

MAMMILLARIA THORNERI

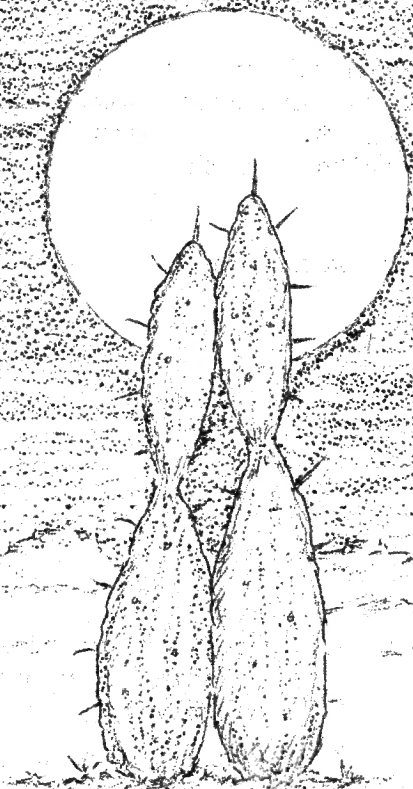
Espinas y Flores

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

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TOMO OCHO, NUMERO TRES
.....

MARZO 1973
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DO YOU SUPPOSE
THERE ARE CACTI
ON THE MOON?



W. R. SCOTT

Desert Romance

PROGRAM SPECTACULAR

Saturday, March 3rd --- rain or shine!

Loyal J. Bibbey, Program Chairman

The finest, most knowledgeable and outstanding group of informed and talented individuals (Club members) has been lined up for our March program in Casa del Prado in Balboa Park on Saturday, March 3rd at 1:30 p.m. in Room 101. Circle that date on your calendar and note the time. Come early and sit well up front center. There's been nothing like this in a Saguaro's age.

You're going to learn things about cacti and succulents you've never dreamed of heretofore. It would be well to have a pencil and paper, but don't just doodle, draw a cartoon for Espinas y Flores. You'll learn things you've always wanted to know about but have been afraid to ask. This will be your opportunity. If a speaker doesn't make his points sparkling clear you are entitled to ask pertinent questions. All you have to do is say: "Mr. President, a point of order" and then your question. Be sure to speak out so everyone will hear, don't just mumble in a low tone. Remember, these are professionals and experts and they will have plants to prove their points and they will have researched the literature to keep you spell-bound.

You'll no doubt learn things you've never dreamed of before. Maybe we should have an arbiter (an absolute and final judge) to adjudicate fine points, or small differences. Hopefully Floyd will be on hand. When he expresses an opinion, that's it!! There's no need to pursue the issue further.

It may appear the program will run over into the early evening. Not so!! Your Program Chairman has allotted precisely eight minutes (480 seconds) for each speaker to exhaust his subject. If additional time is needed, there will be meetings coming up in future months. At the sound of the gavel, stop the flow of information.

The imposing list of speakers alluded to above, and their selected subjects are:

- | | |
|---|--|
| Julianne RICE -- Succulents | Walt GREENWOOD -- Notocactus |
| Joe DONOHUE -- Cephalocereus senilis | Frances LANGER -- Mininams |
| Corwin DeVotie -- To be announced | John KORVER --- Identification of Mams |
| Phil BURTON -- How to identify a cactus | |
| Martin L. MOONEY -- The Gymnos | Tony D'Attilio -- Tillandsias |

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PAGE BY PAGE -- IN THIS ISSUE:

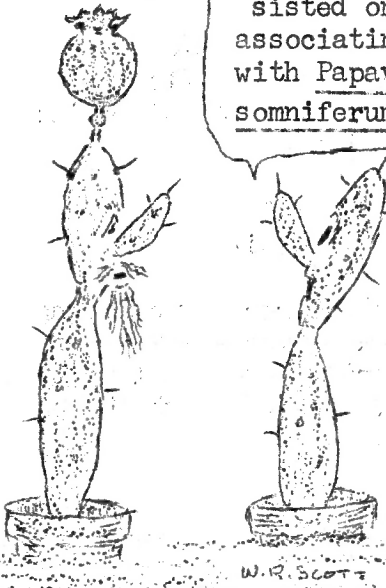
- 1 -- Desert Romance (cartoon by Ye Ed)
- 2 -- That's THIS page -- mostly about the program, could be TWO programs?
- 3 -- SINOLOGY -- Doc R V Vaughan (continued on page 4)
- 4 -- Cacti in the Midwest by Alice Kyzivat of Brookfield, Illinois
- 5-6 -- Nibby's pages, a special feature of Espinas y Flores
- 7-8
- 9 -- CSSA Conservation by Gary Lyons of Huntington Garden, cont'd on 10
- 10 -- Out-of-the-past -- Nomenclature and How the CSSA has grown.
- 11 -- OBSERVATIONS, Cacto Phil
- 12 -- Las partes de una flor, Maria REEDER
- 13 -- Letters, Mitch Beauchamp & Virginia Martin
- 14 -- More about Oxalis, Julianne RICE
- 15 -- Cactus-of-the-Month, Martin MOONEY
- 16 -- Succulent-of-the-Month, Sarcocaulon and succulent pelargoniums, J. RICE
- 17 -- OROYA -- Franc J Borg
- 18 -- CSSA Special Program, Riverside
- 19 -- OFFICERS and new members.

"Tis the sunset of life gives me mythical lore
and coming events cast their shadows before." Thomas Campbell

I PREDICT that one language will eventually be spoken by the dwellers of the orb known as Earth. Today one-third of all humans speak some idiom or dialect of SINOLOGY and each year the ratio enlarges as the population increases due to better health and nutrition. Napoleon aptly said: "Scratch a Russian and find a TARTAR". All the wile and cunning of the Russians derives from the SINO heritage that gave the humans gunpowder, silk clothing, the compass, opium for pain conquering, paper money used for trading with neighboring people, Pekin ducks, Cochin chickens, movable blocks for printing, superb porcelains, graceful statues, profound thought systems, lacquered work, metal craftsmanship of great beauty and thru their farming techniques they gave us peaches, oranges, azaleas, rhodendrons and raised the development of rice to its present high productivity.

I feel drowsy
all the time.

I warned you
but you insisted
on associating
with Papaver
sommiferum*.



*Opium poppy

These sturdy survivors of centuries of oppression swept across Europe like a plague and only stopped when Genghis Kahn and his warlords tired of slaughter and conquest. All of India, Korea, Japan, the Russia and Baltic region was invaded, conquered and educated and enlightened. This invasion of the European part of the earth has left its mark that can be found in every country and human being.

My prediction is based upon the studies I have made after years of research while I lived in the Orient. The two greatest and most powerful nations will amalgamate either by war or mutual symbiosis. There is no language barrier and they have a strong and ancient cultural background. They are both a sturdy and enduring racial stock. Other peoples have risen to greatness thru conquest as did Ancient Greece, then Rome, then Spain and later the British and now the United States. These were epheremal and lacked the qualities that ages of privation and only the qualified survived to procreate their kind.

When "Coal-oil Johnnie" Rockefeller carried his oil to the lamps of China and taxed each gallon for funds to build hospitals for the "Natives", he started the first great population explosion. Next came the Boxer Rebellion and the Empress Dowager was tossed off the Peacock Throne when the Manchus had ruled with a cruel hand for several hundred years, the Chinese Giant began to awaken and under Sun Yat Sen has surged into the Twentieth Century and surprised the entire world. Now having been given the atomic bomb and the secrets to the hydrogen bomb and other technological secrets, China is now the towering giant that will make your children speak the Chinese tongue.

You may not like Communism and you may hide your head under the basket but President Nixon's trip to China in 1972 has shown the entire world that for the Chinese this system of political-social endeavor is proving it has great merit. The question for us to solve and quickly is: "Can we under our Labor Unions plan on "less work--more pay" and continue to survive and supply world markets. I predict that the Chinese factories will flood the world with goods and that Japan, Germany, United States and other countries will find that selling to the world market is a tough battle. Paper francs, paper dollars and other paper currencies are worthless when the fear of failure seizes men in the temples of trade. Only gold is man's idol of security and only the Russians and Chinese have the gold hoards. Remember that Russia and China have a billion and a half humans who have no craving for gold--only rice and a bit of fish to flavor their meager meal. (Continued on back)

I believe that the future will soon cure our pollution problems. When our mills, mines, factories and life of ease and luxury comes to a stop, we will be forced to become sane and treat every tree, every river, every creature as a brother.

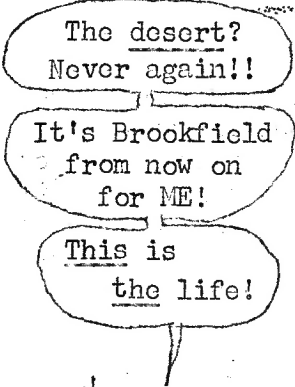
When I was a boy living with the Sioux Indians they taught me to speak of the bear, deer, elk, eagle, beaver and even the inanimate objects as "Brother".

Maybe they had something! Quien sabe?

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* SINOLOGY: The systematic study or investigation of the Chinese language,
literature, history and characteristics.
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DESERT a la BROOKFIELD

"CACTI IN THE MIDWEST"
...Alice Kyzivat...
Brookfield, Illinois

People in the Chicago, Illinois, area quickly become discouraged in their attempts to raise and flower cacti. By recognizing and following a few "dos and don'ts" one can quickly overcome most of the obstacles.

Good drainage and a very porous soil are "musts" because of the heavy rainfall and high humidity.

I use only clay pots with broken crockery covering the holes in the pot bottoms and I add an inch or more of pea gravel. I use a soil mix of 1 part leafmould, 1 part sharp sand and one part potting soil. For plants which are very sensitive to overwatering, I add additional sand and sometimes I put an extra layer of pea gravel around the root area for even more rapid drainage.

To each gallon of mix I add 4 tsp. bonemeal, 1 tsp. superphosphate and 3 tsp. gypsum. This formula can be modified to fit the needs of different species of cacti.

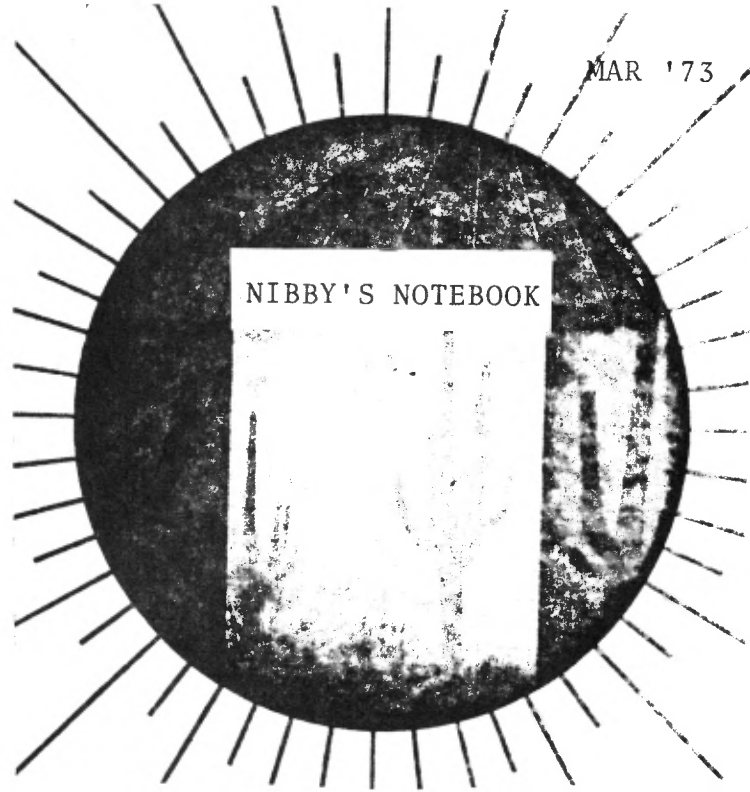
A patio was built in the center of the yard and the cacti are exposed to all the sun possible. This was necessary because of the many days of cloudy weather. I add a weak solution of plant food to each watering during the summer months.

During September I use less water. This permits the plants to 'harden off' for the long winter rest. If we have long spells of rain during September I place a clear plastic over the plants. I leave the plants outside until the end of October. The plastic also prevents frost at night. I've always managed to get the plants inside before killing frosts. By frost time they are dormant having received less and less water. Water is curtailed from December to March. About March first when the plants start growing they are watered more often. As soon as danger of frost is over about May 10, the plants are placed outdoors in a shady location. Each week they are moved into more sun until they finally receive full sun. Then they are moved to their patio where they bask in bright sun and respond to their urge to flower. Many cacti are listed as "partial sun lovers" but they can take full sun here. Some plants bloom until late summer because the sunlight is weaker here and many days are overcast. South American species are kept in a cold window greenhouse over the winter where the temperature is in the 40's and they are watered once in three weeks.

February 21st...clobbered again by the deadline...I really don't do it on purpose, Scotty.

Vernetta ("t" for two or one?)
Cotten: DESERT magazine is still being published. 74-109 Larrea St., Palm Desert, CA 92260, 5\$ a year.

NEW MEMBERS: CACTUS & SUCCULENT JOURNAL is published by CSSA which stands for Cactus & Succulent Society of America. \$7.50 a year includes membership. Address: PO Box 167, Reseda, CA 91335. We oldtimers forget that newcomers are not familiar with the parent organization - which is having a convention in Las Vegas this May with field trips planned by Ed & Betty Gay. We're hoping for San Diego in '75; representation helps.



There is a new book our Library would enjoy, Edith Werner, called COLORFUL DESERT WILDFLOWERS of California & Arizona by Grace B. & Onas M. Ward. Best-West Publications, PO Box 757, Palm Desert, CA 92260 (for \$4.50) indexed with common names according to flower color. While not as

complete as Munz's, it's still a lovely book to have. My copy came from the Ranger Station at Palm Canyon in Anza-Borrego State Park. Are we making an annual contribution to the Desert Protective Council? To quote: "Throughout this vast tract of desert land, set aside for the use and enjoyment of everyone, are some 1700 parcels of privately-held lands, totaling 68,000 acres." They need funds to buy the inholdings. (Address: PO Box 33, Banning, CA 92220.)

Desert lovers should bless both George Washington and the Federal Gov't for making possible a 3-day weekend, the better to see the ephemerals that bloom in cactus country. I was fortunate in accompanying Helen Witham, the leader of the California Native Plant Society's trip to Anza-Borrego. It took us three days to see just part of the Park. If you have but one day, spend it wandering through Palm Canyon. Helen, admittedly no desert lover, was enchanted with the variety and quantity of the desert spring flowers there. She said she had never seen so many before, the result of rain at the proper time in late autumn, as well as the winter months.

LOOK TO THIS DAY!

Listen to the exhortation of the dawn!

Look to this day!

For it is life, the very life of life.

In its brief course lie all the verities and realities of your existence:

The bliss of growth,

The glory of action,

The splendor of beauty.

For yesterday is but a dream,

And to-morrow is only a vision;

But to-day well-lived makes every yesterday a dream of happiness,

And every to-morrow a vision of hope.

Look well therefore to this day!

Such is the salutation of the dawn.

Sanskrit Prayer

A page from Emily Park's Philosophy.

(NOTEBOOK cont'd)

Helen Claydon's favorite "belly flowers" abounded - Filaree or Heron Bill (Erodium cicutarium) pressed close to the soil -- and Sand Mat (Euphorbia polycarpa) was designed for doll clothes -- also perfect miniatures, Desert Stars (Monoptilon bellioides). There were poppies so tiny they made us coo. The Desert Gold Poppy (Eschscholtzia glyptosperma) never looked better than sprinkled across granitic gravel and set off with the short little rosy-hued mimulus.

Ocotillo was in full leaf and bud in some spots...we saw a humming bird deep in the long narrow flowers of Chuparosa (Beloperone californica)...there were many new pads and buds on the Beavertail and many very healthy clumps of Hedgehog (Echinocereus engelmannii)...Clouds of heavenly blue Phacelia, both campanularia and parryi...Chia was just coming into bloom with ball-on-ball showing flowerets of the typical mint shape -- chia of the health-food stores; before they discovered it the Indians gathered it to eat; botanically Salvia columbariae It's a crisp looking plant with basal leaves...Near Fonts Point where we camped quite primitively and nearly froze to death, we saw the sand dunes dotted with desert Primrose, its white blooms fully three inches across and very short stemmed... We saw the Desert Holly, the Indigo Bush, and of course Verbena... Having been complimented for having a sharp eye, it was most humiliating to have Helen point out while driving and even after she stopped the car, the Desert Lily -- it stood a foot high and by actual count had 19 flowers (past, present and future)! That was on Split Mountain Road; later in Box Canyon I redeemed myself for spotting Cassia covessi - which Helen "keyed" on the spot. It was described as fairly rare...We camped at Little Baily Valley the second night and covered with plastic, I slept warmed although there was still frost on the old sleeping bag but it was glorious, as always. We hated to complain about too much moon; full, it blunked out the stars and got in our eyes. (I have an endless list of plants seen.) Desert Lavendar, D. Apricot covered with white flowers and bees, purple locoweed, Pincushions, D. trumpet...and the fragrance...you could swoon with joyous delight sniffing Desert Primrose and Sweet Bush, as well as the pure desert air...The people were just as lovely and interesting --CNPS members came and went, sharing food & friendship. There's still time for SDCSS to do the same--most of the cacti should be blooming for a month and other ephemerals to come. Let's GO !

(cont'd from page 5)

Later, in the thawed and broken tissues of many of the cacti, bacterial decay set in. Among those more than eleven feet tall, a tenth of the saguaros growing at about three thousand feet in elevation had been mortally wounded, and nearly a third of those at about four thousand feet. The smaller saguaros, sheltered by other plants or warmed by the heat re-radiated from rocks, fared better.

When one assumes that such severe periods of extended cold can befall the foothills every few years, then low temperature plays a significant role in keeping down the number of saguaros in this locale at the edge of the desert. An adaptive mechanism explains why no more of them die from freezing. The farther north, the thicker in diameter the plants become, an ingenuity of genetic design that helps in retaining heat.

It was apparent, then, that the bats enact by night the same ecological role that the birds fill by day. While this was no surprise, it turned out that the bats were especially effective at it. Although the bees and the birds were exposed to more flowers, more fruit set occurred from the flowers visited by the bats.

By no means did the scientists eliminate the possibility that in the field other creatures take part in this magic of multiplication. They would, indeed, be astonished if many others do not, including several varieties of wild bees.

Thrashers, among other avifauna, incubate their eggs in the arms of the giant cactus. Gilded flickers and Gila woodpeckers excavate nest holes high up the trunk. Outside my own house in the Tucson Mountains last spring I watched as orange-eyed curve-billed thrashers and garrulous cactus wrens (our state bird) drank heavily of saguaro nectar.

An obvious question is why the flyers never become impaled on the protective spines. Despite their incredible maneuverability, they do, albeit rarely. At any rate, the Arizonans established that if the giant cacti have failed to renew themselves in Saguaro National Monument, where their experiments were conducted, it is not for lack of pollination.

(6)

(Courtesy of ARIZONA HIGHWAYS, Jan '69)
To be continued in April 1973 EyF



c/o Natural History Museum
PO Box 1310
San Diego, CA 92112

In a study of the unlikely birth and improbable infancy of the giant cactus, or saguaro, a National Park Service research biologist took some trouble not long ago to separate almost fifty thousand seeds from the ripe red fruit in which they were impasted, a painstaking process in itself.

Since one fruit may hold two thousand or more pinhead-sized seeds, his task was not easy. Warren F. Steenbergh first washed the seeds free, then hand-counted them into lots of a thousand and scattered each lot over a carefully marked-off test plot. The object was to see why so many simply vanish.

The answer came quickly in one test. Large red harvester ants swarmed from a nest some seventy feet away and, in a herculean demonstration of freight handling, began removing the specks. In a little more than an hour not one of the thousand seeds remained in sight.

Although the frustration merely typified many that Steenbergh encountered, the incident illustrates the lengths to which scientists have gone in order to resolve the mysteries of Arizona's most famous plant — and the obstacles an intransigent nature puts in its path.

The saguaro, pronounced *suh-WAR-oh*, a name said to be a Spanish corruption of an Indian term, lives upwards of a century and a half — perhaps on occasion nearly two hundred years. The most aged of those that now silhouette the horizon made their way into an inhospitable environment when this still was a remote part of the realm of Charles IV, yet to be deposed from the Spanish throne by Napoleon.

This largest cactus in the United States (the carbon of Mexico exceeds it in size) thrusts up to as much as fifty-odd feet. Leafless and spiny, the saguaro is invested in a thick green skin that is waxy to retard evaporation and vertically pleated to permit expansion when water is available.

Despite the fact that the plants put out branches, or arms, which often grow in grotesque shapes, from a distance across the otherwise open landscape the giants give an impression of great Greek columns.

For all the attention given it, the tall saguaro is a tower of paradox. The very quintessence of desert flora, it nonetheless can take hold only where there is shade and moisture; moreover, some of the demi-desert habitats where it now thrives may be becoming too dry for it. And as evocative of the entire Southwest as it is to most people, it actually inhabits a somewhat limited region.

Botanist Forest Shreve first delineated the region. Dr. Shreve, a staff member of the old Desert Laboratory, an outpost that the Carnegie Institution of Washington maintained in Tucson for several decades in the early 1900's, determined that except for three isolated, rather sparse sites on California's side of the Colorado River, the species may be seen in this country only in Arizona.

It ranges northwestward as far as the Hualapai Mountains and from the Colorado east to the Galiuros. It is missing in the driest parts of our state and, as Shreve pointed out, at loftier elevations where frost may prevail twenty-four hours at a time. In Mexico, which has the majority of saguaros, they dot the arid landscape as far south as the Rio Mayo.

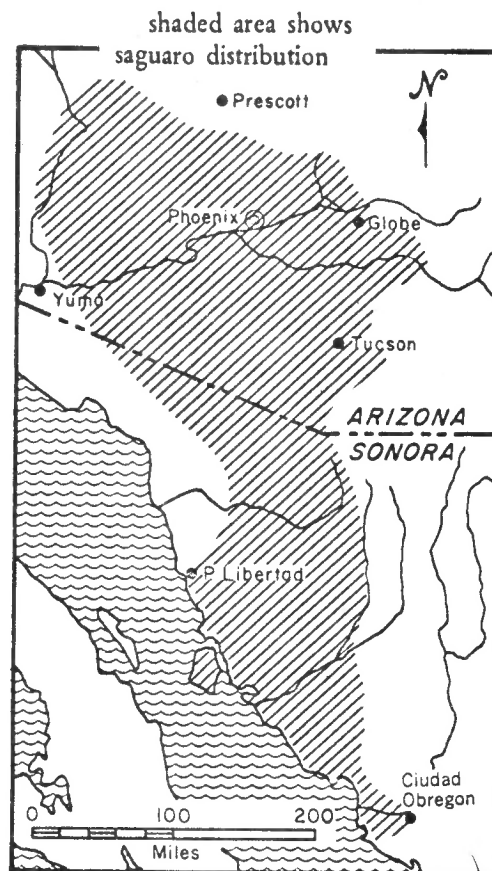
But Shreve also presented a riddle which has yet to be fully resolved. He observed very few small saguaros, and from this he surmised that the big cactus was failing to repopulate.

Monarch of the Desert

SAGUARO

BY CARLE HODGE

SCIENTIFIC ILLUSTRATIONS BY JOANNA MC COMB



(7)

The more knowledge the scientists have amassed, the more remarkable it would seem to be that the saguaro grows at all. Nature, first of all, allots a stingily foreshortened time for its pollination. Each of the blossoms, which are Arizona's state flower, slowly unfolds a few hours after sunset during May or early June. By the following afternoon ordinarily or, infrequently, the afternoon of the second day, the creamy white chalice closes forever.

That the pollen grains are too large to be wind borne was established a number of years ago by Dr. Kurtz. Later, he, with Drs. Alcorn, McGregor and Butler, determined that the blooms must be fertilized by the microspores from another saguaro or from another arm of the same saguaro. This they learned by painstakingly hand pollinating the plant, using camel's-hair brushes to dab on the tiny particles.

Obviously there had to be natural agents for distributing the pollen. By caging domestic honey bees with flowering saguaros, the researchers found that, if they are abundant, the bees effectively cross pollinate saguaros. The insects submerged into the petals to collect sugary nectar, which the giant cactus produces in far greater profusion than most flowers. Darting away, the bees were coated with the dust-like white pollen.

The mystery wasn't really resolved, though. Because honey bees were not imported into the Southwest until 1872, they could not have accounted for the present-day stands of aging giants. Still other pollinators had to be identified. One candidate was the western white-winged dove, a migrant from Mexico whose northernmost range in the spring coincides with that of the saguaro.

Winged wonder-workers engage in around-the-clock pollination magic

It seemed likely, too, since the flowers endure so briefly, that some pollination occurs at night. So, McGregor and Alcorn (both then with Agricultural Research Service, as McGregor still is) and Olin tried another cage test, this time using severed saguaro arms. These they collected with special permits. Standing saguaros are protected by law in Arizona on federal, state and Indian lands.

Also put into the cage were some flowering candelabra clusters of the shin-dagger agave, or "amole." Help was enlisted from two biologists on the campus, Drs. Cockrum and Lyle K. Sowls, and bees and white-winged doves captured. And so, at nearby Colossal Cave, was another animal, the long-nosed bat, suspect because saguaro pollen had been found in its stomach and feces. Small brownish bats with short, round ears and a truncated tail, the long-noses winter in Mexico, arriving in Southern Arizona about the time the saguaros flower. Unlike most of their order, which eat insects, they feed upon nectar, a dietary mode to which they are peculiarly adapted by virtue of a bristly tongue that often extends a quarter the length of the body.

All three of the creatures, the bees, the birds, the bats, were released, in turn, into the pen. Like the bees and the birds, the bats inadvertently dispersed pollen as they flitted from flower to flower on their nectar foraging forays, the pollen often turning white their furry little heads.

Before burrowing into the blossoms, the winged mammals hovered above them for several seconds, in much the manner of hummingbirds. At other times, they clambered clumsily from one flower to the other. Often they left the snowy pollen of the saguaro mixed with the yellow of the agave, suggesting that the same bats visited both plants.

After Shreve and his Desert Laboratory associates, the saguaro was pretty much ignored, scientifically, for a time. For the past dozen or so years, though, it again has been an object of intensive investigation, mostly centered at the University of Arizona. There, the mysteries of the saguaro have been attacked by scholars as diverse in their disciplines as plant pathologist Stanley M. Alcorn, zoologist E. Lendell Cockrum, botanist Edwin B. Kurtz, Jr. and ecologist Charles H. Lowe, Jr. Chemists have analyzed the complicated composition of the plant, and geneticists some of the insects that inhabit it.

Climatologist-historian James Rodney Hastings, often teamed with U. S. Geological Survey botanist Raymond M. Turner, has made use of both his seemingly disparate specialties in comparing past and present stands of saguaros. One of his and Turner's techniques is to rephotograph vegetation sites that other researchers photographed many decades ago — so that changes may be pinpointed.

Besides Turner, a number of other federal-agency scientists based in Tucson have joined in the venture, including Park Service naturalist George Olin and entomologists S. E. McGregor and George D. Butler, Jr. of the Agricultural Research Service.

All of this effort has shown, for one thing, how much can be accomplished when scientists from many fields work together. They still do not agree completely on whether the plant should be scientifically named *Carnegiea gigantea* or *Cereus giganteus*, an appellative argument that has to do with whether the saguaro is a genus unto itself — or if it is a generic cousin or two smaller columnar cacti of the Mexican border, the senita and the organ pipe.

Still, a lot has been learned, not the least of which is that it is not too late to be surprised by what one learns. For example, cold proves to be an imposing foe of the desert giant.

By all the new-found rules the saguaro should be maintaining its population balance best on the south sides of mountain foothills. But on the slopes periodic deep freezes scythe through the stands, leaving behind what Dr. Lowe has described as "scenes of devastation."

He examined one such scene before, during and after one such devastation. In January of 1962 an unusual three-day cold spell seized the Tucson area. In the city itself over-night temperatures fell as low as 21° Fahrenheit, but above the valley, in the Santa Catalina Mountain foothills, the mercury, dropped to 11°. The freeze persisted through the first night, the next day and into the second night.

(Continued on page 6)

CSSA CONSERVATION COMMITTEE ACTIVITIES

A report by Gary Lyons

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The CSSA Conservation Committee is only 1½ years old but it is beginning to act as a counterweight to traditional collecting practices. An important facet of our work is educating members about the effects of collecting upon natural cactus populations. This was the purpose of my article: "Conservation: A Waste of Time?" in the July-August issue of the Journal. We have consistently tried to make members aware of rare and endangered succulent plant species, and the effects of this educational program are encouraging. Ed Gay, Convention Chairman, says the new conservation mood forced him to cut down sharply on post-convention field trips for this year.

The Conservation Committee, along with the Desert Protective Council, is cooperating with the California Bureau of Land Management to inventory cactus and succulent populations in the California deserts. Our work should result in the preservation of some fine cactus regions. According to Wes Chambers, head of the BLM's Desert Study Program, we and the DPC are the only groups helping them with the cacti. Prof. Wilbur Mayhew of UC Riverside is also working with the BLM as part of his project for UC's Natural Land and Water Reserves System. He has not included cacti in his study, except for a stand of *Opuntia bigelovii* in the Sacramento Mts. I understand that neither The Nature Conservancy nor the California Native Plant Society have offered their support for this very crucial program which will determine the future of some 12 million acres of local deserts, where most of our native cacti grow.

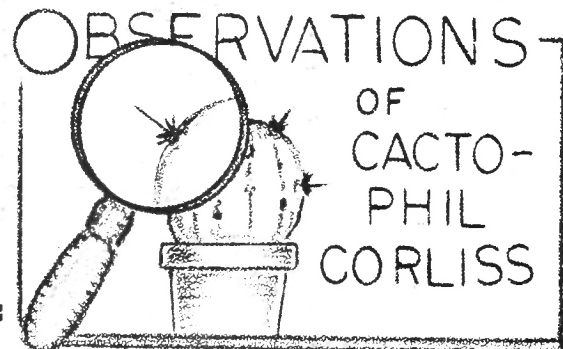
I have a copy of the IUCN's Red Data Book and am trying to see what the CSSA can do to help, since no endangered species are as yet listed from the western hemisphere. The Rare Plant Institute at the University of Texas has requested copies of my article, and cooperation with them seems probable. Fred Boutin, our Huntington Gardens botanist, is on the board of directors of the Southern California chapter of TNC, and from time to time we confer on our respective activities. Dr. James Henrickson, professor of botany at California State University, is a member of CNPS as well as a member of our committee. Joyce Tate, another committee member, is our representative at DPC meetings. I am a Sierra Club member and keep informed on their conservation activities.

Last spring I learned that commercial plant collectors had discovered the whereabouts of *Nolina interrata* and had begun removing specimens. In response, I took the Huntington photographer to the habitat to prepare an exhibit on this endangered species for our annual cactus show. This publicity, plus some well-placed words, seems to have convinced the dealers to stay away from the locality. The San Diego CNPS chapter had no idea *N. interrata* was being collected. Committee critics say the CNPS had known of this locality for some time, but there was no indication of any current action for preservation. I've been informed that the San Diego chapter of the Audubon Society, the Nature Conservancy, CNPS, and the UC system either hadn't the money or did not have sufficient interest to take action on *Nolina interrata*. Thus, if the CSSA has done anything at all, it has been to thaw a dormant interest in this endangered species.

From these activities and important contacts, one can see that the CSSA Conservation Committee is not an isolated group of cranks, attempting to steal the thunder of some larger group. We are aware that we have neglected for years an important aspect of our hobby and are now doing something about it. We have some very competent members such as Prof. Lyman Benson, chairman of the Pomona College botany department and foremost authority on the cacti of the U.S. He has just given us a list of over fifty rare and endangered cactus species in the U.S., which will serve as a basis for further research in this field. We also have Dr. James Henrickson, professor of botany at Calif. State University. He is an authority on the Fouquieriaceae and spends much of his time making environmental impact statements. (see over)

REPLY TO STEVE

NEWS FROM MONTEVIDEO, URUGUAY



In the Feb. issue of E & B it was suggested by Steve that I should perform autopsies on dead white flies and publish reports of cause of death. Other questions raised in his stimulating article have perplexed me. I offer the following comments:

(1) Steve says his mealy bugs produce a red fluid when crushed. Is it possible he has cochineal insects rather than mealy bugs? Both insects are white and woolly, but the cochineal insects attain greater size. They may not flourish in cold climates but mealy bugs can be found in every part of the globe. There are three types of mealy bugs which attack cactus - root, spine, and plant mealy bugs. The root mealy bugs are also known as plant lice. The spine mealy bug seems to like no part of the cactus plant but the spines - in bad infestations the spines may have myriads but none appear on the plant bodies. I am sure they suck plant juices from the spines for we are told that the spines absorb moisture from the atmosphere. In my Arizona garden the plant mealy bugs spread to almost all the other plants and were especially bad on iris and amaryllis. They do not fly but are undoubtedly spread by ants.

(2) Why the campaign against flying insects? It is crystal clear they can do no harm to plants as long as they keep flying. When they land you can have insecticides waiting for them. As for the "No Pest" strips, it is my understanding that they exude an insecticidal gas. This is of little use in an open garden with wind; and it may be unhealthy for humans in confined spaces. If you want to keep 'em flying, you can install big fans. This won't hurt your plants, as the wind never stops blowing in Lompoc, yet it is the site of many of the big seed companies' fields.

(3) You may use biological weapons against insects, flying or otherwise. Toads, lizards, or snakes may be installed in your garden. The very best flying insect destroyer is the bat. I had a large colony living behind the sign on my medical office in Arizona. Every day at dusk they flew out from behind this sign by the hundreds. We invited people for tea to watch the phenomenon. To establish a colony you must provide a suitable living place. The dead space under the roof is good. Buy a pair of bats and install them, screening the exit until they have multiplied and this has become "home" to them. In the meantime, keep them well fed with insects picked by hand. Do not buy the vampire type bat, as they may carry rabies. If this is the only kind you can find, always wear a suit of armor in the garden at night. Good luck!

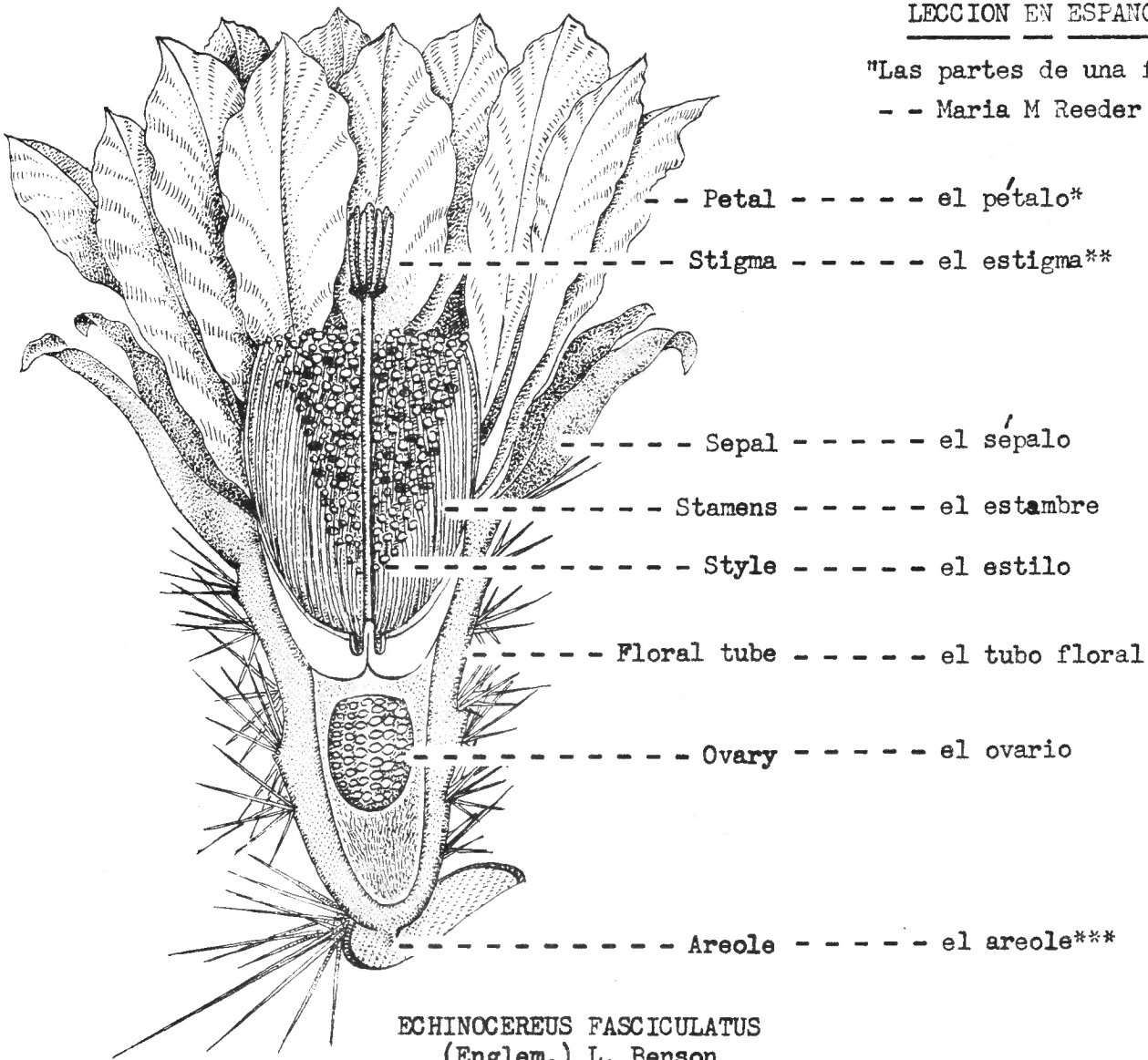
Interesting news from Hugo Schlosser of Montevideo: Dutch notocactus specialist Dirk van Vliet has been with him in Montevideo for six months, collecting new notocactus species and studying new species collected by Mr. Schlosser and Mr. Muriel. It is expected he will publish the results of this study, which will be a big boon to cactus fanciers. I hope he is a "grouper" and not, like Backeberg, a "divider", because I find the divisions into malacocarpus, brasilocactus, eriocactus, wigginia, notocactus, and parodia most confusing and frustrating.

Next month: CAVEAT EMPTOR !

LECCION EN ESPAÑOL

"Las partes de una flor"

-- Maria M Reeder --



ECHINOCEREUS FASCICULATUS
(Englem.) L. Benson
(Cross-sectional drawing)

"Spring Valley, CA 92077
12 de febrero de 1973****

Querido señor Scott:

Muchas gracias por el dibujo (drawing) del señor D'Attilio. Es verdad, el señor D'Attilio es artista y los dibujos son muy claros (clear).

*Note el acento en pétalo y en sépalo.

The purpose of the accent on these words, pétalo y sépalo, is to tell you where to place the accent on the spoken word. Normally the accent would fall on the next to the last syllable--sepalo. Since the pronunciation does not follow the norm or rule, the accent is written to inform you.

**el estigma is an exception to the rule that words ending in a are us-u-ally feminine (la rosa, la profesora). Some words of Greek origin end in a, but are masculine. El mapa is a very common one.

***areole. Busque (I looked for) areole en el diccionario, pero no lo encontré (did not find or encounter it).

****en español the only way to give the year is one thousand nine hundred and seventy three. It is not permissible to say nineteen-seventy-three. Asi es mil, novecientos setenta y tres (1973).

Vaya con Dios,

Maria

L-E-T-T-E-R-S .
From our readers: .
.....

321 Bedford Park Blvd. East
Apt. A
Bronx, New York, 10458

Dear Mr. Scott:

A new journal has come to my attention. It is the publication of the Aloe, Cactus and Succulent Society of Rhodesia and it is called EXCELSA. The first number was issued in December 1971. The format and color plates are very good. If future issues maintain this high quality, the journal should prove to be a valuable asset to any library. If the San Diego Society has not yet ordered a subscription to EXCELSA, I strongly recommend doing so as soon as possible.

Cost of the Journal is \$4.00 US per year. I don't know if that means one issue per year or what, but even at one issue a year, the \$4.00 is a bargain. I've ordered a personal subscription starting retroactively with the first issue, if possible.

Publication address is: Hon. Secretary of the Society
Aloe, Cactus & Succulent Society of Rhodesia
PO Box 8514
Causeway, Salisbury, Rhodesia

Perhaps it would be well to mention this in Espinas y Flores to give members an opportunity to avail themselves of the publication.

Also Mike Douglas has discovered a large population of Echinocactus polycephalus in - - - - -*. This population represents a significant range extension for the taxon. Although the location has not been confirmed by a collection, Mike says he took some pictures. I've mentioned the range extension to Dr. Lyman Benson so perhaps he will take a trip to the area and confirm the new locality.

Best regards, *Mitch* * ???Ed
.....

Mitch: You must have anticipated devaluation--your copy of Excelsa has already increased 10% in value. I had a bit of luck too--I ordered two copies, one for myself and one for our library (and I enclosed \$8.00 US). That was BD (before devaluation). I am looking forward to receiving it. Do you suppose AC&S/R will moisten and stretch my US\$ or return them for additional shrunkened ones?

Always nice hearing from you, write again! Ye Ed
: :

Arcadia, CA 91006
January 23, 1973

Dear Walter:

I have a request from a Mr. Vince Robson, Lot 41 Toronto Avenue, Dapto 2530, New South Wales, Australia, who wishes to find a "pen or cactus spine friend" in the United States with whom to exchange views and friendship by mail. He is a member of CSSA and President of the Illawarra Sub-Branch of the Cactus & Succulent Society of New South Wales, Australia, and grows cacti and other succulents.

I thought you might have a space in "E y F" to insert this request. Maybe someone who reads your excellent Bulletin is just looking for such a friend.

My best to you and Hazel, *Virginia*
..... Secretary, CSSA

Virginia: Your letter was received a bit late for the February issue but we did send that issue to Mr. Robson (air mail). Pen pal, anyone??

CACTUS-OF-THE-MONTH

GYMNOCALYCIUM

Martin L Mooney

GYMNOCALYCIUM Pfeiffer, 1845 (Jim'-noh-ka-lis'-ee-um)

This genus is typically South American, the counterpart of the genera Ferocactus and Echinocactus of North America. They are generally small to medium in size, globular cacti whose ribs bear curious protuberances just below the spine areole which Schumann in 1843* called a "chin", hence their popular common name "chin cactus".

The generic name Gymnocalycium is from the Greek meaning "naked" referring to the glabrous (smooth, devoid of hairs or pubescence) flower bud.

There are some 50 species, usually small, but some also very large, solitary or caespitose, with many very well marked ribs, 5 to 20, straight or spiral. Gymnocalycium saglionis is probably the largest Gymno, growing up to 12 inches in diameter. The "chin" is present in almost all the species, altho very small in some. By this character most plants belonging to the genus may be identified with ease. The areoles are slightly woolly and medium to large in size. The spines are very variable, from awl-shaped to more or less angular, flexible or very stiff and bristle-like, variously curved or straight. The flowers are borne on the upper areoles near the crown, but sometimes, especially in greenhouse plants, they are from old areoles along the side. They bloom easily and profusely, sometimes when the plant is no larger than one inch in diameter.

The flowers are usually very large and showy for the size of the plant. They are usually white or pink, rarely yellow or red. The flower tube often varies in length in the same species, and without spines, bristles or hairs at the axils, naked, hence the generic name.

The flower tube has broad roundish scales on the outside which pass over onto the outer petals, often widening suddenly at the throat. Stamens variously arranged with from six to sixteen lobes usually white or yellow. The flowers are very numerous and last for several days. The fruit is oblong, mostly red, seeds large to very small, generally cap-shaped, black, sometimes brown.

Gymnocalyciums are especially recommended for beginners since in cultivation most do very well on their own roots in any good, nourishing and porous soil, slightly acidic soil is best. They are not too liable to suffer from an excess of water, altho watering generally alkalinizes the soil, which sometimes causes the plant to lose its roots. Like most all cacti they should be kept somewhat dry in winter, with adequate application of water in their growing period.

They grow particularly well from seeds, or from shoots detached from older plants, very easy to propagate. It is said they need shade, since in full sun they take on a brown to violet, dark coloration. This is the natural color and not due to disease, it seems to do no harm. My gymnos do very well with a little afternoon shade. The dark coloration is a rewarding part of this beautiful group of plants, or so I think.

*Pfeiffer says: "Pfeiff. in catal. hort. Scheln. 1843" but this we do not credit as place of publication. The Cactaceae, Britton & Rose.

REF: THE CACTACEAE, Britton & Rose; CACTI, J. Borg; CACTUS CULTURE, Franz Buxbaum; THE BOOK OF CACTI & OTHER SUCCULENTS, Claude Chidamian; and Webster's DICTIONARY.

SUCCULENT-OF-THE-MONTH

SARCOCAULON (Geraniaceae) Much branched, fleshy
 S A R C O C A U L O N . . . spiny, suffrutescent (woody at the base) shrubs of South
 and . . . and Central Africa distinguished technically from other
SUCCULENT PELARGONIUMS . . .
 genera of the family by flowers with 15 monadelphous

(having the filaments united into a single tube) stamens; spines represent persistent hardened leaf petioles which may bear leaf blades when very young, but normal leaves occur in axils of thorns. Two common species are S. burmannii and S. rigidum.

SUCCULENT PELARGONIUMS (Geraniaceae) geranium family. The pelargonium family is commonly called geraniums. In 1753 Linnaeus the first botanist to successfully work out a system of binomial nomenclature based on sexual characteristics, described 39 species in "Species Plantarum" as geraniums. They had been brought to Europe from South Africa a century before by Dutch traders. In 1787 the French botanist L'Heritier decided that these new plants had been classed in the wrong genus and another name should be given them. They were not characteristic of the first classified Geraniums which are hardy perennials growing in woods and shady places of the Temperate Zone. The native Geraniums had five petals to the flower all the same shape and size, while the five petals of the South African plants varied; the topmost petals were the largest and stood apart from the rest.

Another characteristic of the Pelargoniums are their seven stamens compared to the true Geranium with ten stamens. L'Heritier pointed out that the South African plants had a nectar tube immediately beneath the flower and running down the flower stalk, which is not found in the true Geranium. Therefore the genus Pelargonium was established but the damage had already been done and people continued to call all of them Geraniums. However they are still in the Geraniaceae family of which there are approximately 300 species of Pelargoniums and 5- to 6,000 cultivars. Also, many of our scented-leaved types were among the first Pelargoniums, their sweet scent is quite pronounced when the oil glands of the leaf are bruised. (Ref: Exotica)

Since every dog has his day, it was only right that nature maintain her balance by giving the nights to the cats.

O R O Y A -- Br. & R.

Francis J. Borg

Paola, Malta, Europe

Continued from February, 1973. Final part.

24. O. peruviana v. conaikensis: Found by Lau and described by J. D. Donald in the National Cactus & Succulent Journal (1970). Habitat given as Conaika in Huancavelica and grows to a diameter of 15 cm. (Lau 203)
25. O. subgibbosa n.n. Another new discovery by Knize and distributed as O. Kz 385
26. O. subgibbosa v. citrifolia: A variety of the former which appears in the Chileans Year Book 1972 as O. Kz 386. (Probably there is a misprint and citrifolia should read citriflora) If this is so it is very probable that Knize admits his mistake in No. 13 (O. gibbosa v. citriflora) and changed the name.
27. O. subocculata: A new species reported by Rauh in the Mantaro Valley. Has intertwining pectinate radials. An intermediary between O. peruviana and O. neoperuviana.
28. O. subocculata v. albispina: A variety of the former with white spines; found by Rauh.
29. O. subocculata v. fusca: Another variety from Rauh with reddish brown spines.
30. O. subocculata v. multicostata: Discovered by Knize in Huancajo. Has many ribs and distributed also as O. Kz 379.
31. O. subocculata v. baumannii: Reported by Lau and distributed as Lau 377.
32. O. Kz 389: Discovered by Knize.
33. O. Kz 390: Discovered by Knize.
34. O. Kz 568: fuscata: Discovered by Knize.
35. O. Kz 569: Discovered by Knize.

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NOTE: Franz Borg has been most generous in submitting the 3-part discussion of genus Oroya. It is the most comprehensive work that has come to our attention and it has evoked very favorable comments. The Editor takes this opportunity to say "Thank you" and to add "discussions of other genera will be most welcome in the future if time permits."

CACTUS & SUCCULENT SOCIETY OF AMERICA

SPECIAL PROGRAM

Saturday, February 10th was a very special day in Riverside. It was the occasion of the first CSSA Special Program for 1973. It was a success for two reasons, President Bill Lockwood's imagination, leadership and planning and the fact that when something is cooked up in Riverside by the Gates Gang, it is done to a crisp golden brown. Also it was obvious that the day was going to be rewarding as was determined by the frenzied activity of President Lockwood and the Gates Gang.

The Gas Company's headquarters on Central Avenue provided one of the finest meeting places—every convenience from a patio to an electrically operated screen in a comfortable auditorium with a stage. AND PARKING!!

When the Gates Gang said "have lunch on us" they meant just that. No one dreamed that the Pilgrims of the early 1500's could be outdone. The turkey population of Riverside County is down temporarily, but that's all right, it's a long time till Thanksgiving and the remaining turkeys can work at repopulating.

We do not have the names of all the gals from Gates who did the home work and on the scene delivery but a huge effort was manifested along with good timing. When they said "please return for seconds", that's what they meant. Everyone did!! Someone provided a very tasty cactus jelly to go with the hot rolls and some of those present thought it was the main dish.

There were speakers too--two of 'em. One for the AM and one for the PM. We think everyone is now aware of the fact that Riverside County extends from the Norco/Corona area on the west all the way to the Colorado River on the east, but few realize that's quite some distance, about 180 miles as the crow flies. And the county is spotted with about nineteen parks which are grouped according to topography and practical land usage such as "valley", "mountain", "desert" and "river".

The speaker about the park system was Peter Dangermond Jr. Peter obviously enjoys working for the Riverside County Park System, and well he should. He was a splendid group leader, taking our group on an arm chair, illustrated tour from the "valley" over the "mountains", across the "desert" and all the way to the "river". He made a brief stop, or many for that matter, but the one in particular which we suffered through, was a stop in some out-of-the-way canyons in one of the desert parks where the walls were vertical and the canyons very narrow, but passable under correct circumstances. He said it would represent poor judgment for anyone to enter some of the canyons, have lunch, then try to exit. Water can trickle out, but people can't trickle after lunch. That's another cage of monkeys. It sounded like Peter had gone thru some monkeyshines in some of the canyons, and he was speaking from experience. We "parked" all over Riverside County but stopped short of the "river" area. Maybe that was because it was raining lightly on the 10th and river stops were inappropriate.

And then there was a PM program. Whenever you look at a program and see the name Myron Kinnach listed as a "feature" speaker, you can be assured it will be just that. Myron took us on a plant tour all over Mexico, or so it seemed, judging by the variety of plants and places. Myron is a very discreet individual about divulging info about habitat of plant populations but it wasn't really necessary. He couldn't get to some of them himself. He used a telephoto lens to get pictures of some plants growing in impossible and inaccessible places. How can some plants hang on to a vertical cliff or hillside where a goat would say "baa-a" and go elsewhere. How do seedlings ever manage to get established and grow? Do they have a secret glue? It's very satisfying to know that some plants and places are "goat proof" and some plants still have a future in spite of their natural enemies being goats and men. Just space enuf left to mention an upcoming book about "Palms" and you should have guessed by now the author is Myron Kinnach. The Editor just allowed me one page. Adios!

SAN DIEGO CACTUS & SUCCULENT SOCIETY

Affiliate of the
Cactus & Succulent Society of America

"ESPINAS Y FLORES" monthly bulletin

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Kathryn SABO
20287 Rustin Road
Woodland Hills, CA 91364
(Ref: C&S Journal, July-Aug. '67)

---whose name is given to "this incred-
ible new species, perhaps the smallest
of all mammillarias with the largest of
mammillaria flowers -- Mammillaria saboae".

WHO ATTENDED THE CSSA SPECIAL PROGRAM? Loyal J BIBBEY, Dr. Philip Corliss,
Anthony and Rose D'ATTILIO, Jean and Leta HAPEMAN, Frances LANGER, Oliver
and Sophie LOYLAND, O. Ed MILLER, Martin and Pat MOONEY, Dr. Leroy N. PHELPS,
Ye Ed and Floribunda, Wilson and Alice WELLS.

WHOSE GENEROSITY MADE POSSIBLE THE FEBRUARY REGALEMENT TABLE? C. L. BENBOW,
Rose D'ATTILIO, Maria FISHER, Jean and Leta HAPEMAN, Audrey JUSTICE, Margaret
LICHERT, Alice McNICHOLS, Ernie WETZEL. Thanks to all of you!

"It ain't the guns or armament, nor funds that they can pay, but the close cooper-
ation that makes them win the day. It ain't the individual nor the army as a
whole, but the everlastin' team-work of every bloomin' soul." . . Rudyard Kipling