Scab is thought to be a form of edema, resulting from overwatering and poor ventilation. Increase light and decrease humidity for control.

Stem Rot of Cacti (fungus - *Drechslera cactivorum*): Basal or top rot of seedling cacti that turns cactus into a shrunken mummy covered with brown spores. First symptoms are yellow spots. It can completely rot a plant in four days. The fungicide Captan should give some control.

Good Growing

As strange as it sounds, cactus can get sunburned.

Now, you would think that this natural desert inhabitant would be resistant to skin damage. But plant sunburn can be a big headache for cactus growers. It can cause a show plant to be removed from future competition and leave a new landscape plant struggling for its life.

Sunburn occurs because a desert plant has been moved from its normal position and light exposure to placement in a new, sunnier site. Some examples include:

- Store purchases removed from a fluorescent environment
- Mail order plants removed from their protective wrappings
- Show plants temporarily visiting an indoor location, like the State Fair or other exhibit
- Rearranged plants in a new setting

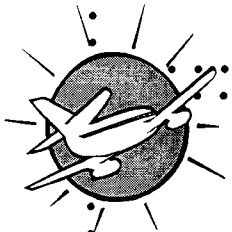
Sunburn occurs when the skin turned towards the sun cannot handle the powerful, radiant light. Like with human skin, a sunburned plant's exterior layer of cells is damaged. The damage is unsightly and permanent. Prolonged exposure of a light sensitive plant can result in death by sunburn!

Overexposure results in symptoms that appear within a very few days. Look for a yellowing area or a parchment-like exposure spot. Skin wrinkling and scarring indicates greater damage. It is easy to see as discoloration only appears on the sun-facing side of the plant.

The fix is easy - move the plant! Try turning the overexposed side away from the strongest light. Keep an eye out so that the newly turned plant does not burn on the newly exposed side. Or, try moving the plant to a less intensely lit area, such as under a tree. Or, drape a piece of shade screen over the light sensitive plant. This is a temporary measure; the drape can eventually be removed when the plant acclimates to its new environment.

If serious sunburn occurs, it may be necessary to remove parts of the plant to salvage cuttings. The sunburn scar is ugly and long lasting. Only new, healthy growth will diminish the visual impact of a sunburn scar. This takes a lot of patience and loving care.

Good Growing,
Debra Korobkin



THE LAST NOTICE *(To San Jose)*

You have heard about this for long enough, now we are just days away from a good time and lots of fun on our trip to San Jose . Remember we leave Friday July 10th from Sky Harbor Airport. America West Airlines flight # 2889, departing from Terminal #4, second level, at 8:12am. You must be at the airport by 6:30 am (ugh!) DO NOT CHECK YOUR BAGS AT THE CURB. Get a sky cap or bring them yourself to the east end ticket counter, position # 32. Ask for the CACSS Group. Your tickets will be there. You may only have one carry on bag but are entitled to 2 bags that will go underneath. Be sure to bring newspaper and tape to wrap all the goodies you will bring back. Please bring your lunch this day, I have asked our hosts to have water for us. If you need something other than water please bring it with you. We will be staying at the Airport Inn International Hotel in San Jose. Their address is 1355 N. Fourth Street, their phone number is 1-408-371-5340. We will not be checking in til later that evening so take a light sweater or jacket with you.

If you have questions call Electra Elliott at the office (963-1061) or at home evenings at 732-0307.

After 6 1/2 years working at the Desert Botanical Garden I've decided to leave my position in July to follow a dream of being a full-time pottery artist. The friendship and support many of you have shown me through the years has given me the strength and confidence to pursue this goal. Thank you.

I look forward to displaying my work at future meetings. If you need something special between those gatherings or if you'd like a unique planter custom designed, I'd enjoy hearing from you, 852-0651. Also, feel free to stop by to see my studio and say hi anytime.

Sincerely, Jim Sudal

Parking at DBG

The rules for using the service road and parking areas at the Ullman Terrace/Webster/Archer complex are as follows:

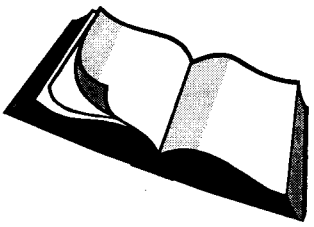
1. Short term parking for drop-off and pick-up only.
2. No parking is allowed in these areas unless using handicapped space.
3. All vehicles must park in front lot near admissions.
4. A golf cart is available at admissions for hauling small objects.

Hopefully this will help clear up and past or future situations. *Jim Carlson, Chief Ranger*

Longtime CACSS member Jim Robbins has generously donated a collection of wonderful cactus and succulent books to the CACSS Library which are listed below, most of which are new to the CACSS Library. We are very fortunate to receive this gift and I wish to thank Jim once again for his very thoughtful donation and to accept this collection under the name of the "Jim Robbins Collection." These books are now available for circulation, so don't hesitate to call or e-mail me if you would like to see any of these books or any of the others in the Library. We continue to gladly accept donations!

The James A. Robbins Collection

Donated May, 1998



The Cactaceae, Vol. I, Britton & Rose, 1937 reprint, HB
The Cactaceae, Vol. II, Britton & Rose, 1937 reprint, HB
The Cactaceae, Vol. III, Britton & Rose, 1937 reprint, HB
The Cactaceae, Vol. IV, Britton & Rose, 1937 reprint, HB
Cacti, Frank D. Venning, a Golden Guide, (1974, 160 pp., 200 species) PB
Cacti and Other Succulents, eds. of Consumer Guide (1976, 66 pp.) SB
Cacti and Other Succulents, Jack Kramer (1977, 160 pp., 188 photos, 67 color) SB Great photos!
"Colour Compact," (153 pp.) in Japanese with photo captions of botanical names in English. Many color and b/w photos of cacti. HB
Flowering Succulents, Gordon Rowley, *(1959,* 80 pp.) HB
The Full Bloom of Cactus Flowers, Y. Ito, (1962, 127 pp.) PB - in Japanese with photo captions of botanical names in English; good photos.
Grow Cacti - a Practical Handbook, C. Marsden, 2nd ed. (1958, 178 pp., 4 color and 6 b/w photos, 15 illustrations) HB
Gymnocalyciums, ed. R. Ginns, The Succulent Plant Institute (ca. *1965,* 44 pp., 12 b/w photos)
The Illustrated Guide to Cacti, Rudolf Slaba (1992, 224 pp., 200 color art images and 120 b/w drawings) HB
The Observer's Book of Cacti and Other Succulents, S. H. Scott, *(1975,* 159 pp., over 300 species, 16 color plates & 48 b/w photos) HB
Our Native Cacti, Ethel Bailey Higgins (1931, 170 pp.) HB
Picture Guide to Southern Arizona Wildflowers, Lou Blachly (1963, 43 pp.) pamphlet
Succulents ... in the Garden, Dr. Robert E. Atkinson (1961, 32 pp.) pamphlet
The World Book of House Plants, Elvin McDonald (1963, 318 pp.) PB

Karen Kravcov, CACSS Libarian 780-2867 KKravcov@aol.com

EASY PLANT BIOCHEMISTRY FOR CACTOPHILES

This article first appeared in the newsletter of the Henry Shaw Cactus Society, St Louis, MO

Leo A Martin

PART I: PLANTS AND PEOPLE ARE BAGS OF CHEMICALS MIXED IN WATER

Why do plants need water, sunlight, soil, the right temperature and humidity, and fertilizer? How can I use the answers to these questions to grow my plants better?

Fortunately, these concepts are easy to understand, but it takes a lot of explaining to answering these questions. We need to start with basic ideas and build from there. Let's start with examining what a plant is made of. In later articles we'll examine how plants grow and how they use water, sunlight, minerals, and fertilizer. We'll also stop now and then for practical asides.

Plants, like all living things, are composed of chemicals, ranging from simple to complex, dissolved in water. Plants use chemicals as:

-structural material (cellulose, proteins)
-tools for making other chemicals (enzymes, which are special proteins)
-factories for capturing energy from sunlight (chlorophyll and enzymes)
-batteries for storing the energy once formed (sugars, starches, and fats)
-blueprints for building more plants (the genetic code, called deoxyribonucleic acid or DNA.)

Plants differ from animals in that they can make almost all the chemicals they need from very simple chemicals available to them in the water, soil, and air. Plants first make less complex chemicals, like sugars, amino acids, and ribonucleic acids, and then link them together like boxcars in a train to make the more complex chemicals, like cellulose, starch, proteins, and DNA. These strung-together chemicals are called polymers. There are man-made polymers, too; nylon and polyester are examples.

All this chemical activity takes place inside cells. An organism's chemicals are dissolved in water contained in microscopic bags or boxes called cells. Cells are the basic units of life, capable of feeding, growing, and reproducing. Many organisms, for example bacteria and amebas (known colloquially as germs), consist of only one cell. Everything that happens in a plant happens inside cells. Plants (and animals) are built up of countless cells. For this reason they are known as multicellular organisms, to distinguish them from the simpler organisms containing only one cell (known as unicellular). Almost all cells are far too small to be seen with the naked eye or even with a magnifying glass; microscopes with magnifications of at least 20 power are necessary.

Next time we'll look at what the parts of a cell are.

Nursery Review

Rich Zeh

After having dealt with most of the growers, wholesalers, and retail suppliers in the Phoenix-Tucson area, I think it is high time for a guide. I propose to review each of the cactus and succulent suppliers. This should help members in the elusive pursuit for the NEXT plant. The categories under review shall be:

1. Stats: name, location, phone numbers etc.
2. Inventory: if they don't have it, they can't sell it.
3. Availability: if they have it, will they sell it?
4. Personality: if they have one, is it serviceable, or warped?
5. Plants: quality of product and, of course, SIZE.

*Scale:

1 "I think we have some cactus way in the back"
10 "Everything at the Huntington is for sale today."

Objectivity will be my elusive goal. If anyone takes umbrage to my reviews, I can only tell you that this is how I remember being treated on that day.

Arizona Riches
19201 N. 29th Place
Phx 85024
phone: 569-0614 (blocks blockers, so *82 if needed)
He's almost never near the phone, so you have to leave a message.

Inventory	**5**
Availability	**10**
Personality	**6**
Plants	**8**

This guy is a find, people. He's located in an expanding area in North Phoenix. Hates his neighbors, so he's trying to sell out. If you see something, make him an offer. His inventory is good in certain areas. Big into hardy outdoor landscape type plants. Almost exclusively cactus. He has some big specimen sized cactus in front of the house. All plants are for sale. And, his soil mixture is nothing short of great. There are two growing yards in all, so if you don't see THE plant, he still might have it. Very reasonable prices. As close to wholesale prices as you can get without a handgun.

Richard is very laid back. Easy to get along with, but has a tendency to diverge off the subject. Do not go to Richard's place if you are allergic to cats!! Do not leave windows down in your vehicle; they climb in and will make a mess. You have been warned.

As for quality, what he has generally is in fine shape and of good size. Got to be that soil! He's a must see for Phoenix. Call first to make sure he's not at the growing yard.

Desert Aura
19847 N. Cave Creek Road
Phoenix, AZ 85024
602-569-1702

Inventory	**2**
Availability	**10**
Personality	**5**
Plants	**2**

Sandy runs this ramshackle operation in North Phoenix. There's always the slim possibility of finding a worthy specimen, but, as a rule, she deals in damaged goods. Poor quality plants from the Texas area are shipped in periodically. Sandy does have a good picture book of plants in the Phoenix area that can be purchased. They are usually pricey, but of a better quality and very large. So, if you are interested in landscape type native cactus, give her a call.

Next Issue: Desert Foothills Gardens Review

OBSERVATIONS, the view from here.

Jim Elliott

Look who's talking now, our cactus must be speaking volumes. Once again I have been surprised by the bloomin' coordination of semi-inanimate objects. Actually, the more precise situation is the coordination of blooms.

On July 21st, 1995, all of the native mammillarias at our home bloomed simultaneously. So what? Well, for starters, none of them was in bloom on July 20th. Add that to the fact that some of the plants come from the Tucson area, others from Florence, Apache Junction, Fort McDowell, Maricopa, Morristown, and near Congress--a range of about 150 miles. These cactus are all closely related (most are *Mammillaria microcarpa*) so it is easy to surmise that the bloom gods just arbitrarily chose July 21 st for hooked spine mammillarias. Now if you don't buy that reason what options are left?

How about better sex? When you are immobile and dependent on others for spreading your genes doesn't it make sense to have everybody party simultaneously? With a concentrated supply of flowers the pollinators would find it much more rewarding to visit the cactus flowers and take pollen grains from one plant to the next. Thus by cooperating with the other plants of your species you can do a lot towards ensuring there will be lots of little mammillarias running around (figuratively speaking) in the future.

Now that we have a plausible reason, how does it happen? I don't know but I am sure there is some strictly scientific explanation such as 'bloom coordination pherenomes' being released that will satisfy the hardcases among us. Even that route has some intriguing highs and lows to iron out. Wander into the mammillaria townhall meeting with me to listen to the debate over bloom timing: "Whose pherenomes determine when we party this year? Yours? Who voted and made you God?""We Maricopa mammillarias can't possibly be ready by July 21st. Our rainfall is way behind and we just can't afford to put that much effort into a party!"

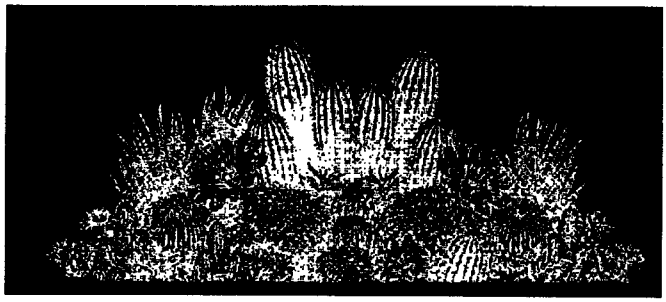
Florence mammillarias: "You have our sympathy, but nobody cut us any slack when our season was a little slow or in the years when the heavy rains caused so many lupines to block our sunlight. You just have to suck it up and be ready when the rest of us are."

"Yeah, stop being such wusses and get with the program!" chimes in the Congress mamms.

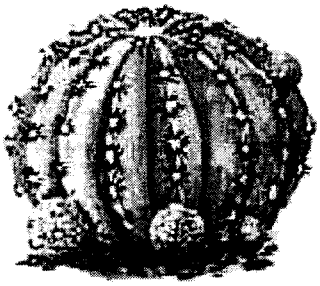
However the exact date is determined, there does seem to be some local autonomy to vary things just a little. Within our growing yard I always look forward to the "heavy" bloom days of the hybrid echinopsis (easter lilies) as the range of colors is so extravagant. Within each planting area the coordination is nearly complete. There may be a plant or two that get off early and there are always a straggler or two that don't get the word. HOWEVER, even with this family of plants that are hybridized the great bulk of the flowers open on the exact same day. This is probably more important to echinopsis than to some genuses as their flowers are only open for ONE DAY. Thus if the reason to party simultaneously is to attract the maximum number of pollinators, as an echinopsis you have a very small time envelope to succeed. if you are a couple of days early, your flower display may be inadequate to attract much attention. If you are more than a day or two late, the action has passed you by. If you get it just right you are immersed in a virtual sea of flowers and your chances of getting 'buzzed' are much improved.

This need to be in tune with your immediate neighbors is so important, that I find the same named hybrids (such as Morning Glory) have the ability to vary their bloom days as much as 24 hours either way to coordinate with their neighborhoods. Some of the variability shows up in as little as 60 to 70 feet. Everybody will be in bloom in one area while the same assortment of plants 100feet away bloom the next day. A very useful local autonomy if you need to mass your blooms to survive.

Carefully observe the bloom strategies of your own plants and see if you can see this bloomin' coordination at work in your neighborhood.



Deadline for articles and submissions for next newsletter:
July 15th 1998
Nick Diomede 1345 W.Willetta Street Phoenix, AZ 85007
258-0736 or desertsegue@earthlink.net
Looking for articles, pictures, graphics and quotes.



Central Arizona
Cactus & Succulent Society
P.O.Box 8774
Scottsdale, AZ 85252

Central Arizona Cactus & Succulent Society

Meetings held last Sunday of the month

Time: **2:00-4:00 PM**

Location: **Webster Auditorium, DBG**

Next meeting: **Sunday, June 28th 1998**

Calendar of Events

Thursday June 25th **7:00PM** **(TCSS) Bruce Bayer from South Africa**

Bruce Bayer was born in Kwazulu (Natal) in 1935. His father was interested in plants and an uncle was professor of Botany at the University of Natal. Bruce's own field activities date back to 1939. He majored in Entomology at Pietermaritzburg in 1956, completing his MSc with the study of Noctuid moths, but his real interest was Haworthias. Bruce worked as a Botanical Assistant at the Karoo Garden, succeeding to position of Curator in 1973. In 1987, he became a research ecologist with the Dept. of Agriculture until retiring early to follow his own special interests in Haworthia. Bruce will be speaking mainly on Haworthias. His new book on Haworthias is expected June 1998.

Both events at 7 p.m. at The Main Auditorium, College of Pharmacy, Mabel/Warren, Tucson

Questions to Dick on (520) 626-4429 [work], (520) 885-6367 [home] or Margaret (520) 795-1285

Sunday June 28th **2:00PM** **(CACSS) Eric Anderson**

July 10th-11th-12 **(CACSS) C&S shopping spree, San Jose**

Sunday July 28th **2:00PM** **(CACSS) The Longivity of the Succulent Flora of Baja California**

Robert H. Webb is a hydrologist with the U.S. Geological Survey in Tucson. He is an avid plant collector with 900+ species collection of cactus, agaves, aloes & other succulents at his home in Tucson. His research involves reconstruction of changes in natural environments, primarily using repeat photography. He has worked 2 months in Baja California in conjunction with the Mexican government to document long-term changes in the desert ecosystem and to assess the ecological status of large succulents, particularly Cirios (Boojum trees).

Sunday August 26th **2:00PM** **(CACSS) Presentation by Regina Rodgers**

Traverse the mysterious lands of the North American continent with Regina Rodgers as she takes you on a virtual trip of three of the North American deserts. Slides of cacti and other succulents from Big Bend National Park of Texas, Anza Borrego State Park of California, and Organ Pipe National Monument of Arizona will be shown.