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"CONTINUALLY STRIVING TO EXPAND OUR HORIZONS AND CONTENT IN THE INTEREST OF CACTOPHILES EVERYWHERE."

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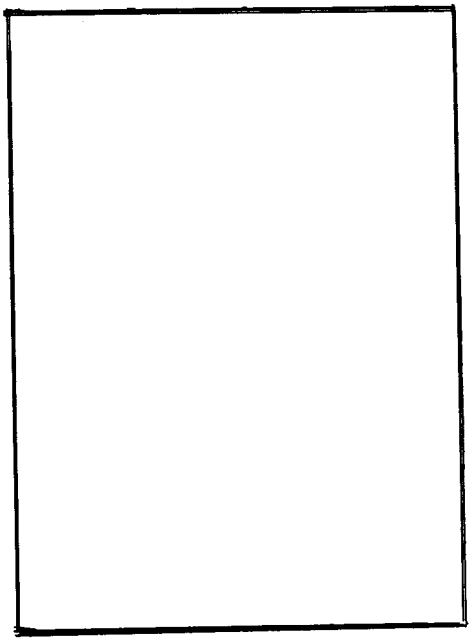
MAMMILLARIA MADNESS
Part II
William A. Pluemer

In driving from Durango to Zacatecas on the trip down, we successfully identified the area of the skyline shown in Fig. 29, page 111 of the C&S Journal of May-June 1970. However, we found the land on both sides of the highway fenced, with access controlled by cattle guards and gates; one gate leading to the mountain approaches and the opposite to a ranch house in the valley far below. We discussed the feasibility of trespassing and, with no one in sight, opened the gate and proceeded toward the Sierra de Santa Maria range. The further we drove, the more uneasy I became as we seemed surrounded by nothing but black bulls. They were well kept and stood their ground as we passed. The road finally terminated at a stone wall where we decided not to pursue the hunt further at this time. Once again on the highway headed toward Zacatecas, we noticed a sign reading "Valparaiso". No village or cross-road existed here, about 120 miles south-east of Durango. Should we fail in our search for M. Moelleriana near Zacatecas, we resolved to return here en route home, visit the ranch house, and try our luck. Now to continue with our story.....

The day following our abortive climb up the mountain from Rio Florida, we left Zacatecas and drove east on highway 49, stopping and making collections for some 30 miles. We made an early camp, cleaned and packed plants and generally loafed the late afternoon away. Early the next morning we were again on the road, arriving at Valparaiso within three hours. As we neared the ranch gate, I was busily trying to put together enough Spanish to gain permission to cross the upland pastures.

Although no one was in sight as we turned through the gate, it seemed the whole ranch was out to meet us when we pulled up in the courtyard. A very chic, dignified senora approached and, after listening politely to my spastic Spanish, finally queried in English: "What do you wish to do?" By now, the Senor had joined in the conversation. Surrounded by ranch hands, we explained we collected cacti; a fact that left all of them a little bemused. We then showed them the C&S Journal and asked permission to cross their range to get to the mountain and collect the plant shown therein. The Senor was adamant in his refusal. It now came to light that they raised bulls for the rings in Mexico City, Juarez and several points in South America. These bulls, we were told, were very unstable and dangerous, and the Senor did not want to take the responsibility for our safety. Intuition is a funny thing. I began to realize why something had told me to turn back a couple of days ago. Little did they know that we had already trespassed amongst the brave bulls!

Certain that M. Molleriana was "up there", we were not about to let this opportunity slip by. So: we discussed bulls,



MAMMILLARIA MOELLERIANA
Boedeker

chillitos, four-wheel drive vehicles, general botany, and a host of non-related subjects. I think the Senora softened her stand first when she offered me three or four fine bulls for the Blazer, spot transaction! Following this, the Senor began a lengthy explanation on how to work safely around his animals, and we knew we were making progress. After quite some time, he gave reluctant approval. Our instructions were most specific: should we meet a bull head-to-head, stop, stand still, look him in the eye for a minute or so. Then, slowly lean down, pick up a small pebble or stone and toss it toward him. The brave bull would behave himself and retreat to more interesting pastures. NEVER, NEVER, run away!

Now young Manuel was summoned from the crowd to guide us to the furthest drivable point in the foothills. After profuse thanks and more words of caution, we left the ranch and started toward the mountains. Manuel was probably about eight years old. Riding in the jump seat of the Blazer was to him a rare experience, made especially exciting by my tuning in a local station on the car radio. He led us through many gates and corrals and finally left us far up on a grassy slope. Bulls were everywhere. We gave Manuel a bag of hard candy, and with a broad smile, he started his long trek back to the ranch, now barely visible in the valley below.

Taking along a few small cans of fruit juice, we studied the terrain ahead and picked the most rapid path of ascent. We also studied the position of several bulls along this path. Our ascent took us through dense brush. Everything, it seemed, was armed with long, vicious spines or thorns. It became a slow and frustrating process, with the crest seeming no nearer after an hour's hard work. Bulls were also in the brush. Their crashing noises gave them away as we swallowed our pride to let them pass, remaining motionless behind whatever cover was available.

Our efforts finally brought us to an interesting and fairly open rock outcropping. If our plant was to be found, this seemed the likely place. No Moelleriana, but a small, very dessicated echeveria subridgida went into my bag. The ridge we now stood upon formed one side of a mountain saddle. To us, as always, the grass appeared greener on the far side, so we began a slippery, rock-hanging slow advance across the saddle. Midway across, in rather deep shade and barely visible in moss, Frank discovered a small mam. This was the quarry! Spirits rising, we negotiated the dangerous traverse and made the far slope. Again, beating through heavy underbrush, always climbing, we broke out on a sheer cliff far, far above our starting point. Panting from exertion, I hunkered down on a boulder to retie a boot lace, and directly in front of me was a fine, robust specimen of M. Moelleriana! So often small plants are found more by chance than design. Had not the lace come loose, I may have walked right over it. Now we began the search in earnest. Several more were found in rock crevices, but the chasm towering above seemed to be the logical hunting ground. Our ascent up an almost vertical cliff was exhilarating, as with almost each hand hold we found another plant. There were no colonies, or families. The plants were scattered and had

to be searched out. We noted some variation in the central spine coloration, with most running toward a deep, burnished, manzanita-like hue. Emerging from a sun-burst of golden-yellow radials, the color contrast is striking. When at last we reached the crest and looked down upon the valley, we were amazed at the distance we had climbed. From our high vantage point, we plotted a quicker, easier route of return to the car which, however, was not then visible to us.

Company was waiting as we came over the last rise to the car. Some 15 bulls, in what I believe the US Navy would call "line abreast", were emplaced about 20 yards beyond the car, eyeing our every move. With each measured step, we calculated the remaining distance to the car, allowing perhaps 10 seconds to unlock the door and jump in. We drew closer and the bulls stood their ground. Considering our investment in time and energy over the past days, and with M. Molleriana now safely in our collecting bags, we were not about to become unwilling participants in a last minute corrida. We continued toward the car. The bulls remained motionless. A few more steps. The bulls became restless. We continued. Ten feet from the car, all caution was thrown to the winds and we scrambled aboard. Our cries of "Bravo El Toro!" filled the clear mountain air as we drove past our friends. Jubilation over our new find continued all the way to Durango, where the city lights were just coming on as we arrived at the Motel El Arco.

CACTUS & SUCCULENT SOCIETY OF AMERICA BIENNIAL CONVENTION, San Diego, California, May 12-16, 1975. Bahia Motor Hotel, Mission Bay. LECTURES -- "Cactaceae of South America", Alfred Lau. "Agaves", Howard Scott Gentry. "South African Succulents", Philip Downs. "Cactaceae of Mexico", Hernando Sanchez Mejorada. "Uses of Cacti", Joyce Tate. "African Succulents", Frank Horwood. TRIPS AND TOURS -- Visits to local gardens. All day tour of North County Nurseries. All day bus trip to Anza Borrego Desert State Park. Also, Balboa Park and San Diego tour trips. DELEGATES MEETINGS. I.O.S. programs by American members. AND MORE. Everyone is invited to attend. T C B S should have at least 8 members attending. Your AFFILIATE DIRECTOR, Josephine Shelby, will keep you informed of details. Decide NOW to attend and REGISTER EARLY. (r.)

Make your trip enroute to this convention exploratory and informative for yourselves. As you drive through San Diego County, identify its cacti as follows ---

CACTI OF SAN DIEGO COUNTY

Bergerocactus emoryi

Echinocereus engelmannii (hedgehog)
Echinocereus munzii

Ferocactus acanthodes (desert barrel)
Ferocactus viridescens (coast barrel)

Mammillaria dioica (pincushion, fishhook)
Mammillaria dioica incerta
Mammillaria tetrancistra (desert fishhook)

Opuntia acanthocarpa ganderi
Opuntia basilaris (beaver tail)
Opuntia basilaris ramosa
Opuntia bigelovii (jumping cholla)*
Opuntia chlorotica (golden prickly pear)
Opuntia echinocarpa (silver cholla)*
Opuntia ochinocarpa parkeri
Opuntia fosbergii
Opuntia littoralis (coast prickly pear)
Opuntia megacarpa (mountain prickly pear)
Opuntia occidentalis (prickly pear)
Opuntia occidentalis piercei (desert prickly pear)
Opuntia parryi (Valley cholla)
Opuntia prolifera (coast cholla)*
Opuntia ramosissima (pencil cholla cactus)*
Opuntia serpentina (snake cholla)*

* with sheathed spines. ---Espinas y Flores April 1974, San Diego C&SS.

Also, you can tour Death Valley National Monument in California-Nevada, during your convention trip. The following information will guide you in identifying the cacti of Death Valley ---

CACTI OF DEATH VALLEY
NATIONAL MONUMENT
California - Nevada

Thirteen species of cactus are known from Death Valley National Monument. Cacti occur from an elevation of 800 feet above sea level to the summits of the bordering mountains, over 11,000 feet high. No cacti grow on the floor of Death Valley.

Three species most commonly seen along roadsides which cross gravelly alluvial fans are cottontop cactus, strawtop cholla, and beavertail. Calico cactus is uncommon along paved roads but is locally abundant above 3,000 feet on the Racetrack road south of Ubehebe Crater. Mojave pricklypear occurs in canyons of the Panamint Mountains accessible via rough gravel roads. Mound cactus occurs in similar habitats. Grizzly bear cactus is the most common species in the pinyon pine - juniper woodlands and may be seen on the gravel road above the Wildrose charcoal kilns. The remaining species are infrequently seen from roads.

Opuntia basilaris	Beavertail	abundant
Opuntia echinocarpa	Strawtop cholla	abundant
Opuntia erinacea	Grizzly bear cactus	common
Opuntia mojavensis	Mojave pricklypear	uncommon
Opuntia ramosissima	Pencil cactus	rare
Echinocereus Engelmannii	Calico cactus	common locally
Echinocereus mojavensis	Mound cactus	common locally
Echinocactus acanthodes	Barrel cactus	uncommon
Echinocactus Johnsonii	Beehive cactus	rare
Echinocactus polyancistrus	Mojave fish-hook	rare
Echinocactus polycephalus	Cottontop cactus	abundant
Mammillaria microcarpa	Pincushion cactus	uncommon
Mammillaria tetrancistra	Corkseed cactus	uncommon

(Scientific names from Munz, A California Flora. Common names are locally used in the Death Valley region).

May 1973

1975 PROSPECTS FOR ANNUAL FLOWERS IN THE SONORAN DESERT
Robert R. Humphrey

As of January 7, there seemed very little possibility of many annual flowers in the Sonoran Desert in 1975. The late winter rains upon which the flowers depend have been very deficient. It will require exceptional precipitation during January as well as in February and March to bring the flowers out. It has been my observation over the years that a spring with exceptional flowers requires consistently high precipitation, preferably starting in November, but at least no later than December, and continuing through January, February and March. My recent rambling in the deserts of southern Arizona and Sonora, Mexico have shown few or no signs of the annual plants that should be growing by January if we were to have a good spring.

Between Tucson and Punta Cirio the situation is bleak. The grasslands around Nogales benefitted from fairly good summer rains, but as one again drops down into the lower desert areas of Mexico, the winter rains have been deficient, and there seems little or no more promise of a spring flower show there than here, in our own part of the Sonoran Desert. The rains should have little effect on the cactus blooms since, as all good cactophiles know, each cactus species blooms at its own set time of the year, pretty much without regard to rain. I note that there is a common misconception among non-desert people in this regard. They tend

to expect the cacti flower in the spring in response to precipitation. And this, of course, they don't do. By this, I don't mean that none of them blooms in the spring, for some, such as Echinocereus, do. Even this though, is not in response to moisture but to the genetic makeup of the species. I don't know what actually triggers the urge to blossom, but day length may be as good a guess as any.

WILD FLOWERS FOR THE HOME GARDEN

By Verne Owen

The fact that many beautiful wild flowers grow in the desert prompts many people to assume, erroneously, that good wild flower gardens can be had by merely scattering a few seeds in any vacant area, then sitting back and waiting for a riot of color come spring. Unfortunately, this isn't usually true.

It must be remembered that spring flowers in the desert are good only when we have had rainfall sufficiently spaced from germination to flowering time. Rains spaced once or twice a month from November to March are ideal. Less than this will result in fewer blooms as well as much amaller plants.

FOR HOME CULTURE they should be planted in an open, sunny location.

1. The soil should be cultivated three or four inches deep. (A four-pronged cultivating rake is ideal for this.)
2. Take a regular rigid garden rake and go over the loosened area in one direction leaving 1/4 to 1/2 inch deep furrows.
3. Plant seed. California poppies, lupins and phacelias, for instance, may be sown at the rate of one ounce per 1,000 square feet. Small seed, such as desert marigold, nama and linaria, will require approximately 1/2 ounce for the same space. In order to get even distribution, a good practice is to mix three parts of screened, dry peat moss to one part seeds.
4. Rake the ground in the opposite direction across the planted area. This will supply the necessary cover. A light mulch of compost, manure or ground bark will help to conserve moisture.
5. Sprinkle often enough that the soil is kept moist until the seeds germinate and the plants develop their fourth leaf. After this, a good, heavy sprinkling every ten days to two weeks -- or better still, when the plants show slight wilting.
6. Remember that wild mustard and several other cool weather weeds will probably germinate along with the flowers. For goodness sake, pull them out.

FLOWERS TAMED IN YARDS

In the view from behind the lawnmover, they may be weeds. But one man's weeds are another man's wildflowers planted and encouraged deliberately. They can be a likely way to ease the back as well as the eye. **Gardening with wildflowers** is becoming such a favorite hobby that wildflower seeds are hard to come by at the few city nurseries that specialize in them. Wildflower gardening began in England in the 1970's with William Robinson, an eminent landscape architect who daringly mixed cultivated plants with native ones. Many garden favorites -- azaleas, rhododendrons, poinsettias and zinnias -- were first discovered in other countries in their wild state.

Grown from seed or transplanted, wildflowers are proving ideal for gardens with northern exposures, sunless backyards, stony ground, steep banks, and other problem places. More than that, in the definition of one enthusiast, "wildflower gardens are man-made landscapes expressing our love and reverence for nature, balm to the spirit in this troubled world." Unconvinced neighbors may be less loving and reverent if the weed-wildflowers migrate into their lawns. Nevertheless, the back-to-nature yen in roof-tops, even window boxes can be coaxed into color with wildflowers. Conservationists urge wildflower collectors to try to beat bulldozers to construction and highway projects. The rescued wildflowers they say, are easily moved with dug-up dirt around their roots in small plastic bags that retain moisture but also let in air. ---AZ DAILY STAR.

THE BOOJUM AND ITS HOME - Idria columnaris Kellogg and its Ecological Niche, by Robert R. Humphrey, has been read and enjoyed by two more T C B S members whose comments follow.

THE BOOJUM AND ITS HOME, by Robert R. Humphrey, and, I might add, its immediate associates, is a fine book of love and empathy; an intense, anatomical interest in a field to which Dr. Humphrey and his wife, Roberta, have devoted themselves. Mrs. Humphrey shows pleasure in the unique contortions of the Boojum (Idria columnaris) in her fine sketches. Certainly, a unique quality of the tree (?) is its confinement to a geographical area in Baja and a small coastal part of the Sonoran Desert. Dr. Humphrey gives those of us interested in the BOOJUM a close study of conditions affecting and contorting; the granite soil, extreme dryness, and the prevailing chubascos. Interest in the BOOJUM has been expressed in the writings of men like Erle Stanley Gardner, Joseph Wood Krutch, and movie-director Ray Cannon, men of varied talents who were drawn to the charm of the BOOJUM. This is an interest justly deserved and so well expressed in this book by Robert Humphrey.

-----Dorothy Levering.

The Boojum and its Home can best be described as a scientifically researched book on a little-known desert plant, the boojum. I believe the layman would be most interested in the climatic location of the boojum in Baja California and Sonora and precisely why it grows where it does. The chapter on the appearance and growth would interest the same type of reader, especially the photos of variously contorted plants. The discussion at the end of some chapters would give a fair summary of important points without wading through scientific details.

The most interesting part to me was the section on the geologic age and evolution, and its unique adaptations to arid conditions by a water-storage type of trunk and the shedding of leaves like the ocotillo. The sections on ecology of the boojum were very scientifically oriented, but I found the part on insect parasites, the aphids and tussock moths, of personal interest and the types of epiphytes located on this plant, the Spanish moss and lichens.

The book is soundly researched, full of scientific data, maps and ecological composition tables. The layman should selectively read, and the botanist should read in full.

----Edna Zeavin.

DESERT STORY SERIES 1975
PART I
Paul S. Henshaw

The first of the Tucson Cactus and Botanical Society DESERT STORY series for 1975 was given by Dr. Lawrence M. Gould, Professor of Geology, University of Arizona, Room 201, PMM Building, University of Arizona campus, at 8 PM Thursday, January 16. His topic was "Personal Experiences with Desert Environments".

Dr. Gould is a distinguished scientist and he has lived in the Tucson area of the Sonoran Desert since 1963. He has been active in the field of Geology since the 1920s, when, among other interesting activities, he was second in command of the Byrd Expedition to Antarctica. These experiences, together with emerging developments, stimulated his interest in the polar regions and especially in the study of glaciers. At the age of 79 he is teaching a course in Glaciology.

Dr. Gould pointed out that if we use lack of rainfall and lack of water in liquid form as criteria for deserts, Antarctica contains by far the largest desert in the world. He then drew attention to similarities and differences between deserts with blowing sand and those with blowing ice and snow--how in both cases life holds on tenaciously despite the rigorous conditions, and how man must manage the environment immediately around him in order to survive at all. With respect to differences, he stressed that whereas in sandy deserts, the rainfall--the small amount that it is--disappears quickly by evaporation or by absorption into the soil,

AS A PUBLIC SERVICE

ADMISSION FREE

Tucson Cactus & Botanical Society

Announces the Annual Desert Story Series for 1975

THURSDAY, JANUARY 16, 1975 — 8 p.m.

"Personal Experiences with Desert Environments"

DR. LAURENCE M. GOULD

Professor of Geosciences, University of Arizona

Renowned scientist, author, member of Byrd Expedition

THURSDAY, JANUARY 30, 1975 — 8 p.m.

"The Role of Desert Insects"

DR. FLOYD G. WERNER

Professor of Entomology, University of Arizona

Noted entomologist, author, authority on beetles, economic insects of the Southwest

THURSDAY, FEBRUARY 13, 1975 — 8 p.m.

"An Evening with Ray Manley"

RAY MANLEY, Arizona's Master Photographer

World traveler and famous for his contributions to Arizona Highways Magazine

All programs will be held in the auditorium of the Physics and Mathematics Building on the University of Arizona campus

that in polar regions the small amount of rainfall there tends to accumulate--in fact, in such a way that the existing ice layers comprise an important record of the past extending back for millions of years. Of particular significance, he pointed out that by examining the ice layers carefully, it is possible to detect and determine just when DDT and industrial lead poisons first began to accumulate in the earth's atmosphere.

Dr. Gould called attention to a remarkable situation in the polar regions. This is that vast quantities of potential water suitable for plant and human use exist there, but that because of the prevailing temperatures it is as unavailable as it is in sandy desert regions. He emphasized nevertheless that icebergs contain enormous amounts of potable water and conceivably could be towed to other parts of the world and used for crops and various other human purposes.

Throughout his talk, Dr. Gould radiated excitement and enthusiasm for life, and continuously he revealed his own great admiration and respect for the operation of nature's processes. Surely it was a very special privilege for the Tucson Cactus and Botanical Society to have had Dr. Gould for its first speaker in its 1975 DESERT STORY series.

DESERT STORY SERIES 1975

PART II

May Watrous

Dr. Floyd Werner, Professor of Entomology, University of Arizona, talked about the role of insects in desert ecology, at the second evening program of the Desert Story Series 1975. He is a noted entomologist, author, and an authority on beetles, economic insects of the Southwest. One reaction of the audience of over 150 persons was that they could have enjoyed another hour of his educational talk. Dr. Werner presented slides of the most common desert insects, briefly discussing the role of each in desert life.

Among the many insects discussed was the native bee, dabasia rincones, whose life cycle is perfectly timed to coincide with the blooming of the opuntias. As far as we know, the bee visits no other flowers, but feeds on

and pollinates the prickly pear and nothing else. The eggs are laid one foot deep in the desert soil on top of a thimbleful of opuntia pollen mixed with honey. The bee emerges from the ground just as prickly pear comes into bloom. The tiny beetle, carpophilus dimidiatus, feeds on petals of the saguaro blossom. It eats only the petals and in no way interferes with pollination and production of fruit. The adult lays eggs on the blossom the first day after emerging from the ground, flying at night from flower to flower. Larvae feed for only one week. Then they drop to the ground and dig into the soil several inches. This forms cells where they wait out another year, emerging as beetles precisely when the saguaro comes into bloom.

We are all familiar with the "hummingbird" moth – the white-lined sphinx moth that feeds on nectar which it extracts with its long tongue. We many not have known that in its youth it was the beautiful green and yellow four-inch caterpillar which we see feeding upon desert vegetation. These caterpillars by the hundreds, may cover large desert areas. The moth lays her eggs on the wild four o'clock plant, and the caterpillars when mature, dig into the soil, emerging as moths. Only a few survive numerous predators and scarcity of food to become adults. But -- for one glorious month, those who do, fool many of us into thinking that we are seeing hummingbirds at night.

PRESIDENT'S REPORT TCBS - 1974

Paul S. Henshaw

Assumptions: Tucson Cactus and Botanical Society objectives, as set forth in the By-Laws, were interpreted to include a spectrum of interests as follows: (1) culture and preservation of cactus and other succulents, (2) landscaping and display of desert plants, (3) germination of desert plant seeds and the growth of seedlings, (4) protection of endangered species, (5) desert ecology, (6) land use policies, (7) legislation pertaining to native flora, and (8) development of desert gardens and sanctuaries. Views have been that people belong to the Tucson Cactus & Botanical Society because of a desire to learn more about desert plants, a desire to experience the beauties of such plants, and a desire to participate in organized activities relating to these interests.

Program Steps and Procedures: Stemming in part from experiences as Chairman of the Programs Committee in 1973, and in part from the assumption that members like to participate in organizational affairs, various program functions were identified and put onto a circular which was distributed to members. They were asked to indicate the areas of greatest interest to them, and on the basis of information obtained, various committees were formed. Innovative Developments: Six features can be mentioned. 1. EVENING PROGRAMS. May Watrous was made chairman of this committee. 2. CACTUS SHOW. Wanda Horst's suggestion of holding the Show in the El Con Mall Rotunda materialized very successfully. Will a second show be staged at the new Broadway Center? 3. NEW BY-LAWS. Changes in the By-Laws for clarification and concreteness were approved by the membership. 4. DEVELOPMENT OF SPECIAL RULES OF ORDER. These rules outline program plans, set dues and specify rules of procedure for the current year. 5. ARIZONA ENVIRONMENT. The Bureau of Land Management of Arizona sought comments from TCBS on an environmental impact study prepared by Tucson Gas and Electric Company relating to a proposed power transmission line from El Sol to Vail. Carl Horst, Paul Henshaw, and Josephine Shelby prepared comments. 6 PROTECTION OF NATIVE PLANTS. Lillian Fisher and Carl Horst have taken steps to aid in the protection of native plants.

Comment: In 1974, although the President was duly authorized by the Board of Directors to represent T C B S on matters pertaining to establishment and development of community gardens and sanctuaries, he has for the most part performed a stand-by role, awaiting developments. In view of continuing T C B S interests, and the likelihood that Tucson Botanical Gardens, Inc. will come forth with specific plans for developments during 1975, it is suggested that the subject of community gardens and sanctuaries be given high priority during 1975, and that close cooperation be maintained with Tucson Botanical Gardens, Inc.

PERSON OF THE YEAR. On looking back over T C B S accomplishments of 1974, the out-going President wishes to recognize the firm and untiring efforts of May Watrous. Under her influence, a more efficient set of By-Laws was formulated; Special Rules of Order for guidance purposes were developed; and the Evening Program Series was initiated. Perhaps, because of her efforts more than any other, the T C B S program functions were lifted to higher ground.

1975 MEMBERSHIP ROSTER OF TUCSON CACTUS & BOTANICAL SOCIETY. (First Supplement).
1. Keith D. Butler, 707 E. Lee St., Apt. B, Tucson 85719 Ph. 792-1496. 2. Deutschman, Dr. Archie J., Jr., 4860 N. Camino Real, Tucson 85718 Ph. 299-6010. 3. Gustafson, Mr. & Mrs. Walter, 1125 E. Seneca, Tucson 85719 Ph. 622-1418. 4. Klepher, Miss Helen, 1016 N. Caribe Ave., Tucson 85710 Ph. 885-8338. 5. Morgan, Margaret, 505 Calle del Oro, Green Valley, AZ. 85614 Ph. 625-3785. 6. Pagel, Mr. & Mrs. Raymond, 4646 E. Cerro del Aguila, Tucson 85718 Ph. 299-6807. 7. Riggin, Mrs. Rosella, 3426 E. Bermuda Ave., Tucson 85716 Ph. 325-8922. 8. Roy, Thomas Orme, 746 E. 5th St., Apt. 8, Tucson 85719 Ph. 624-6463. 9. Smith, Mrs. Eleanor, 1231 S. Camino del Sol, Green Valley, AZ. 85614 Ph. 625-2538. 10. Snyder, Mrs. Wilma, 5147 E. Fairmount Ave., Tucson 85712 Ph. 326-6725.

HILDEGARD NASE will BUY cactus seeds from T C B S members. Call or write her: 326-1651. 2540 E. Ross Place 85716.

IN MEMORY OF Carol Almquist, our good friend and a member of Tucson Cactus and Botanical Society for many years: "We have no dearer word for our heart's friend, For him who journeys to the world's far end, - 'Good-by'."

LOUISE HILLGERT of T C B S won two prizes in the annual fall Flower Show of Tucson Men's Garden Club held in November 1974. Her Euphorbia Splendens took 2nd Prize. Her 2 pomegranates won a 4th Place white ribbon. She is one of our more enthusiastic and energetic members, and she says: "The best thing I've done is to join T C B S." Our congratulations, Louise, and continued success with your plant hobby. (r.)

GERHARD KAISER of the German Democratic Republic is a good friend of several T C B S members. Bill Pluemer sent him gifts of cacti. Gerhard wrote us on January 26, 1975: One of the Normanbackeas and the Pediocactus paradinei (Mr. Pluemer's gifts) show buds. I'm very excited, and I hope I can admire the flowers. You see, these plants are so rare here, and it's a sensation to have such species in the collection. If you can have flowers of these plants, then it is the 'ZENITH OF THE SENSATION'. I hope I can do some good slides of the flowering plants." CHATTER editor asks how can any cactophile love his plants more devotedly than Gerhard Kaiser does! (r.)

THE 28TH ANNUAL CACTUS SHOW sponsored by The Desert Botanical Garden, Phoenix, and the Phoenix Gazette, was held, February 16-23 in Webster Auditorium there. This Show was open to all persons wishing to enter in the announced classifications. T C B S cactophiles do not often enter this judged Show, with the exception of perhaps half a dozen members. One obstacle is the 500 mile trip required to take plants to, and return plants from, Phoenix. You may read the results of this Show in SAGUAROLAND March 1975, which you will find on the T C B S Library Shelf at 2800 East Fort Lowell Road in the office of the Nancy Clarke Insurance Agency. Jim Robbins, former T C B S president, and a perennial winner in this Show, exhibitited 100 of his succulents.

THE LIBRARY OF T C B S is now located at 2800 East Fort Lowell Road, the new address of the Clarke Insurance Agency. The always willing worker-members, Vick Merrill and Alan Blackburn, moved our books. Collectively speaking, all members express appreciation for their volunteer work. Individually speaking, each of us should thank them.

LETTER OF THANKS TO T C B S FROM LOIS AND NANCY CLARKE. "Mr Richard Wiedhopf, President, Tucson Cactus and Botanical Society. Dear Dick: Mother and I want to thank the Tucson Cactus and Botanical Society for the eight chairs they recently purchased for our office. It was a thoughtful and generous gesture, and the chairs look so nice in our new location. I hope the club members will enjoy them, too, when they visit their library or use the office for meetings. Thanks again.

Sincerely, Nancy Clarke."

REPORTING NEWS ITEMS FOR CACTUS CAPITAL CHATTER and how it is done. Attention --all officers, committee chairmen, board members, and remaining members in general. Please write and submit your own reports of news items which you may think are for publication. Do so, steadily throughout 1975 as news materializes. Keep in mind that CHATTER is published only quarterly. Type your reports, if possible -- double spaced on 8 1/2 x 11 inch paper. Legible hand-writing is accepted. Mail or hand this to CHATTER editor, Josephine Shelby, P. O. Box 375, Oracle, AZ 85623. Be specific and use names, addresses, dates, facts, statistics, sources, etc.

Mil gracias, amigos.

TCBS CHRISTMAS GIFTS TO THE CHILDREN in the Pre-School Exploratory Center for Cerebral Palsy and other Neurological Impairments. They received from our members a collection of toys plus $60.00 for treats. Gift-giving to the less-fortunate at Christmas is the custom at our annual Christmas party.

T C B S CACTUS SHOW, At the El Con Mall under the Rotunda in front of Penney's. March 28 9 a.m. - 9 p.m. March 29 9 a.m. - 6 p.m. General chairman is Ed Busch - Phone 297-2625. Nancy Clarke is in charge of plant sales - Phone 325-1838. Barbara Rogers heads seeds and seedlings section - Phone 885-6485. EVERY member is urged to take part in this, HIS own show. As in past shows, plants will be sold by T C B S as well as by individual members. Adequate plant security is guaranteed. Show visitors will not be allowed to touch plants. Plant owners should correctly label with botanical names all plants brought for exhibit. Lacking this, qualified members will do so. Features of this Show will be specimen plants; seeds, seedlings, and plant propagating; novelty planters; arrangements; an information booth to answer questions about Show plants, about Tucson Cactus & Botanical Society, and whatever.
TC
T C B S CACTUS SHOW needs MEMBERS' HELP !! Bring millions of cactus seeds to the March meeting. There is a drastic need for seeds to sell at the Show. Call Barbara Rogers about seeds -- NOW. 885-6485. ALSO -- -- Bring to our Cactus Show for the Plant Sale: pups and cuttings from your plants. Pads from your prickly pears. Young agaves. Young aloes. We sell all plants that we can offer. ALSO --- Bring small boxes to the Show, to package sold plants. Bring milk cartons, cottage cheese cups and others

similar, to the March meeting and to the Show. DO something for the good of your own Cactus Show.

OFFICERS OF TUCSON CACTUS & BOTANICAL SOCIETY 1975

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Vice-Pres. - Paul Henshaw	299-9023
Secretary - Edna Zeavin	296-9746
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THE TUCSON DAILY CITIZEN makes outstanding efforts to give its readers extensive and responsible articles and editorial writings on environmental subjects, including: (1) greenbelts and open space; (2) bulldozing of virgin desert; (3) protection of unspoiled desert growth and wildlife, preserving them as natural habitat parks. Tucson Cactus and Botanical Society should express in writing, its gratitude to the TUCSON DAILY CITIZEN for its highly commendable efforts to preserve and enhance Arizona's environmental resources. (r).

THE CYPRUS PIMA MINING COMPANY has achieved outstanding results in establishing stabilization of mill tailing areas via soil treatment and the growth of desert plant materials. Plants that require little or no supplemental irrigation once they are established, are used. Thus, the natural beauty of the desert is maintained. In this way, the overall attractiveness of the mining community is enhanced. (r).

YOUR DESERT HOME needs a natural setting. Use native rocks for walls and drinking spots for desert birds and animals. Here is one list of desert plants suggested for your use: desert willow, jojoba, Arizona rosewood, acacia, feather bush,

celtis, mimulus cardinals, brittle bush and hummingbird trumpet.(r).

THE GIFT OF LIFE

Of the miracles of this planet, none is more fascinating than the mechanism that permits green plants to absorb poisonous gases from the air and replace them with oxygen. For man, this process is more than a biological phenomenon. It is a gift of life.

It is ironic that the United States became the world's leading agricultural power, amassed the greatest reservoir of technological skill and pushed the frontier of knowledge beyond the threshold of space while ignoring the depletion of our atmosphere until it was almost too late. A cruel cycle of pollution now grips every major city. No geographical region is totally free of the threat of contaminated air. Some areas are now so polluted that they are approaching unfitness for human habitation.

Man requires oxygen - and in large quantities to survive. His consumption of oxygen averages 23 pounds daily. The sole source of this vital, life-giving element is the plant life which he is replacing with asphalt and concrete. Plants complete the ecological chain between animal and plant kingdoms. They absorb carbon dioxide and combine it with energy from the sun, nutrients and water from the soil to convert this poisonous gas into oxygen. Without this process, known as photosynthesis, there would be no oxygen to breathe. Thus, the cultivation of plant life on earth is much more than a pleasant, leisure time activity. TO GROW PLANTS IS TO AID NATURE IN THE IMPROVEMENT OF THE ENVIRONMENT.

WAX COATING ALLOWS PLANTS TO SURVIVE. If leaves did not have a waterproof surface, evaporation would kill many plants. The common waterproofing on plant leaves is wax made within the leaf and spread on the surface to make a protective wrapper. The wrapping, however, does not cover tiny pores through which leaves interchange gases and water vapor with the air. Scientists say that man knows no way to package a living, growing thing so selectively. The wax coating on leaves appears to serve different purposes in different plants in addition to waterproofing.

CACTUS CAPITAL CHATTER

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"CONTINUALLY STRIVING TO EXPAND OUR HORIZONS AND CONTENT IN THE INTEREST OF CACTOPHILES EVERYWHERE."

PUBLISHED QUARTERLY
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THE DESERT --- WHAT IS IT? --- WHERE IS IT?

"A desert," stated the late Dr. Forrest Shreve, "is a region of deficient and uncertain rainfall." Where moisture is deficient and uncertain, only such plants survive as are able to endure long periods of extreme drouth. Desert vegetation is, therefore, made up of plants which, through various specialized body structures, can survive conditions of severe drouth. In general, the deserts of the world are fairly close to the equator, so they occur in climates that are hot as well as dry. Plants in the deserts of the Southwest must endure long periods of heat as well as drouth.

In North America, major desert areas are located in the general vicinity of the international boundary between Mexico and the United States. Due to various differences in elevation, climatic conditions, and other factors, certain portions of this Great American Desert favor the growth of plants of certain types. Based on these general vegetative types, bontanists have catalogued the Great American Desert into 4 divisions as follows:

1. CHIHUAHUAN DESERT: West Texas, Southern New Mexico, and the Mexican States of Chihuahua and Coahuila.
2. SONORAN DESERT: Baja (Lower) California, Northern Sonora, and Southern Arizona.
3. MOHAVE-COLORADO DESERT: Portions of Southern California, Southern Nevada, and Northwestern Arizona.
4. GREAT BASIN DESERT: The Great Basin area of Nevada, Utah, and Northeastern Arizona.

It is of especial interest to note that certain plants such as Creosotebush (Larrea divaricata) seem to thrive in several of these desert areas while others are found in great abundance in only one. Plants that grow in profusion in only one desert are spoken of as "indicators" of that particular desert. Any person interested in desert vegetation soon learns the major indicators, not only of the different deserts, but of different sections or elevations in the same desert. Here are some of the better-known indicator plants:

1. CHIHUAHUAN DESERT: Lechugilla (Agave lechuguilla)
2. SONORAN DESERT: Saguaro (Cereus gigantea)
3. MOHAVE-COLORADO DESERT: Joshua Tree (Yucca brevifolia)
4. GREAT BASIN DESERT: Sagebrush (Artemisia tridentata)

---"Flowers of the Southwest Desert", by Natt N. Dodge, Southwestern Monuments Association Popular Series No. 4.

QUEENS of the NIGHT

\+ + + + +

Night-Flowering Cacti

There are nearly 450 kinds of night-flowering cacti. They differ in size, shape, and colour of the plants and spines, but nearly all have white flowers or white faintly tinged with other colours. Their distributional range includes the West Indies, Florida, and the extreme southwestern regions of the United to southeastern California. They grow in abundance in Mexico and Central and South America. A popular species of night-blooming cactus is used for hedges in Hawaii. This is the Hylocereus undatus which was probably introduced to Hawaii by cultivation.

The night-blooming genera include the big columnar giants of Mexico, one of which is the Pachycereus Pringlei, the organ pipe varieties and other members of the cereus family found in southwestern United States. Leaf-type epiphyllums of Central and South America, and the small night-blooming Echinopsis genus in Argentina and Brazil.

Each in its own fashion seeking the sunlight above, has individual characteristics. Some are snakelike and coiling; others are vines that wind and twine up branches of jungle trees, picking up moisture with their aerial roots. The largest cactus flowers are found among the moon ceri (Seleniceri), a group of plants whose stems are vinelike, climbing and trailing. Some are pencil-thin; others are ropelike and coiling, often reaching a length of 20 feet or more. The white flowers appear during May, June, and July, and are particularly popular for their size and beauty. Most celebrated of the moon ceri is the West Indies "King of the Night" (Selenicereus grandiflorus). The flower forms a cup about 10" in diameter and emits a strong vanilla-like fragrance. Another noted moon cereus is the "Princess of the Night" (Selenicereus pteranthus), native to southern Mexico, with flowers 12" in diameter.

Probably the largest of all cactus flowers is "The Queen of the Night" (Selenicereus macdonaldiae), a native of Uruguay and Argentina. The flower is about 13" in diameter, with white petals and golden sepals. A popular collectors' item among night-blooming cacti is Mexico's famous snake cactus (Nyctocereus serpentinus), whose snakelike stems crawl through bushes and over fences and walls, reaching a length of ten feet or more. One other plant of extreme interest is Arizona's thread cereus (Peniocereus greggii), so called because of the numerous threadlike stamens of its flowers. A search for this Queen is a needle in-the-haystack adventure. It is difficult to find in daylight for its dried, dead-seeming stick stems blend so well with surrounding vegetation, and is more easily found during the flowering season, mid-June, where its perfume saturates the air for hundreds of feet around. The petals begin to open in a jerky movement soon after sundown. They measure 4"-6" in diameter. The inner petals are usually a creamy white, while the sepals may be lavender, purple, brown or green. In perfect conditions, the plant will produce 20-30 blooms which last but one night. It also has beneath its shallow rooting system a large tuber that weighs up to 50 pounds, in which to store food and water to sustain it through drought. One such tuber was found to weigh 87 poinds.

---New Zealand Cactus and Succulent Journal.

SEEDS AND SEEDLINGS CONTINUING ACTIVITY

Tucson Cactus & Botanical Society's annual cactus show and plant sale is over. It was really a huge success and an improvement in general over the 1974 show. I wish to extend my thanks to all members who in any small way contributed to making my seeds and seedlings and educational tables a success. To carry on with my seeds and the seedling committee, I am now asking for those members interested in growing seedlings to contact me. We will receive a variety of interesting seeds. These we will raise. We hope that in one or two years that the small plants can be sold at our annual show, in place of those we now purchase at local greenhouses. Very little space is needed. I am sure that you will find this activity fun and educational. Please get in touch with me, and we can get started.

---Barbara Rogers. Telephone: 885-6485.

NATIVE PLANTS OF THE SONORAN DESERT TO BE PLACED IN HAAG MEMORIAL GARDEN

The officers of the Tucson Cactus & Botanical Society wish to remind all members that they are urged to contribute native plants of the Sonoran Desert to the John Haag Memorial Garden at the Arizona-Sonora Desert Museum. "Cactus John" Haag was the founder of our Society. Ten years ago this Memorial Garden was built by our members who turned it over to the Desert Museum. With this thought in mind, I wish to point out that this Society in the past, committed itself to support this Garden with gifts of Sonoran Desert plants, particularly cacti. It also makes financial contributions to the Garden, and offers volunteer help to maintain the Garden.

We wish to carry on with these responsibilities, in an effort to maintain the pace with the progressive growth of Desert Museum and the Tucson Cactus & Botanical Society. At present there is sufficient land area for many more plants. It is necessary to plant this area and to replace plants that die as time passes.

All donated plants must be native to the Sonoran Desert, and in good condition. Do not deliver plants directly to the Desert Museum. Instead, whenever members or their friends have plants to donate to the Haag Garden, they should call Joe Brick, 887-5740. Please keep in mind that this is a long range program for future generations as well as the present one to enjoy.

---Joseph F. Brick.

TINY POTS WANTED. Please save or bring to Barbara Rogers all the 2", 2½", and 3" plastic pots that you do not want. These we will collect so that when the time comes for us to replant the seedlings for the sales, we will have them on hand.

SEEDS WANTED

Yes, we wish to begin once again filling our seed envelopes. Start now, keeping in mind saving all seed pods that mature. By next spring we will have a fine collection and many varieties of seeds. We especially would like seed pods from those potted show-type plants: mammillaria, rebutia, astrophytum, gymnocalycium, etc. Seeing these plants on our display tables, the public asks for these when buying seeds.

BOTANICAL NAMES OF PLANTS MAKE SENSE

A GENUS name, such as Mammillaria, is the same as a family name, i.e. Smith. The SPECIES name, candida, is the same as a given name, i.e. John. Mammillaria candida or Smith, John. When the same genus name occurs more than once in a discussion or in a listing of plants, it is abbreviated: M. candida. The genus name only is capitalized, and both names are usually italicized. Often, the plant name may include a variety: M. candida var. "rosea". A hybrid is developed by crossing two different genera (two different species of the same genus), or a species and another hybrid. Common names are often different from one region to another, and the same common name can refer to two completely different plants. When the botanical name is known, it is best to use that name in ordering plants.

BILL PLUEMER OF TUCSON CACTUS AND BOTANICAL SOCIETY – A FOUNDER OF THE ORIGINAL NEW JERSEY CACTUS AND SUCCULENT SOCIETY

The year was 1935. Bill Pluemer at that time was regional vice president of the national Cactus and Succulent Society. He contacted every interested person whom he could find. He and a friend, Arthur W. Garrabrant, formed the New Jersey Cactus and Succulent Society, with 10 or 12 members. Bill was the first president. Meetings were held in homes of members. World War II brought gas rationing and the departure of Bill and other members for military service. Meetings continued spasmodically, but with the death of Howard O. Bullard, a most knowledgable member, the Society folded.

---Reported by Arthur W. Garrabrant.

Note: The present Cactus and Succulent Society of New Jersey came into being twelve years ago in a favorable period, and has been very successful.

ARIZONA-SONORA DESERT MUSEUM
MEXICO UNIT
PROGRAM STATEMENT

The Arizona-Sonora Desert Museum was established to interpret the Sonoran Desert region through educational exhibits and programs developed to appeal to those who live in, or visit, a unique desert region so as to make them more aware of the surrounding natural environment.

A major segment of the Sonoran Desert lies in the States of Sonora and the Baja Californias in Mexico and the ASDM has always planned to bring its programs to residents of those areas. The difficulty of implementing educational programs across the border is compounded by language and cultural differences as well as by issues of national policy in both countries.

Since its inception in 1952, informal ties and occasional official contacts in Mexico have been developed by the Museum which provided a base for certain limited across-the-border activities. More recently, ASDM, on its own initiative and with the encouragement of the Weatherhead Foundation of New York, decided to explore the possibility of intensifying collaborative and cooperative programs in association with individuals and organizations in Mexico.

To ascertain the possible success of a major effort to establish such collaborations, the Museum, with the generous support of the Weatherhead Foundation, early in 1974 undertook a survey of the level of concern with ecologic issued in Mexico. **Carlos Nagel**, formerly Director of the Museum of New Mexico, and previously associated for nearly a decade with a National Institute of Health, Primate Ecology Research Project in Puerto Rico, was asked to head the survey. The survey found strong indications of a quickening of interest in conservation, environmental protection and natural history in Mexico.

In Sonora efforts are underway to establish a regional museum. Private citizens, and state and federal agencies are all interested in the development and the interest seems likely to be sustained, although a decision on the specific form of the facility has yet to be made by the groups in Mexico.

Several other activities are occuring in Mexico within agencies of the Federal Government such as the Direccion General de la Fauna Silvestre, and the CONOPAN National Parks Program with which the ASDM has been asked to participate. Such collaborations could be mutually beneficial to the ASDM and to those in Mexico who have requested that we join them.

The ASDM believes that the level of interest in environmental education and natural history in Mexico is sufficient to warrant the development of a number of collaborations between the Museum and concerned individuals and organizations in Mexico. To that end the Mexico Unit of ASDM was planned and proposed as a project for funding to the Weatherhead Foundation. The Foundation has approved a two year grant to support the operation of the Mexico Unit and the ASDM has named Carlos Nagel as Project Coordinator.

Because two languages are involved in all that the Mexico Unit does, a particular effort will also be made to develop bilingual programs in Southen Arizona to encourage greater participation by the Spanish-speaking population from our immediate area. During the course of this project many opportunities will be explored to express the ideals of the ASDM in action and we are eager to obtain and share information about binational Conservation and Natural History Programs between the U.S. and Mexico. The challenge which lies ahead is extraordinarily exciting, providing as it does an opportunity for the ASDM to fulfill a long cherished ideal of performing an educational function of maximum value to the population of the Sonoran Desert.

ALAN BLACKBURN'S CACTUS CULTURE WORKSHOP. Twenty-two members of Tucson Cactus and Botanical Society attended the first of a series of three meetings, in June, in which Alan is teaching the fundamentals of growing cacti and other succulents in the desert areas of southern Arizona.

1975 TUCSON CACTUS AND BOTANICAL SOCIETY'S

CACTUS SHOW AS SEEN BY JOHN B. HALES

The Tucson Cactus & Botanical Society held its fourth annual show on March 28, 29, 1975, in El Conquistador Shopping Center in Tucson. As an outsider and an out-of-towner, I was very much impressed and found almost all the plants to be of 'gem' quality. This Show was unusual in many aspects, all being favorable. I shall dwell on only a few points. It was truly the plant on exhibit and not the exhibitor. Each cactus and other succulent carried its own huge name plate that could be seen five feet away, since John Q. Public was unable to brush against the display tables which were roped off. The exhibitor remained incognito as his name and address were concealed under his plant pots. This system will undoubtedly work to the advantage of both the plant and its owner as we hear more often than ever about missing plants from collections. "Missing" plants most often are stolen plants.

The Show area consisted of 13 display tables surrounding a circular planted area under the Rotunda in the Mall -- with sunlight streaming through the skylight. This gave the plants a more realistic setting and the blooming ones a colorful background. This was a very attractive setting; generally, plant shows held in busy malls leave much to be desired. (Editor's note: our member, Wanda Horst, recommended this setting.) Plants were nicely arranged in great varieties and not according to family status. This makes the entire display more attractive and colorful, and not just certain sections, since most of the Mammillarias and the South American species were blooming. This was not a juried show; no awards were given. Members were requested: "Just bring your best specimens."

A few comments on various plants on display tables; any omissions are due to lack of space and not to partiality. I believe the most colorful cactus was a three-headed Notocactus haselbergii with its red flowers.

Other admirations were:

A twin Boweia volubilis -- very lush and nicely staged.

Neoporteria senilis, 12" high with a crown of flowers.

Mamillopsis senilis with its red flowers.

Mammillaria prolifera in flower with last year's fruit.

Mam. zeilmanniana -- many headed with deep purple flowers.

A Sedum torulosum over 20" high -- excellent.

Euphorbia tirucalli which seems rather rare in collections.

Mam. surculosa with some (10) mustard-yellow flowers.

Echeveria affinis, The Black Dudleya -- planted in a brake drum from a vehicle, placed on legs and making a rather heavy pot to lift.

3 beautiful Astrophytums were on display.

Mam. wildii -- a clump of some nine heads in flower.

Notocactus graesnerii with 5 beautiful green flowers.

A Graptopetalum rushbyii cluster with 50 rosettes, an Arizona species.

A very interesting crest -- Crassula lycopodiodes.

Monadenium schubei with "hooded flowers" -- very rare in collections.

Pyrrhocactus bulbocalyx with very black spines, possibly the "rarest" cactus in show.

Normanbokea valdeziana crest grafted -- which always excites interest.

No show is complete without its COMEDY, and Alan and Betty Blackburn qualified for this distinction. Their Old Man of the Andes Cactus, the generic name of the plant is Oreocereus celsianus, a very handsome plant, made its first trip to the Beauty Shop for this occasion. Alfred Zelsdorf of Steinfeld's has fashioned many hair-dos in his time, but not one as sticky as this. O. celsianus took the curl very nicely, causing a lot of comment. The secret was the removing of the central spine before placing the hair on curlers. This plant was publicized in the TUCSON DAILY CITIZEN newspaper under the headline: "DOLL YOURSELF UP, CACTUS." This was good publicity for this show.

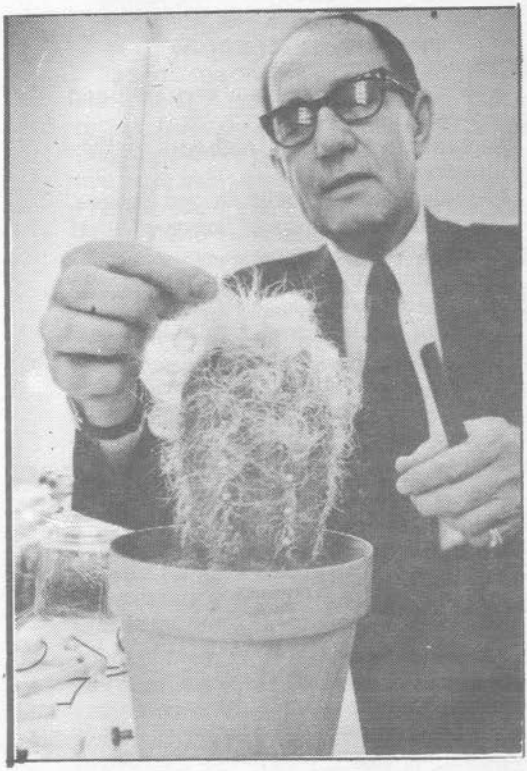


PHOTO TUCSON DAILY CITIZEN

Another feature of this show was a group of 10 display tables filled with cacti and succulent plantings, seeds for plant propagating, seedlings, cuttings of cacti and succulents, arrangements -- all FOR SALE. They were manned by many of the dedicated TCBS members. These tables represent a "working society" from one show to the next. All members are to be congratulated for the effort put forth to make this show a great success. I enjoyed seeing so many friends and acquaintances on my Tucson trip to see this show, as well as making new friends. It was a nice experience.

Co-chairmen of this TCBS Show were Ed Busch for Plant Exhibits, Nancy Clarke for Plant Sales.

---John B. Hales, Phoenix, Arizona Cactophile.

ED BUSCH TELLS OF THE 1975 CACTUS SHOW: To Ed's knowledge, of the two Tucson newspapers, only the TUCSON DAILY CITIZEN carried publicity articles on the Show. The CITIZEN always has been interested in printing reports turned in by TCBS. Number of plants exhibited: individual plants -- 178; groups (2 or more in arrangements) --11. Total -- 189 plants on exhibit. Every interested member worked for this Show, so many, in fact, that all their names cannot be accurately listed. For this, both Nancy Clarke and Ed Busch are most thankful. Co-Chairmen of this Show were Ed Busch for Plant Exhibits, Nancy Clarke for Plant Sales.

LOUISE HILLGERT'S IMPRESSIONS OF THE T.C.B.S. 1975 CACTUS SHOW. "So many visitors at the Show said "How beautiful!" Their enthusiasm for the plant display ran high. My one suggestion is that several of our members be appointed to greet and welcome show visitors. Many were newcomers to Tucson. Many were out-of-town visitors. I welcomed many of them. Our information sheet was a great help. I sold $17.00 worth of cactus and could have sold much more. I enjoyed every minute of our Cactus Show." --Louise Hillgert.

READ THE AFFILIATE REPORTER. Well-informed T.C.B.S. cactophiles add greatly to their store of information when they subscribe to **AFFILIATE REPORTER.** It is the bi-monthly newsletter of the Cactus & Succulent Society of America, Inc. It is edited by Edward S. Taylor, FCSS, 3036 Nebraska Avenue, South Gate, California, 90280. It brings you the President's (C.S.S.A.) Message; convention reports; annual reports of C.S.S.A.; coming events of interest especially to serious cactophiles; reports of activities of all cactus society affiliates of U.S.A. Individual subscriptions are $1.50 per fiscal year, and run from January 1st to January 1st. Back issues are sent to persons subscribing late in the year. Make your check payable to C.S.S.A. Mail it to Editor: Edward S. Taylor, address above.

MORNING, NOON AND NIGHT, SHE BOMBARDS HER PLANTS WITH LOVING TALK

Goldie Dean and her husband, Roger, are long-time members of Tucson Cactus and Botanical Society. For many years they have lived in their present home on Grant Road. It seems that most neighborhoods can boast of at least one eccentric lady. One neighborhood is not different from all others. This means that eccentric Lady Goldie leads a life somewhat different from the rest of us. Her "thing" is plants -- her hobby -- planting them, growing them, potting them, grafting them, building plant beds. She does everything that you can do to plants. The results -- almost unbelievable. She has thousands of plants growing in her yard; dozens of gardens; more than 150 cacti alone. But cacti are hardly her entire garden, as she has all sorts of other plants. Roger makes most of the garden. Goldie turned sixty-four last year. Then she retired from being a dietitian.

"Goldie, you hear a lot about people talking to their plants. Do you?"

"Oh yes! I believe in that. I talk to my plants morning, noon, and night."

"What do you say to a cactus?"

"I say, 'Now honey, you had better come on and grow, for I am going to take good care of you. You are like a baby to me."

"Do you have favorite ones?"

"Yes, my night-bloomers. I talk to them all the time." (76 bloomed on one June 1975 night.)

Goldie gets a lot of satisfaction from her hobby. "I can go out to work with my plants and soon my worries are off my mind. Seeing my plants grow and bloom each year, makes me feel younger." As active as Goldie is, it would be hard to call her "old."

A news editor of a television station having regularly observed Goldie Dean's fabulous gardens, invited her to appear on his program lately. This is a report of this interview.

FROM GILL HOPKINSON, TUCSON ENTHUSIAST OF N.S.W., AUSTRALIA

"How are things with the Tucson Cactus & Botanical Society? I still carry the old cactus books to bed to study! I have had a wonderful season with my plants flowering -- the best ever, I'd say. This may be due to the long period we had without rain just when the plants were resting. I have even had large red fruits on some of the night-blooming cereus types which I've never had before. Please give the Hopkinsons' best wishes to the next meeting of the Tucson Society, and ask the members to keep Tucson ready for my return which I hope will not be too long now. My savings in the bank continue to grow!!"

65TH WEDDING ANNIVERSARY MARKED BY T.C.B.S. COUPLE

Mr. and Mrs. F. Lee Fuller were honored by their three children on May 25, 1975, on their 65th wedding anniversary. Lura is a charter member of this Cactus Society which she has actively supported for fifteen years. She has served on several committees as well as on the staff of CACTUS CAPITAL CHATTER. She has most efficiently run its mailing department assisted by Lena Marvin. She is a former newspaper correspondent. Lee Fuller has worked at our cactus shows and sales, and as club auditor, among his other activities. He is a former purchasing agent with Firestone, and was an auditor in the finance department at Davis-Monthan Air Force Base. The Fullers' outdoor home cactus landscaping has great appeal in its variety and design. He is a fine professional photographer. He has been made chairman of the Tucson Bicentennial Slide Show Committee. Also, he is the official photographer for the Pima Council on the Aging. We wish for them many added years of happiness.

ONE MAN'S CLASSIFICATION OF CACTOPHILES OF TUCSON CACTUS & BOTANICAL SOCIETY

1. The all-out serious cactus enthusiast who collects plants, uses greenhouses and lath houses.
2. The outdoor only, cactus landscape gardener.
3. The miniature outdoor gardener.
4. The Me-Too joiner who follows his cactus friends.
5. The coffee-table and window sill amateur.
6. The Browser -- around all cactus nurseries and cactus gardens of friends and the public.
7. The cactus esthete.

The vacancy on the T.C.B.S. Board of Directors due to the death of Ed Clifford recently, has been filled by Nancy Clarke who was nominated by the chair and voted in by the Board.

T.C.B.S. LIBRARY is located in the business office of Nancy Clarke at 2800 E. Ft. Lowell Road.

QUESTION FOR DAME NATURE

Since plants insist on their own choice
Of only an affectionate voice,
Then how in the world is no such need
Ever displayed by the vicious weed?

16TH BIENNIAL CONVENTION OF THE CACTUS AND SUCCULENT SOCIETY OF AMERICA

RICHARD M. WIEDHOPF

In beautiful San Diego, California at the Bahia Motor Hotel, a gathering of the world's foremost authorities and greatest enthusiasts of cactus and succulents got together. This was an opportunity for the members and affiliates of the Cactus and Succulent Society of America to share their ideas, their interests and information with one another. It was a very successful exchange.

As a delegate to the convention my purpose was two-fold. One, to learn as much as possible about cacti and succulents and secondly to encourage the convention to choose Tucson as the site for the 1977 convention. With the help of the other members of the Tucson contingent and our good friends at the Central Arizona Cactus Society, we were able to obtain the 1977 convention for Tucson. This should be a very rewarding experience for us but, also we should remember we are indebted to our many friends who felt Tucson would be a wonderful site for the Cactus and Succulent Society of America to have its biennial meeting.

As far as learning as much about cacti and succulents as possible, about the only thing that one can learn at a national convention is that there is too much to learn. The wealth of information obtained from the different speakers, the tours, the personal contacts only demonstrates that this is a vast field of immense knowledge and that it is a challenge every time you talk cactus and succulents to increase your insight into this area.

Our host at this convention was the San Diego Cactus and Succulent Society, who with the help of the other local societies made the convention an unforgettable experience. Those who arrived early at the convention on Sunday May 11th, were treated to personal tours of some of the outstanding private cacti and succulent gardens in the San Diego area. These homes were beautifully landscaped with rare and exotic cacti and succulents that we wish we could grow outdoors in Tucson. There was an evening program which gave a rare insight into cacti and succulents by the use of time-lapse photography. Monday, May 12th, the convention really got rolling with some excellent programs. Howard Scott Gentry of the Desert Botanical Garden gave a program on the "Man-Agave Symbiosis." His talk and slides showed how man has used the agave plant for food, clothing and shelter over several thousands of years. It was quite informative and covered a number of different species of agave.

Another interesting program that day was a slide presentation on the stapeliad family, which showed a large variety of the members of this group. One of the more interesting aspects is to see to what lengths enthusiasts will go to grow cacti. Louise Lippold, the curator of the cacti and succulents at the Planting Field Arboretum, has a cactus garden growing in her front yard. This wouldn't be too surprising except

her front yard is on Long Island, NY. She has selected a number of species of cacti which will bear the cold weather, the snow and the rain. They have survived several winters now and bloomed during the spring and summer. It was quite exciting to see these plants growing in this area.

The highlight of the opening day was, of course, the banquet, which was sponsored by the Imperial, Palomar and San Diego Cactus and Succulent Societies. The tables were beautifully decorated with a centerpiece of succulents, and everyone received a small dud l eya in a pot. After the festivities of the banquet, we settled down to a fascinating trip through Southwest Africa, showing some of the indigenous succulents. Most of us will never travel to Africa, and perhaps this armchair view was a most satisfying alternative.

Tuesday we had an exciting time visiting the nurseries and botanical gardens in the San Diego County area. It is amazing what they can grow outdoors, in the open and grow to extreme sizes without the necessary precautions that we need in Tucson. The Palomar Cactus and Succulent Society acted as our hosts and guides for the day, pointing out some of the native vegetation , and supplying us with some of the natural history of the surrounding areas. It was a well spent day; we were able to buy plants at one of the nurseries and also to photograph some of the most exciting plants that anyone has ever seen. That evening we were treated to an interesting talk on some of the Mexican cacti by Dr. Hernando Sanches Mejorada.

Wednesday we spent the day back at the Hotel listening to more programs of tremendous interest to all of us. The cacti of the Galapagos Islands was especially interesting. That area of the world has been noted for its unusual plant and animal species and the cacti are no exception. A name familiar to all of us in Arizona is Dr. Lyman Benson, who wrote the book, THE CACTI OF ARIZONA. He talked about Luther Burbank's great spineless cacti and the history and the potential of this discovery. Another program for this day concerned the genus ferocactus and was certainly very informative. Many species were illustrated in the slide presentation, which we have not seen readily in Tucson.

A very popular event of the day was a symposium held by three of the most noted cactus growers in the San Diego County today, Dave Grigsby, Hans Britch, and Paul Hutchinson.

This was an open discussion of their secrets in growing spectacular cacti and succulents. They gave us a great deal of information on their potting mixtures, their fertilizers, their insecticides. I only wish we had their climate.

That evening there was another banquet, sponsored by the Sacramento and Stockton Cactus and Succulent Societies. Again, the tables were beautifully decorated with pieces of lava rock with native succulents growing in them and each table setting had a free plant. I was very fortunate to win the center piece and within a few seconds after that, was selected as one of the winners of a door prize which was a very large gasteria in bloom. This gave me the opportunity to walk from the very back of the banquet room to the very front wearing my tag that said "If you don't meet in Tucson, you're a ding-a-ling" with a little bell hanging from the bottom, that was supplied by the Tucson Convention Bureau. These tags made a big hit with all of the delegates. They all wanted one, and unfortunately we only had a few. Certainly this helped us win their support for Tucson for the 1977 convention. After the banquet, Dr. Reid Moran, curator of the San Diego Museum of Natural History, gave a slide program on the crassulaceae. Needless to say, this was a superb presentation, and one wished he had every plant that was shown.

On Thursday, May 15th, a trip was scheduled to Anza-Borrego Desert State Park. This was an all day trip to this desert area about 50 miles east of San Diego and was enjoyed by all with a chance to get out in the field and see some of the California native cacti and succulent plants.

Friday morning was the delegates meeting to decide the site for the next convention. We were quite successful in convincing the delegates that Tucson was the best alternative; they voted almost unanimously for Tucson. In the afternoon there was a most interesting presentation and demonstration of succulents that are used for bonsai material. Dr. LeRoy Phelps

of San Diego State University showed us a number of the specimens in his collection of bonsai succulents. They were extraordinary and beautiful.

Mrs. Joyce Tate, one of the members of the Board of Directors, gave a program about the uses of cacti and succulents. She covered a whole array of primitive and up-to-date uses for parts of these plants and products from them. Hundreds of uses were demonstrated.

I had to bid farewell to San Diego at this point, to get back to Tucson, but that evening, as I heard from some of our other members in attendance, there was a luau across the bay from where we were staying. This was exciting and a fitting climax to a wonderful week's stay at a marvelous convention. I only hope that in two years that some other delegate to the convention in Tucson can have as much praise for the people here in Tucson as I have for the people in San Diego.

TOM AND FLORENCE DE HAVEN AT THE 1975 C.S.S.A. CONVENTION IN SAN DIEGO, CALIFORNIA

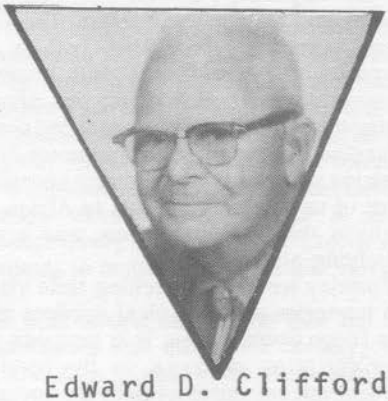
The general San Diego County setting of this Convention, and the specific Headquarters at the BAHIA MOTOR HOTEL on beautiful Mission Bay seemed to lend extra enchantment to this Spring 1975 gathering of cactophiles from everywhere. San Diego indeed was showing off its botanical finery, no matter which directon one looked. This natural outdoor beauty together with the seemingly perfect cactus specimens shown us in the Bahia ballroom headquarters made all the attendees thankful for being a witness to this segment of God's handiwork.

The registration of some 300 proved the drawing power of the convention. The smooth flow of program activities from the approximately 20 lectures by nationally known cactus experts, to the several banquets, and final Luau entertainment, indicated that the local San Diego Club had worked long and efficiently to produce an outstanding convention.

One of the high lights of the program to us, was the all day bus tour to the North County nurseries, including a visit to the Quail Botanic Gardens in Encinitas. This trip was considered most educational, and gratifying to all those who filled the three buses.

Don't forget the big news – the next (17th) Biennial Convention will be held in TUCSON in 1977. Plan to attend.

IN MEMORIAM



Edward D. Clifford
May 1975

OUR TRIBUTE TO ED ("SHORTY") CLIFFORD

Ed ("Shorty") Clifford became a dedicated member of Tucson Cactus and Botanical Society when he and his wife, Elizabeth, moved to their Green Valley, Arizona home several years ago. Both of them enthusiastically encouraged the use of natural trees, shrubs, and cacti in the neighborhood landscaping in the La Canada Desert Homes in Green Valley. "Shorty" was requested by the Green Valley Beautification Committee to prepare and execute a landscape plan for the entrance to La Canada Desert Homes. This he did most successfully and won the official thanks of the Board of Directors of La Canada Homesites Association. (Please refer to your copies of CACTUS CAPITAL CHATTER, Vol. X, 1974, No. 3, pages 1, 7.)

"Shorty" loved the world of plants and trees to which he gave his entire life efforts. He spent 31 years in the U.S. Forest Service. During these years, it has been estimated that he, in some way and another was involved in the growing of over 300,000,000 trees for reforestation. "Shorty" loved people and happily shared with his

botanical-minded friends his horticultural knowledge and skills. He encouraged and inspired beginners and amateurs interested in cacti, other succulents, and plants whatever. "Shorty" was truly our mentor, our warm-hearted friend, and an inspiration to all.

During May 1975, "Shorty" passed away. A Memorial Service was held for him in the Green Valley Community Church. Among his devoted friends belonging to Tucson Cactus and Botanical Society, the following attended: Mr. and Mrs. Roger G. Dean, Lena Marvin, Barbara Rogers, Mr. and Mrs. W.J. Dougherty, Don Douglas, Mr. and Mrs. Alan Blackburn, Alma Steininger, Josephine Shelby. "Shorty" had been elected a member of the Board of Directors of our Cactus Society. He was serving his first year in 1975 and took pride in doing so.

ELIZABETH CLIFFORD'S LETTER TO T.C.B.S. ABOUT "SHORTY"

"Thank you so much for your note (of sympathy) and signatures, and most of all for your tribute to "Shorty". He dearly loved the Tucson Cactus & Botanical Society and its members. I am so happy that he was able to do his "bit" for the 1975 Cactus Show. He was so enthusiastic about its success. He was also very proud to be a member of its Board of Directors. Thank you for having that confidence in him. As for myself, I shall probably be needing your advice about cactus cultures from time to time, and I hope I may be able to call on some of you. With affection, Elizabeth Clifford."

BARBARA ROGERS' TRIBUTE TO "SHORTY" CLIFFORD

I shall surely miss our friend, "Shorty" Clifford. He has helped me during the past two years with the Cactus Show. He grew seedlings for the display. Then on Show Days, he sat behind the table to talk about and explain the growing of cactus to so many Show visitors. I could see that he really enjoyed this. Yes, I shall miss him many times, I am sure.

A PLANT CAN EASE TENSION

"All mankind, whether simply tired from a day's work, or physically, mentally, or socially disabled, may find a promise, and some degree of fulfillment when they associate with plants," says Dr. Albert E. Griffiths, in a report on research he did with his wife, Lucy. Mrs. Griffiths is the recently retired statistician of the University of Rhode Island Resource Economics Division. "Plants have an appeal to all five of the basic human senses," says the report.

"The touch of the silky paw of the pussy willow, or the fair silkiness inside a frost-opened milkweed pod, appeal to the blind, especially. A fresh crushed mint leaf, or the delightful aromatic tang of a balsam poplar bud, carries a message to all who interpret something of Nature through a sense of smell. Plants are forever singing and sighing, whistling and whooping, or perhaps softly rustling to those who have ears to hear. And finally, for taste, we turn to the herb for the very essence of savory enjoyment, and have done so since the beginning. Sage and thyme, pepper and oregano to enhance the flavor of meats; dill, tarragon, and marjoram for fish and vegetables; mint for drinks and confections -- the blind and the deaf may enjoy taste as do the healthy, the sick and the exceptional."

The effect of living plants on mankind in a therapeutic and rehabilitative way has been known and practiced by the medical profession for at least 250 years. Considerable research is being done in this field of horticultural therapy. HINT: after a hard day at the office, go home and unwind by talking to your house plants or by playing some good music and enjoying it with them. -- The Arizona Republic, Tom Stevenson, Washington Post Service.

IN MEMORIAM. Walter S. Phillips, Professor of Biological Sciences and Botanist Emeritus at the University of Arizona. April 7, 1975. Dr. Phillips had a great interest in all Arizona native plants, and since 1960 had presented programs for Tucson Cactus & Botanical Society. Dick Wiedhopf, 1975 president of T.C.B.S., studied under Dr. Phillips and holds him in high esteem as a fine gentleman and an ideal teacher. CACTUS CAPITAL CHATTER editor, Josephine Shelby, gleaned much useful botanical information from her visits at his campus office through the years. Other T.C.B.S. members of long standing recall Dr. Phillips as an inspiring botanist and a good friend of our group.

1975 MEMBERSHIP ROSTER OF TUCSON CACTUS & BOTANICAL SOCIETY SECOND SUPPLEMENT

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Louie, Mrs. Erika	1039 N. Alamo St.	85711	298-3608
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What the Cactus and Succulent Society of America is and does for its Members

The CSSA—with affiliated groups in 17 states—began in 1929 as an association of amateur growers and nurserymen. Today most members are amateurs who started as beginners but quickly became knowledgeable growers. It exists to bring together persons with a common hobby; to help its members grow and enjoy unusual plants; to aid in the conservation of such flora; to disseminate knowledge of the culture and naming of cacti and other succulents. You'll be surprised how quickly you will learn to know these plants by their botanical names instead of such nicknames as prickly pear, fishhook and grizzly bear.

Dues include: Subscription to a fine bi-montly Journal with world renowned contributors.... regular meetings and programs.... exhibits.... annual shows.... biennial conventions.... association with other persons of all ages "hooked" on a wonderful hobby. Many affiliated clubs conduct field trips and other activities.

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"CONTINUALLY STRIVING TO EXPAND OUR HORIZONS AND CONTENT IN THE INTEREST OF CACTOPHILES EVERYWHERE."

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CHATTER EDITOR'S NOTES

I am truly pleased to introduce to the members of the Tucson Cactus and Botanical Society another assistant editor for **CACTUS CAPITAL CHATTER** -- John B. Hales of Phoenix. His reporter's beat is the Cactus Circuit, from Texas through New Mexico, Colorado, Nevada, Arizona, Utah, California and Mexico. He is well known in the Cactus and Succulent Society of America, Inc. He covers many cactus shows and conventions. His writings are enriching the content of our newsletter. Welcome to **CHATTER** staff, John Hales.

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Natural History Magazine published by the American Museum of Natural History, has kindly granted us reprint permission for its article, "Turning Plants Off and On." I urge you to read how to do this, in this issue of **CHATTER**. My thanks to the publisher.

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And still another compliment comes from E.S. Taylor, editor of AFFILIATE REPORTER, newsletter of the Cactus & Succulent Society of America, Inc. He reports: The Tucson Cactus & Botanical Society have recently revised their newsletter, CACTUS CAPITAL CHATTER, and it is excellent -- especially the colored pictures."

Lura Fuller and **Lena Marvin** are now enjoying a well deserved retirement from **CHATTER** staff work as mailers of **CHATTER** for eight continuous years. Due to their great interest, their dependability, accuracy, and consistent promptness, 32 issued have been received by our members in Green Valley and Tucson, I invite all of our members to join me in expressing our sincere gratitude to Lena and Lura for their fine contributions to T.C.B.S. Lura will be following a consistent rest schedule in order to regain her lost strength.

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THE SONORAN DESERT is the theme of a new and special educational feature, starting in this issue of **CHATTER**. Living in the midst of it (really at the edge of it), we experience, study and enjoy many of its features, including: wild flowers, cacti, and all native plant life; sea-shelling and fishing in the Sea of Cortez; its sea birds, land birds, reptiles, mammals; fine ironwood carvings of the Seri; Guaymas shrimp; San Carlos Bay; and so much more. Dr. Robert R. Humphrey is writing a series of descriptive articles on this Desert of which he is one of the most outstanding authorities. I feel that he is most generous toward our cactus society.

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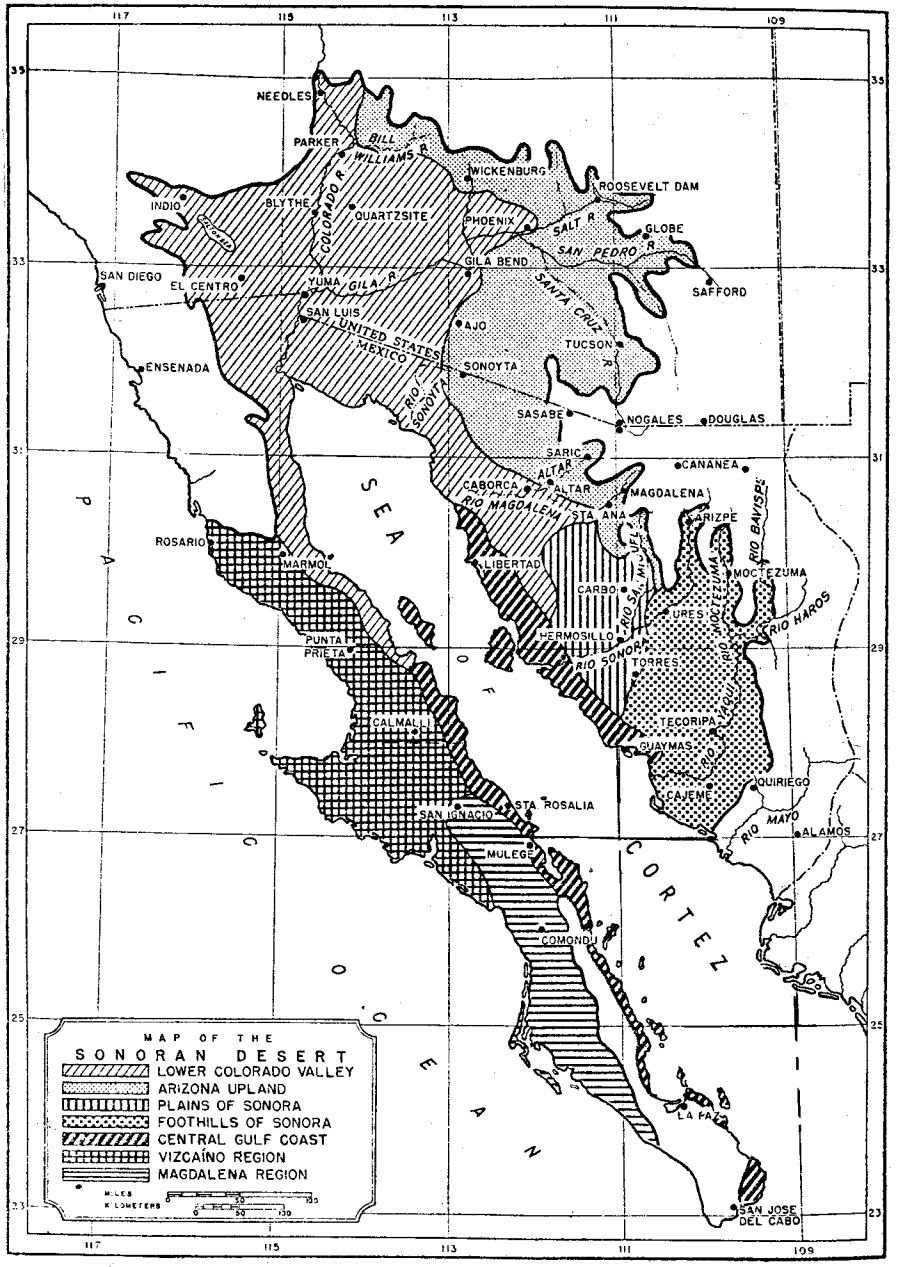
Another compliment comes from Robert R. Humphrey, author of "The Boojum and Its Home". He says: "Your new **CACTUS CAPITAL CHATTER** is very professional looking -- a great improvement."

MAP OF THE SONORAN DESERT



From: Shreve, Forest and Ira L. Wiggins. Vegetation and Flora of the Sonoran Desert. Stanford Univ. Press. Stanford, California. 1964.

THE SONORAN DESERT

by

Robert R. Humphrey

Introduction

It has long been a conviction of mine that the more one knows about the plant and animal life, the physical characteristics, and the geological history of a region the more interesting that region and its biota become. Proceeding from the assumption that this applies to all who have a deep interest in nature, the cacti and other plants will come to mean more to us as we gain a deeper insight into the conditions that typically prevail in their normal habitats. And, just as one's human associates throw light on one's human environment and habits, so too, do the associated non-succulent plants aid us in getting a more complete picture of a particular succulent and its home.

These few comments will serve as a kind of prelude and, I hope will seem as a logical explanation for what is planned as a series of descriptive articles on the Sonoran Desert. One may ask -- why the Sonoran Desert when there are other deserts in North America and many others in the world as a whole, some of which are much larger and a great deal more arid.

To those who might ask this I would reply -- why not? It is one of the largest of the North American deserts and certainly has a more interesting and varied biota or even geology and climate than any of the other deserts on this continent. And, finally, those of us here in Tucson and southern Arizona are pretty well surrounded by it. So, in a sense it is "our" desert.

Where, and a Few Figures

The Sonoran Desert is large; it is also complex. This complexity embraces not only the plants and animals that inhabit it but also the climate, geology, soils and physiography. From north to south this sprawling desert occurs unbroken for a distance of more than 800 miles, extending from north of Needles on the Arizona-California border south to the tip of Baja California. From east to west it extends for about 400 miles both near its northern limits and across the Sea of Cortez near its center in Mexico. All in all it includes a total area of almost 120,000 square miles.

"Bob" Humphrey in Boojum-land.

Shreve and Wiggins

For those who like figures I quote the following from Shreve, 1951:

"The approximate area of the Sonoran Desert is 310,362 sq km (119,370 sq mi). This is divided among the four states as follows: Sonora, 126,256 sq km (48,560 sq mi); Arizona, 105,404 sq km (40,540 sq mi); Baja California, 62,670 sq km (24,104 sq mi); California, 16,031 sq km (6,166 sq mi). The approximate lengths of shore line are as follows: Gulf coast of Sonora 950 km (590 mi); Gulf coast of Baja California, 1,480 km (920 mi); Pacific coast of Baja California, 1,370 km (850 mi). All parts of Baja California lie within 80 km (50 mi) of tidewater. Of the remaining part of the Sonoran Desert, approximately one-half lies within that distance of the Gulf of California."

Because of its size and complexity, any discussion that attempts to classify the Sonoran Desert in terms of both its biotic and physical features becomes enmeshed in a labyrinth of overlapping criteria. Forrest

Shreve, in his epochal work, **Vegetation of the Sonoran Desert** * that culminated a lifetime of effort, recognized this and used only the vegetation and flora in determining the desert's extent and boundaries. The accompanying map shows the desert as Shreve defined and classified it.

As an aside here, I cannot recommend too strongly that anyone who wants to become well acquainted with the plant ecology of the Sonoran Desert refer directly to Shreve's authoritative, yet simply and understandably written discussion of this desert and its vegetation. Although the original single volume published by the Carnegie Institution has long been out of print, the same material is available in volume I of the two-volume **Vegetation and Flora of the Sonoran Desert by Forrest Shreve and Ira L. Wiggins.** * This monumental effort represented more than 30 years of research. In their collaboration Shreve contributed the ecological portion Wiggins and co-workers the accompanying description and classification of the flora. In combination they provide both the serious and the casual student of the desert with a fund of material available nowhere else.

Why "Sonoran"

I agree with Dr. Shreve's statement of his reasons for adhering to the term "Sonoran" and repeat them here. "The word "Sonoran" was used for the area because it has long been employed in physiographic and biological literature in nearly the same sense, because more of the area lies in the Mexican state of Sonora than in any other state, and finally because of its brevity and convenience". ** In the next paragraph Shreve implies that the word was first used with reference to the same general area in a 1911 publication by the famous German botanist, Harshberger. *

Characteristics

We shall see in subsequent portions of my discussion that the Sonoran Desert is not entirely homogeneous either with respect to its climate, its vegetation or, perhaps, any of its components. This raises the inevitable question -- why then, is it classified as a single desert area? My answer, for what it may be worth, is that despite its heterogeneity, the entire area does have certain under-lying characteristics that bind it together. These include an arid climate characterized by high summer and moderate winter temperatures; a geographic unity with most of its farflung parts contiguous; and a rather high degree of physiographic uniformity with low, desert mountain ranges and their intervening drainages.

Even more striking than these, however, is the uniformity throughout of similar plant life forms, sometimes referred to as physiognomic similarities. Although no single species, so far as I know, occurs throughout the entire area (even the hardy creosotebush misses a few corners), certain genera with ecologically similar species or varieties are widespread. In addition, plants not closely related genetically but with similar physiognomy or ecological adaptations tend to unify the area.

As examples of widespread characteristic genera we have, among others, the so-called bur-sage genus **Ambrosia**. Many of us know the species that grows so commonly in the vicinity of Tucson, **A. deltoidea**. When one considers the many species of this genus that occur in the Sonoran Desert and the actual numbers of plants that may be found where most of them occur, it might be said that no single genus is more representative of the area as this one.

Usually not as abundant, but also extremely widespread and represented by even more species, is the cactus **Opuntia**, with its many varieties of both the cholla and prickly pear types. Another genus, **Acacia**, is widespread and one or more of its species may also be found essentially throughout the Sonoran Desert. Many additional genera could be named but these three are representative.

Adaptations that enable the vegetation to withstand the stresses of an arid environment and that do not respect genetic boundaries may be seen everywhere. Probably the most commonly recognized of these is succulence, either of stems, leaves, or roots as a means of storing water for use during drought. This is, obviously, a prime characteristic of the cacti where the stems or, occasionally the roots, as in the night-blooming cereus, serve as storage organs. In addition, though, the totally unrelated boojum (**Idria columnaris**) and candelilla (**Pedilanthus macrocarpus**) are also stem succulents. The agaves and dudleyas have

succulent leaves but the water-storage function is the same.

Other adaptive responses include few or no leaves; extremely small leaves (microphylls); the ability to develop new leaves rapidly after even light showers and to lose them almost as quickly as the soil dries; development of thick, leathery leaves with anatomic characteristics that reduce water loss to a minimum; and grey or blue-grey leaves that reflect much of the too-abundant light and heat. Plants with these protective devices can be seen everywhere in the desert, but one or two of each will serve as examples.

Few or no leaves: the cacti, candelilla; **small leaves:** the paloverdes (**Cercidium spp.**), Creosote bush (**Larrea**); **rapid leaf development and loss:** ocotillo (**Fouquieria**), dragon's blood (**Jatropha**); **thick, leatherly leaves:** jojoba (**Simmondsia**); **grey or blue-grey leaves:** brittlebush (**Encelia**), the bursages (**Ambrosia spp.**). In addition, there is a large group, the ephemerals or annuals, that dodge the issue by having a short life and completing this during a single spring or summer rainy season. If the rains fail to come or are too light, the seeds simply lie in wait for a better year.

Location

The Sonoran Desert lies entirely within two states of the United States -- Arizona and California, and three in Mexico -- Sonora, Baja California Norte and Baja California Sur. In its northwestern portion within the Colorado River drainage it blends into the Mojave Desert. In northern and eastern Arizona it grades into the desert grassland, chaparral and oak-pinyon vegetation types. Continuing south into Mexico it initially adjoins the desert grassland on the east, then a grassland-open shrub type and finally an open thorn forest sometimes called catinga.

In Baja California it occupies all of the peninsula except for two areas; one in the northwest, the other in the southeast. Relatively favorable growing conditions in the northwest portion permit development of various kinds of less xeric woody vegetation, principally chaparral grading upward into coniferous woodland and, at the highest elevations, a tall forest of conifers and decidous trees. In the southeast corner also, a more favorable climate results in a dense catinga at the lower elevations that Shreve has described as resembling an "impoverished jungle", and a conifer-oak woodland above.

Along the coast, both in Sonora and Baja California, the desert vegetation extends essentially to the water's edge wherever it occurs inland and also includes the adjacent islands both in the Sea of Cortez and the Pacific Ocean. Although the bulk of the area lies at low elevations, along its northern and eastern boundaries in Arizona and Sonora it may extend upward to almost 3,500 feet.

To Be Continued

* Carnegie Institution. of Washington, Publication 591. 1951.

* Shreve, Forrest and Ira L. Wiggins. **Vegetation and Flora of the Sonoran Desert.** Stanford Press. Stanford CA. 1964.

** Shreve: ibid.

* Harshberger, John W. Phytogeographic Survey of North America. in Engler and Drude, Vegetation der Erde, vol. 13, 1911.

1975 T.C.B.S. MEMBERSHIP ROSTER THIRD SUPPLEMENT

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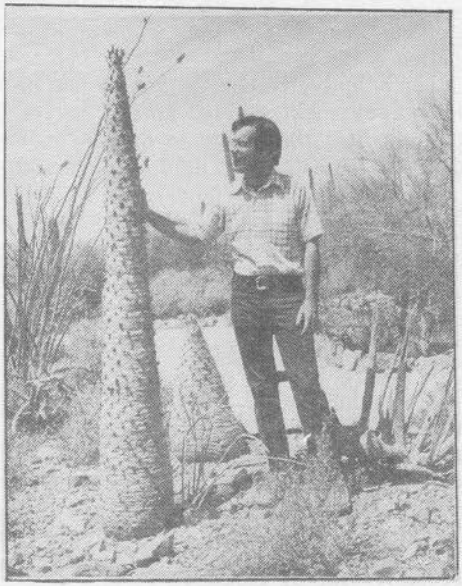
Change of address: Linda Ryan, 6610 Sutherland Ridge Place, Tucson, AZ 85718, Telephone: 299-2338.

IN MEMORIAM
P.G. NICHOLS August 31, 1975

P.G. Nichols and "Cactus John" Haag became close friends after both of them arrived in Tucson during the 1950's to make their homes. In November 1960, P.G. worked with John Haag to organize the Tucson Cactus Club to which P.G. dedicated all the active remaining years of his life. He served as a member of the Board of Directors for many terms. He helped create Haag Memorial Garden at Arizona-Sonora Desert Museum, 1963-1965, and planted the first mammillaria there. He and his wife, Alta, were always most interested in cacti, and built their collection to 2200 plants of nearly 350 kinds. Their cactus gardens were among the beautiful and well kept ones in Tucson. P.G. was a member of: Cactus & Succulent Society of America, Cactus Fanciers Association of Alabama, Los Angeles Cactus & Succulent Society, and Colorado Cactophiles, Denver, Colorado. Often he gave gift plants of assorted succulents and cacti to all members of the Tucson Cactus Club (later renamed Tucson Cactus & Botanical Society.) He contributed articles of educational value to Cactus Capital Chatter, and often gave talks at our meetings.

At a meeting of the Board of Directors of our Society, June 2, 1967 a Lifetime Honorary Family Membership was awarded to P.G. and Alta Nichols -- the first honor of this kind bestowed by Tucson Cactus & Botanical Society. P.G. died on August 31, 1975, in Little Falls, Minnesota where he and Alta were making their home with their son and family.

This is our message to Alta: "May you find Peace + Repose + Release in the sweet memories of your loved one who was the fine and devoted friend of Tucson Cactus and Botannical Society.



DON DUCOTE EXAMINES IDRIA COLUMNARIS

Curator of Botany at the Arizona-Sonora Desert Museum is Don Ducote, shown standing in Haag Memorial Garden at the Museum. He is examining a recently acquired Idria columnaris, often nicknamed "boojum." It grows only in Baja and near Libertad, Sonora, Mexico. The two cirios pictured ("cirio" is the Mexican name), have been planted in Haag Memorial Garden which was developed by the Tucson Cactus & Botanical Society and given to the Museum to memorialize the founder of the Society, "Cactus John" Haag. Don Ducote has been an Arizona-Sonora Desert Museum botanist since 1970. He received the Master of Science degree in Botany in 1966 at the University of Arizona.

CHATTER has received a compliment from Sonia Barker of Somerset, England. She subscribes regularly to our newsletter and writes: "I would like to take this opportunity to say how I enjoy reading "Chatter." It is so pleasing to see a publication devoting so much energy towards conservation. The articles and news content I think is first class. I wish you and all associated with "Chatter" continuing success."

Gerhard Kaiser: Good Friend of T.C.B.S

"And now I want to give you some information about the cactophiles in the German Democratic Republic. I am a member in the Meissen Cactus Club. We are about 20 men -- old and young; workers, officers, teachers, engineers, and doctors. Two of our members are owners of greenhouses. They are having great collections. The others put their plants into the gardens or on the sill-board. My plants are in the garden after the house, in the open air. In autumn they must change in a small greenhouse. Most of our members must put their plants in winter in dark rooms and in cellars. That isn't so bad as you may think. We have established that the most species go good through the winter in those places. From July to September, we have had a very nice show of our plants in the Museum in Meissen. Many visitors have been coming to have a look at them, and we hope they become new members. In other towns of the G.D.R. there are also Clubs. You can find the addresses in the copies of KAKTEEN-SUKKULENTEN. There are also fine shows. Then we also have some gardeners who sell cacti. You can find in many flower shops a lot of cacti, but most of them there are simple species. Rarities you cannot find there. Then, you must have a good friend with excellent relations. These are friends in the "cactuslands". They will help you get plants and seeds from plants that you want. We can say that the cacti are a modern hobby in the German Democratic Republic also known as East Germany."

--Gerhard Kaiser, the German Democratic Republic

ADDITIONS TO TCBS LIBRARY IN 1975

"Colorful Cacti of Desert", Brian and Edgar Lamb. "Stapeliads in Cultivation", Lamb. "Epiphyllum Handbook", Scott Haselton: An Introduction to the Orchid Cacti. "Interesting Newer Mammillarias", W.F. Maddams. "Sedums", by the Succulent Plant Trust 1971. "**EXOTICA**", Series 3, 7th Edition. Publishers: Roehrs Co., Inc., E. Rutherford, N.J. 07073, USA. This is a Pictorial Cyclopedia of Exotic Plants from Tropical and Near-tropic regions. It contains 12,000 illustrations and shows 204 plants in color. It is a Guide to the Care of Plants Indoors, a horticultural guide, a plant geography. The object of EXOTICA is to acquaint friends of horticulture with the vast variety of interesting decorative plants which may be grown indoors, although in warm regions, the majority of them might be used in shade houses or in the open. Further, it provides a simple and visual means for identification and classification. It is the most exhaustive cyclopedia of its kind in the world, and is primarily a book of illustrations.

IN MEMORIAM

Mary Sarah Bowker (Mrs. Sherwood)
August 1, 1975

The Bowkers joined Tucson Cactus & Botanical Society shortly after arriving to make their home in Green Valley, Arizona, in 1973. Mary taught in the Buffalo, New York elementary schools for thirty years. In Green Valley she was active in the A.A.U.W.; in Friends in Deed; and in the Episcopal Church.

Our members extend our sincere sympathy to her husband, Sherwood Bowker.

Turning Plants Off and On

by Arthur W. Galston

The same chemical that prepares plants for winter dormancy also enables them to germinate when the last frost has passed

Last summer the vegetation outside my windows burgeoned. What with abundant rainfall and high temperatures, plant life thrived, and I had more than the usual job keeping the garden from being completely overgrown. But now the scene outside my window has changed radically. Even before the first frost approached, the plants had anticipated the winter ahead. On the apple and ash trees, leaves stopped growing and turned to brown; on other trees scaly winter buds rather than new leaves had formed at the growing points. Meanwhile, most annuals had produced the seeds in which form they will pass the winter. All these changes, seemingly premature during the warm days of late summer, occurred because a plant's failure to effect them in good time could cause its extinction during a frost. This doesn't mean that the plant knows the date of the first frost and acts accordingly; it means that mid-latitude plants have of necessity evolved appropriate timing mechanisms to insure their survival over periods unfavorable for growth. The key to the mechanism is the changing length of day.

In the northern latitudes, day length reaches its maximum on about June 21 and its minimum six months later. September 23 and March 21 are the equinoxes: times when day and night are of equal length everywhere on earth. At the latitude of my home near New Haven, Connecticut, day length has diminished from its maximum of about fifteen hours to twelve hours by the end of September. It will be reduced to nine hours at Christmas time. Plant leaves take account of this change through the blue pigment phytochrome, which manifests one form during day and another form at night. As the length of day shortens, this pigment exists less and less in its daytime form and more and more in its night form. In the meantime, the plant measures the passage of each 24-hour period through its endogenous circadian, or internal daily, rhythms. But how can the interplay of phytochrome and rhythms in the leaf affect the

behavior of the bud at the growing point, perhaps many feet away?

About a decade ago, Prof. Philip Wareing and some of his students at the University College of Wales at Aberystwyth studied the effect of diminishing the daily photoperiod, or light exposure, on the formation of winter buds in the birch tree. They noted that, as the day length shortened, the rate of stem elongation at the apex decreased and eventually ceased altogether. At the same time, the tree stopped making full-sized new leaves; instead, small, scaly leaves began to surround the now dormant bud. They reasoned that some sort of growth inhibitor accumulating at the stem apex might be causing these changes. By making appropriate extracts of the bud as the growing season progressed and testing them on other living plant tissues, the researchers did indeed find an increasing concentration of a substance inhibitory to growth. When purified and applied to plant tissues, this substance not only caused a marked diminution in growth rate but also partially mimicked the effect of short days in promoting winter bud formation. When applied to viable seeds, it created a dormancy, which could be overcome by washing away the applied material. In other words, this inhibitory chemical, produced under the influence of artificially simulated short days, seemed to induce in the plant all the well-known effects of the natural short day itself.

Through cooperation with chemists, Wareing and his colleagues succeeded in isolating pure samples of the effective material. It was then only a matter of time until the chemical nature of its molecule was determined, and this was followed shortly by the development of a purely synthetic method for the production of any desired quantity of the inhibitor. Because the material not only induced the formation of dormant buds but caused seeds to become dormant as well, it was given the common name *dormin.* (Its proper chemical name is much more complicated.)

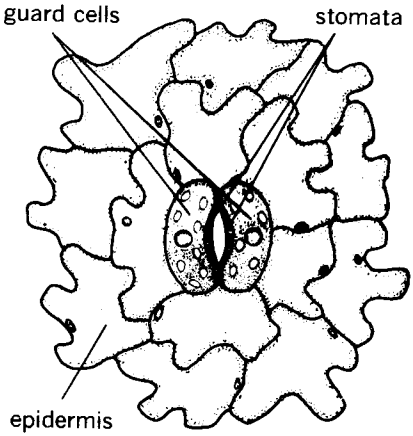
Scientists are aware that an idea, "ripe" for discovery, is frequently uncovered virtually simultaneously by several different persons working independently of each other. So it was with dormin. At Davis, California, thousands of miles from Aberystwyth, Frederick Addicott and several colleagues were working on the problem of the premature shedding of cotton bolls. This anomaly in certain high-yielding varieties of cotton plants caused them to lose their bolls spontaneously shortly before harvest. Addicott felt that the aberration might be triggered by the movement of a substance from the leaf to the boll stalk. Like Wareing, he made extracts of slightly senescent leaves, applied the substance to test systems, and succeeded in purifying, isolating, and identifying the effective material. Because it caused shedding, or abscission, he called it *abscisin.*

Wareing and Addicott published their results separately, and to their common surprise, they learned they had isolated the same chemical material. Because Addicott's report was published one week before Wareing's, the compound, which is actually an organic acid, was ultimately named *abscisic acid.* ABA, as it is known to botanists, has be-

come an important substance for the plant physiologist and the agriculturist, as it seems to have remarkably versatile effects on many aspects of plant development. Not only does it slow down the over-all rate of growth and predispose the growing points toward a dormant state, it probably plays an important role in the regulatory physiology of plants.

Each day, for example, plants absorb from the soil a large quantity of water, which moves upward through conducting tubes of the woody xylem to the leaves. In the course of its upward movement, the absorbed water facilitates the transport of minerals through the plant. Some of it is retained by root and stem cells and is used for growth and other processes. A small amount of the water that reaches the leaves is used in photosynthesis. But more than 90 percent of the absorbed water evaporates from the leaves through transpiration, a process that probably cools leaves that might otherwise overheat in the direct sun. If transpiration proceeds too vigorously, the plant may lose more water than it is able to absorb. If the resulting water deficit then becomes too severe, the plant may wilt, desiccate, or even die. Clearly, desiccation due to excessive loss of water is one of the most serious problems a plant has to face. Can this dangerous process be controlled, or is high transpiration an inevitable consequence of the architecture of the leaf?

The interior cells of a leaf form a loose, spongy mass of wet surfaces exposed to open channels leading to the outside air. Such a system poses no barrier to evaporation. But at the epidermis of the leaf, the way to the outside world is barred by pores called *stomata*, elliptical openings that change in size as the guard cells surrounding them change in volume. When the guard cells are turgid with water, the openings are large, but when the guard cells lose water and become flaccid, the openings shrink and may disappear entirely, thereby sealing the leaf against further water loss. Whether a guard cell absorbs or loses water depends on its internal salt concentration, and most particularly on the content of potassium salts in its vacuole, a liquid-filled cavity.



Lens-shaped pores, or stomata, in the epidermis of a leaf play a crucial part in plant transpiration. When open, they permit the evaporation of water; when closed, they seal the leaf against water loss. The stomata are, in turn, regulated by guard cells that respond to abscisic acid, the substance that also prepares plants for winter dormancy.

Experimenters at Wye College in England recently analyzed both turgid and wilted leaves for their abscisic acid content. They found that wilted leaves with closed stomata—a protection against further water loss—had consistently high levels of ABA, often ten to twenty times the normal concentration. When ABA was applied to a normal leaf with open stomata, the stomata closed as if the leaf were wilted. This closure was brought about through loss of potassium and, thus, water from the guard cells. The wilting-induced increase in concentration of ABA therefore prevents additional water loss from a partly desiccated leaf and could save the plant's life.

This dehydrating effect of abscisic acid may also help explain another extremely puzzling aspect of a plant's preparation for dormancy. Normal plant cells contain about 90 percent water, while seeds tend to have about 10 to 20 percent. How can a seed be dried out while still attached to the wetter mother plant? It appears that ABA may again be involved. The movement of large quantities of ABA into the seed causes it to lose water to surrounding tissues, even though the over-all water content there may be greater. The desiccated seed remains dormant over the winter and does not start to germinate until the level of ABA declines. In fact, the amount of ABA initially incorporated into the seed and the rate at which this quantity declines over the winter may constitute the chemical timekeeping device that tells the seed that the last frost day has passed and it is safe to germinate. The dormant winter buds of trees and shrubs may use the same device. Thus, ABA may be considered the "turn off" switch that converts an active plant into a dormant one. This is a handy, indeed necessary, survival device in the mid-latitude zone.

The ability of ABA to close stomata and thereby protect plants against excessive water loss can perhaps be turned to practical agricultural advantage in arid zones. The problem will be to effect closure of the stomata without simultaneously overheating the plant or converting actively growing buds to the dormant state. A solution to this problem could have great importance for a world faced with food shortages, especially in those countries that must try to grow crops more efficiently in suboptimal environments.

Columnist Arthur W. Galston teaches biology at Yale University.

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T C B S members are offered the opportunity to keep in close touch with all programs and activities of the national organization -- Cactus & Succulent Society of America. Subscribe to the AFFILIATE REPORTER published bi-monthly. Subscriptions run from January 1st to January 1st. Back issues are sent to late subscribers. Make your check for $1.50 payable to CSSA. Mail to E.S. Taylor, FCSS 3036 Nebraska Avenue, South Gate, California 90280.

JUDGE A CACTUS SHOW! GROW CACTI AND OTHER SUCCULENTS IN POTS!

First speaker at the July meeting of the Tucson Cactus and Botanical Society was Alan Blackburn, retired from the Arizona-Sonora Desert Museum. His topic was how to judge a plant show using the point system, and he demonstrated some of the do's and don'ts of exhibiting plants. Foremost, the plant must be clean and healthy, with no dead leaves, and placed in the middle of an appropriate container, with not less than one inch of earth showing around the plant's top. Avoid overcrowding, and select a suitable pot which will accentuate the plant. The container should be clean and appropriate in size and color and shape for that plant. Most cacti are shallow rooted and so do not require a deep pot. Clean gravel or marble chips are attractive atop the earth, but raking the top with a fork is quite acceptable. Plants should be labelled clearly and neatly. A good planting medium for show plants is composed of 3 parts sand to 1 of Bacto potting soil.

For the benefit of home gardeners, the second speaker, Nancy Clarke, explained her technique for growing cacti and succulents indoors in pots. Since some species cannot survive Arizona winters, they must be grown in pots indoors. Another advantage is that potted plants can be moved any place any time, and besides, it is fun to grow plants in pots. There are over 2,000 varieties of cacti to select from, and probably as many kinds of containers. Pots must have a hole in the bottom to drain off excess water, plus a flat rock or layer of gravel immediately above the hole. Watering is of utmost importance in growing cacti indoors, since they usually require less water. Water from the top down once a week in summer during the growing season, less often other times. Proper soil mix is equally important; cacti cannot be potted in ordinary garden soil but require a fluffy, porous mixture such as equal parts of perlite, loam, Bacto potting soil, and sand, with perhaps a little bonemeal. Plants should be fertilized twice a month in summer, otherwise once a month year round. 8-12-4 liquid Ortho is probably easiest to use. Indoor plants must not be put in full sun or they will get sunburned; the ideal location is bright filtered light. As a final touch, Miss Clarke uses marble chips or gravel atop the earth because it helps to support the plant and to keep it clean as well as looking attractive.

Club member Carl Horst next presented a series of colored slides showing the barrel cacti species in various stages of growth and at different locations in Arizona.

----Ruth Dougherty, Publicity Chairman TCBS

HAWORTHIAS

Haworthias have a wide variety of form and appeal, from the slow spiralling columns of H. viscosa to the truncate leaves of H. truncata, from the smooth grey-green leaves of H. glauca to the pearly covering of H. margaritifera, or the glistening white bands of H. attenuata v. clariperla.

Flowers of haworthias are not very showy and are similar throughout the genus. They may be propagated by detaching rooted plantlets which are produced at the base of most of the plants.

Haworthias are best repotted in the autumn as this is when the new roots are produced. Well drained soil is essential and they grow best if given a drier rest during summer (June to Sept) and a light warm position during winter time. Water carefully at all times. They reveal their attractive colouring and form when given a good amount of light. Not enough light causes them to elongate and too much makes them turn a bronzy color.

Many of the plants are dainty, some quite charming and all are interesting. They make fine mature plants in quite small pots for those who have only limited space.

Two good sources on haworthias in our library are "Succulents For The Amateur" and "Succulent Plants -- Vol II" by Jacobsen.

----Myrtle Ethington

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John Robbins, a long-time former member of T.C.B.S. receives CHATTER in California, He. writes: "Thank you for the CHATTER. It gets better with every issue. The new type used in it looks pretty good." "Thanks a lot, John." (ed.)

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THE SONORAN DESERT

by
Robert R. Humphrey
Part II

Physiography

The Sonoran Desert is characterized by an irregular terrain made up of low desert mountain ranges with extensive gently inclined basal slopes or **bajadas** that feed their occasional runoff into dry washes. In Arizona and California the desert all lies within the Colorado River watershed; in Sonora and the eastern slopes of Baja California it drains into the Sea of Cortez; and in western "Baja" into the Pacific Ocean. In addition, local minor portions of the desert drain into closed basins that have no outlet to the sea. The largest of these is the Salton Sink which, before it began to fill with water from the Colorado River in 1905 and became known as the Salton Sea, bottomed out at 287 feet below sea level.

Climate

Although, as I have already indicated, the Sonoran Desert has low precipitation and high summer temperatures, these are broad generalizations that hide a wide range of distinct climatic differences. Initially, because of the wide range in latitude from 35 degrees in Arizona to 23 degrees in Baja California, and the extreme differences between the continental climate of Arizona and the maritime climate of the coastal regions of Sonora and Baja California, there are marked contrasts in temperature characteristics. In the north and inland, for example, winter temperatures are comparatively low and frosts are frequent. Also, the temperature range, both from one season to the next and from day to night, is much greater there than in the coastal and southern portions.

There are also extreme differences in the realtive humidity adjacent to the sea and inland areas. Winds blowing off both the Pacific Ocean and the Sea of Cortez carry large amounts of water vapor, sensibly raising the relative humidity near the coast. On the Pacific, in addition, a great deal of moisture is also carried several miles inland in the form of fog. This increased humidity along both coasts is of great importance in reducing the evaporative power of the air and makes it possible for many plants to thrive, or at least survive, that otherwise could not become established.

Although precipitation is low throughout the Sonoran Desert, there is a wide range in the average annual amounts that fall in various portions of the desert as well as in the seasonal distribution of these totals. Tucson, for example, receives on the average about 11 inches per year, while the region around the mouth of the Colorado River gets only a scant 1.7 inches. And, where the bulk of the desert typically has two rainy seasons, summer and winter, its

northwestern corner near El Rosario in Baja California receives 85 percent of its yearly total of 3.7 inches during the 5 winter months of November through March. No effective rains fall during the summer.

In contrast with this, at San José del Cabo near the tip of Baja California and the southern end of the Sonoran Desert, most of the rain falls during the summer. Eighty percent falls there during the four months from July through October.

Extreme climatic contrasts prevail between that portion of the Sonoran Desert adjacent to the Pacific Ocean in Baja California and all other parts of the desert. Because of the cold waters of the Pacific and the prevailing onshore, moisture-laden winds, temperatures throughout the year there are relatively low adjacent to the coast and for several miles inland. This is particularly true of the approximate northern third of the coast, less so of the central third, and still less so as one approaches the southern end of the peninsula. Throughout this distance however, the climate is distinctly cooler in the summer and with a higher humidity than elsewhere in the desert.

Chubascos

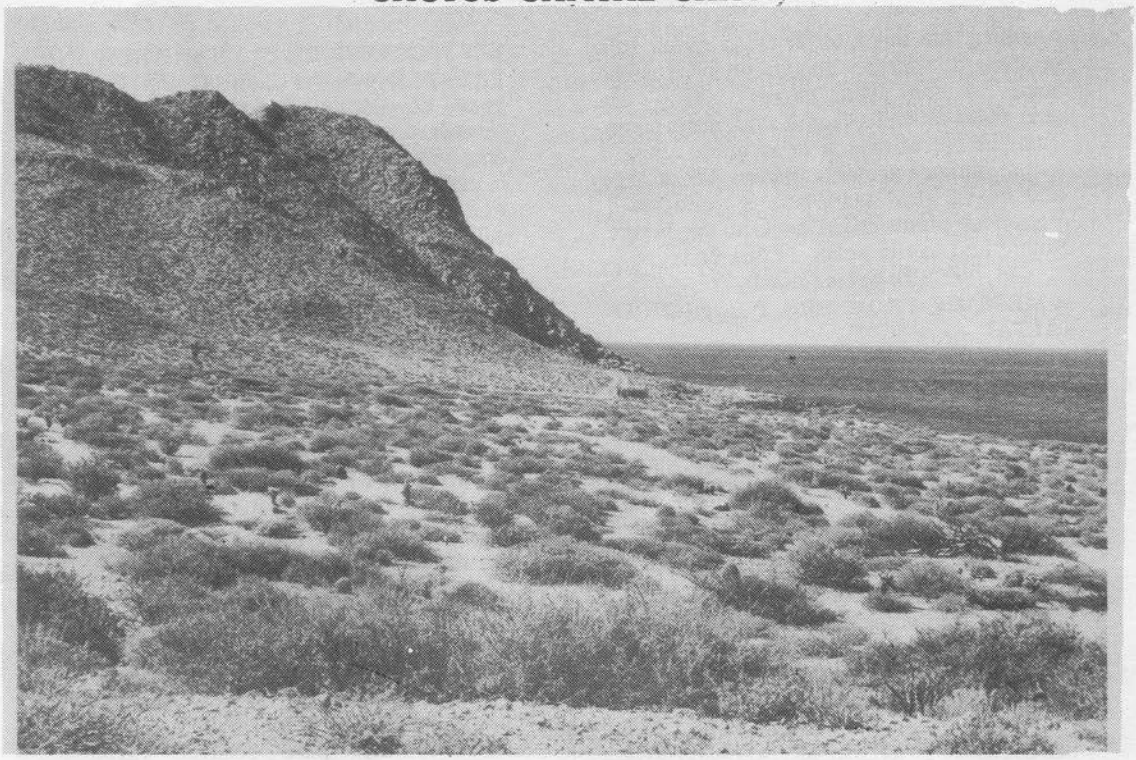
One of the truly unique weather features of the Sonoran Desert is the Chubasco. These are tropical storms of hurricane intensity that originate in the Pacific Ocean off Central America or southern Mexico and move northward to the north or west. Very often they swing off into the open Pacific before reaching Baja California or the adjacent mainland. Not infrequently, however, they take a course that carries them either up the Baja peninsula, the Sea of Cortez or along the mainland. When they follow this route, their effects, usually in the form of heavy rains and accompanying high winds, may be felt throughout the Sonoran Desert.

Because storms of these sorts wear themselves out with time, distance covered and rough terrain, chubascos are usually most severe far south of the U.S.-Mexico border. Thus the Pacific coasts of the Mexican mainland and southern Baja California are particularly subject to their violence. Throughout the period of recorded history and without doubt many thousands upon thousands of years before, chubascos have been a fact of life – and death -- in the area we know today as the Sonoran Desert, and most particularly in its southern reaches. The Baja towns of La Paz, Cabo San Lucas, San José del Cabo, Todos Santos, San Bartolo, El Rosario, San Ignacio and San Felipe, among others, all have their histories of death and destruction from the flooding that is a typical by-product of a big chubasco.

Although wind velocities are high during the hurricane, most of the damage results from the accompanying torrential downpours. Damage to man and his way of life results primarily from the fact that the major population centers are located in valleys, usually along the coast at the mouth of large watersheds with a potential for collecting enormous amounts of water during periods of heavy and extensive rains.

Chubascos, as well as tropical storms of lesser intensity, are most likely to strike late in the summer, usually during the period from August through October. They occur often enough to be a dominant feature of the weather pattern and to exert a strong influence on the biota (including man) of the desert. As an indication of the frequency of storms of chubasco intensity, the **Boletín Anual del Servicio Meteorológico de México** (1935) recorded an average of one chubasco per year in Baja California during the 13-year period from 1931-43.

Because of the amount of rain that may fall during a single chubasco, average monthly precipitation figures during the hurricane season may have little meaning. For example, the mean-annual precipitation at Bahia Magdalena is based on a 31-year record which is long as compared with most Baja California climatic records. The average September precipitation over this period is calculated as 1.2 inches. During two of these years, however, the September chubascos brought 8 inches in 1938 and a phenomenal 23 inches in 1939! The September 1939 rains were considerably more than the total for that month for the other 30 years, even including the unusually wet 1938. If we exclude both of these abnormal years from our calculations we find the more usual September rainfall to be a mere two-tenths of one inch. Even including 1938



Physiography and vegetation of the Sonoran Desert on the Sea of Cortez, a few miles south of Puerto Libertad, Sonora, Mexico. Here the bajada, or the gently sloping foreground area, has been derived through countless thousands of years from rugged granitic mountain masses. Some of the remnants of these outcrop against the skyline as they plunge into the waters of the sea. Precipitation here is only about five inches per year.

-- R.R. Humphrey

raises the average to only .47 inches.

As other examples of the abnormal amounts of rain that may fall during the chubasco season, San Felipe, lying roughly 100 miles to the south, received 31 inches in September, 1943, and nearby Santa Gertrudis an amazing 40 inches (more than three feet) in September 1949! *

(To be continued)

* Hastings, J.R. Climatological Data for Baja California. Institute of Atmospheric Physics Tech. Rept. No. 14, Univ. of Ariz. 1964.

DESERT PLANTS SAVE LIVES IN WILDERNESS

In an imaginary flight, think of becoming lost on a hiking trip in Arizona, and after a few days, desperately searching for any edible material available. A Pittsburgh nurse actually lost her way on a hike down the Grand Canyon, and managed to survive for three weeks, by living on cactus buds and a trickle of water from cracks in rocks.

Anyone who participates in hiking or camping should become familiar with the native plants of Arizona. Wherever you may be in Arizona, there is usually some form of life-saving cactus. Dr. Richard Hevly, Northern Arizona University biologist who teaches a course on edible plants, remarks: "Cactus contains water, but it tastes foul. You can eat it, except if it makes you sick. Then that won't help because you will lose water." Both the prickly pear fruit and pads are edible if the spines are first removed. Other desert plants you may try experimentally are the fruit and flowers of the yucca and the young stems of the century plant. Mesquite pods have a good taste especially when they're just turning yellow.

A good rule to follow is to avoid any plants with white berries, and not to swallow

anything that has a bitter taste, either raw or cooked. Caution should be used since some of the wild carrot family are poisonous, as well as some wild mushrooms. Taste is not always a good guide since a water hemlock grows in the Oak Creek area and has a good taste but is quite toxic. Poisonous plants often contain the toxins, tannic and oxalic acids. (Edna Zeavin)

(To be continued)

A MESSAGE FROM MRS. P.G. NICHOLS (ALTA)

Alta Nichols, widow of P.G. Nichols, sends her thanks and that of her family, to all members of T C B S who have sent her messages of friendly greetings and words of sympathy at the death of her husband on August 31, 1975. In time, Alta hopes to write to each of you. She writes CHATTER editor that she misses all the Nichols' old friends, and she does enjoy all your letters. Through this message, she sends her love to all. (Please refer to these 2 issues of CHATTER, for good photographs of Alta and P.G. Nichols: Vol. I, 1965, No. 3; Vol. III, 1967, No. 3). (r.)

CHANGES OF ADDRESS: Mr. and Mrs. Henry Shonder, 4174 S. Evergreen 85730 Phone: 790-8244. Stanley, Theodosia, Karen Klos, 6312 N. El Camino Real No. 612 85704 Phone: 297-8679.

TWO T C B S MEMBERS SHOWED THEIR PLANTS IN AN INDOOR PLANT WORKSHOP

The Cooperative Extension Service invited cactophiles to exhibit some of their favorite potted succulent plants at an indoor plant workshop, earlier this fall. Bill Pluemer took several of his cacti, as did Nancy Clarke who also demonstrated how to plant and care for various succulent plants.

T C B S MEMBERS TO JUDGE IN TUCSON MEN'S GARDEN CLUB CACTUS SHOW

Alan Blackburn and Nancy Clarke will serve as judges of cacti entries in this cactus show. The third judge will be Henry Triesler of Phoenix. The committee for cactus plant classification will be Myrtle Ethington, Alan Blackburn, Nancy Clarke. This Show's theme is "America the Bountiful" and will be held November 15, 16, 1975 in Christopher City Auditorium at 3401 N. Columbus Road.

1976 MEMBERSHIP DUES ARE DUE AND PAYABLE N-O-W!! Cactus Capital Chatter, your newsletter, is mailed ONLY to members paid up year-round. Fine cacti door prizes are awarded ONLY to members in good standing. Please NOTE NEW DUES FOR 1976. Individual adult memberships will cost $4.00. No family memberships are offered. Student memberships cost $2.50 (under age 18). Make checks payable to TUCSON CACTUS AND BOTANICAL SOCIETY. Mail or hand them to the 1976 treasurer -- Julius Geest. NOW!!

LETTER TO THE EDITOR

SEEDS, CUTTINGS, AND NURSERY-GROWN CACTI PREFERRED TO COLLECTED CACTI

Owen E. Bailey. Artist, Teacher, and Conservationist of Louisville, Kentucky "I am primarily interested in cacti native to the United States. I eagerly look forward to Dr. Lyman Benson's forthcoming monograph covering this area of the cactus family. I have made great strides in forming a collection of plants of this group. However, I have run into much difficulty in locating some of the more obscure varieties, especially in the echinocereus and opuntia groups. When it comes to locating seeds, cuttings, and nursery-grown plants of some plants (or even collected plants), they are simply not to be found in the trade. Of course, I suppose a person could wait until he were able to visit the habitats of the obscure varieties and hope that seeds would be found to collect. On the other hand, if one does not have a conscience, plants could be dug up if no one was looking. Then, there are those of us such as myself who much rather prefer to start with seeds, cuttings, or nursery-grown plants for several reasons. First of all, I am an artist, a teacher, and somewhat of a conservationist. I panic at the thought of all our succulent species becoming endangered. There is a need to have cactophiles organize to collect seeds of many species; propagate them; and return some of the plants to protected areas of their original habitats. This was done with Pediocactus papyracanthus and some of the lithops. Secondly, cactophiles should be better informed of the advantages of growing plants from cultivated stock and seeds, over collected plants. In my own experience, I feel that my seedlings come

into this world responding to the particular type of environment that I can provide for them. Those that cannot adapt, perish, while a few survive to grow and flourish. On the contrary, a collected plant usually has been growing for years, and all the while, adapting to a particular environment. One wrong move in its cultural requirements and you are minus one plant. All of this goes to support the old cliche, "You cannot teach an old dog new tricks." Finally, collected plants are not as attractive as the cultivated specimes. Still, there is an increase in "plant poaching" in some of the habitats. I am firmly convinced that much of the over-collecting might be happening due to the **lack of interest that most of our nurseries have shown in native plants.** Many of the establishments completely ignore this group. Others find it all too easy to go out and haul in the "grand old specimens." Meanwhile the habitats are dwindling. **Why is it that growing native species from seed is so unpopular?** If there is not enough demand here at home, why then do these people assume that foreign demands would not take care of much of the seed-grown stock and also provide adequate sources for collectors here at home? It is a shame that some governmental agency has not been established to satisfy the public demand for rare plants by collecting seeds and growing such species for sale. Another function that it could perform would be to seek out endangered habitats, provide for their protection, and restock them with plants grown from collected seeds.

It seems that the botanical gardens could also do much more in this area than they are now doing. How much potential revenue are they missing by refusing to recognize a growing affluent segment of our society which is developing an ever-increasing awareness of the aesthetic appeal of succulent plants? I suppose that my collection has developed in its particular area of interest partially from the anxiety of pondering this problem. In my experience with the native cacti in **Arizona,** many of the state-affiliated institutions there will not sell seeds, and those who might be persuaded to sell cuttings are unable to do so because of a state law which forbids them to give away or sell cuttings to individuals from plants obtained by state permit. It seems a shame that prunings from such plants must be destroyed when they might have prevented more plant stealing from the habitats. There is a conspicuous lack of availability of seeds and plants of many of the **Arizona plants.** Also, a similar lack exists in Texas, especially in West Texas." ---- Owen E. Bailey, 135 Mohawk Avenue, Louisville, Kentucky 40214.
(READER: You are invited to write to Owen Bailey).

HILDEGARD NASE READS FOR YOU "KAKTEEN SUKKULENTEN"

Why only graft the miniature Mammillarias? By Juergen Falkenberg and Klaus Neumann. The small Mammillarias M. saboae (GLASS), M. theresae (CUTAK), and M. goldii (GLASS and FOSTER) have only been discovered in recent years. Complete descriptions have been made in science literature. These three miniatures form a closely related group. They have in common an unusually large, long-stemmed flower and a peculiar fruit inside the plant body. Their taxonomical place has probably not been finally assessed.

Alfredo B. Lau, a collector living in Mexico, has found another small plant recently, about the size of a filbert nut. This plant has also very large flowers, and since it has not been named yet, is known under Alfredo B. Lau's fieldnumber 77. This new plant pups very freely and it is hoped that we will be able to see it in collections soon.

To hasten propagation of M. saboae, theresae and goldii, they were mostly available only grafted. Grafts of this kind sprout usually, and luckily, plentifully, but often get too fat-looking and lose their natural character. We would like to suggest growing these plants on their own roots. Our experience is that these plants are easy to reroot without great losses. Make cuttings close to the base from the graft. Let callous for a week; then place calloused end on coarse gravel. Start watering only after dry roots have formed and are about 2 to 3 mm. long. For further culture, we recommend a humus-poor soil. After one year it is often already noticeable that the newly rooted cuttings have started making heavy, carrot-like roots. The overfed look will gradually disappear.

Is there any reason to graft? Besides, M. saboae brings forth its beautiful flowers much better on its own roots.

--Translated from German into English by Hildegard Nase.

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Look for further translations from KAKTEEN SUKKULENTEN, cactus journal of East Germany sent to us as a gift from there.

IN MEMORIAM

One Saguaro at Camelback Inn, Valley of the Sun, Phoenix, Arizona
One Saguaro in Honolulu, Hawaii

AN OBITUARY OF TWO FAMOUS SAGUAROS

A notice of death, often with a brief biographical sketch, as in a newspaper, pertaining to a recording of death, is generally news of the passing of a human being or some "famous" animal of renown such as a racing horse, etc. Seldom is anything in the plant world mentioned. PAUL DEAN of the ARIZONA REPUBLIC in Phoenix reports under date of Thursday, July 17, 1975, plant interest stories on two saguaro cacti and their deaths. The stately Saguaro at Camelback Inn was used countless times as a picture prop, not only by the guests but by thousands of other visitors to the Valley of the Sun resort area, when viewing the beautiful blooming gardens and desert plants during winter months. I have a picture of a relative taken 30 years ago, standing beside this gigantic cactus. This article gives non-Arizonans the reason that the Saguaro requires arid land.

Thanks to Paul Dean for these death sketches of a cactus that gives Arizona its state flower -- the saguaro blossom. --- John B. Hales.

Cactus-Like Caterpillar

The creeping-devil cactus suggests a giant caterpillar. Continually taking root at one end, it inches forward, the rear shriveling and dying as the front grows. It climbs over obstacles.

Sogginess spells death for stately saguaro

Cereus Gigantea, a noble Arizona native, collapsed and died at Camelback Inn recently.

He was 110 years old.

Yet that is barely beyond middle age for a lofty saguaro cactus as tough as Tombstone.

PAUL DEAN

A poolside landmark, and shaved to protect the bikini-clad, this Sonoran sentry toppled on duty.

Cause of death required no autopsy.

It had drowned as the result of being surrounded by hotel lawns which required constant watering.

The saguaro, of course, survives on a hatful of rain a month. Two drops more and it will keel over from water prostration.

But death by bloating is not an unusual end for a gesturing saguaro.

Many tropic moons ago, a cactus which was a military mascot and an Arizona ambassador with historic portfolio, supped and died near Honolulu.

This saguaro, a little - bellied babe born free, was a goodwill gift from the Arizona Army National Guard to the 35th Infantry stationed at Schofield Barracks.

It was something of a thank - you gesture because the Arizona Guard would be spending two weeks training with the Hawaiian jungle pounders.

It was also an appropriate momento because the 35th had been organized at Douglas in 1916. Despite a transfer to the islands, its unit patch preferred to show a saguaro rather than a pineapple.

Anyway, Arizona's gift was potted in a barrel, carried aboard an Air Guard C97 and hauled, with escort, across the Pacific to Hickam Air Force Base.

(Continued on page 7)

On muggy Oahu, the cactus was quite out of its thirsty element.

But the Arizona Guard had done its logistical and support homework well.

With the gift was a sheaf of data explaining the traditions and habitat of the saguaro, predictions for its growth, suggestions for solar exposure and a full list of care and feeding instructions provided by the Desert Botanical Gardens.

There was enough horticultural material to confuse Euell Gibbons.

So, to reduce the possibility of error through misunderstanding, an Arizona guardsman spoke a rule-of-thumb known to all cacti keepers.

"All you have to do is make sure that the saguaro is watered everytime it rains in Arizona," he said. "Just keep a running watch on weather reports in the Honolulu Advertiser, notice when it rains in Arizona and wheel the cactus outdoors."

This was done. For two weeks. For a month. For six months until the saguaro was stretching and swelling as nature intended.

In the military, however, standing orders have a habit of loosening with time. Commanders come and noncoms go and regimens fluctuate. Yesterday's firm regulations become today's soft suggestions.

Which is why, almost a year after delicate delivery, the saguaro tottered on rotted roots and bit the Hawaiian dust.

Oh, the enlisted man in charge of cactus care had been obeying oral instructions as received by him.

He had been reading the newspaper every day.

He had been taking the saguaro outdoors whenever it rained.

But on days when the Honolulu Advertiser said it had been raining in Hawaii.

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A BOTANIST'S PARADISE: Belgium's Hautes Fagnes area of the Ardennes covers 10,000 acres owned by the government. The "highland moors" are a botanist's paradise, with some of the plant life dating to the Ice Age.

DIRECTORY OF ARIZONA ENVIRONMENTAL AND CONSERVATION ORGANIZATIONS LISTS TCBS

Listings in this very useful directory were compiled from organization responses to a Governor's Commission on Arizona Environment Questionnaire circulated throughout the state of Arizona. See pages 19 and 26 (Museums-Zoos-Botanical Groups). Look up this directory at your public library. Or write for a free copy to: Governor's Commission on Arizona Environment, 206 South 17th Avenue, Phoenix, Arizona 85007. This Commission, established by Executive Order of the Governor in 1965, is charged with evaluating Arizona's environmental problems and making recommendations to the Governor. it meets every two months in various communities throughout the State of Arizona. All members are volunteers appointed by the Governor. (r).

TUCSON BOTANICAL GARDEN HONORS THE YOCUM FAMILY

"In grateful appreciation for their outstanding contributions, the Board of Directors of Tucson Botanical Garden do hereby convey Honorary Life Membership to the Yocum family -- Harry, Bertha, and Harrison. October 31, 1975." A handsome plaque conveyed this expression of appreciation to the Yocum family, and is now in their possession.

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BAJAPHILES! BAJAMANIACS! ALL BAJA FANS! Be on the alert for upcoming announcements of a 10-day field trip to Central Baja, led by our good friend, Dr. Robert R. Humphrey. The University of Arizona offers this graduate course on the Ecosystems of Central Baja, for persons of ages 18-80 years, for credit or simply for enjoyable and profitable learning. Late May is the period. More details in future announcements.

CACTUS "FOOD" TO ENRICH AFRICA'S DIET PROTEINS: British scientist, Rodney Bassett, is trying to reduce African malnutrition by developing a low-cost protein food from pineapple fibers, orange peels, and CACTUS LEAVES. (Port Elizabeth, South Africa, AP).

Robbins examines plants in his greenhouse

Cactus collector.

Local man gains world-wide recognition

By ANN FISH
Family Editor

If you don't believe there are over 5,000 varieties of cacti, take a look at Jim Robbins' yard in Sulger Subdivision.

He has over 1,000 varieties of cacti and other succulents planted around his yard. He has been collecting cacti since 1949, two years after he moved to Tucson.

"I became interested in cacti when I found out you don't just dig them up, plant them in sand, put them out in the full sun, not water them and then wonder why they died," he laughs.

And, the number of varieties of plants Robbins has will attest to the fact he knows what he is doing!

Robbins raises some plants from seed, and he imports plants from nurseries throughout the world. He says he used to go out and dig the plants up, but laws now prevent this. However, Robbins said laws do nothing to prevent land developers or persons building roads from bulldozing up hundreds and hundreds of plants at once!

The fact that Robbins knows so much about cacti and has an extensive library on the subject has brought visitors from every state and from Japan, Australia and England to his home to talk with him and to study his plants.

"Very often, they just show up on your door step," he says. Currently, a young couple from Australia is spending a lot of time at the Robbins' home learning about the plants.

How did Robbins first become interested in cacti?

"The pretty pictures in Arizona Highways are what got me started," he says. "They intrigued me."

Four years ago, the Robbins family moved here from Tucson. Robbins is now a pharmacist at Modern Pharmacy.

Asked how many plants he lost in moving, Robbins replied that he gave about 400 plants to the Desert Museum in Tucson and that he lost about 200 in moving.

Although his wife Jeanne doesn't take an active interest in cactus plants, she does enjoy gardening and working with other flowers.

Robbins spends "an hour or so" a day working with his plants, even though they don't take that much time. And he especially enjoys showing off his collection and talking about them.

Once the plant is in the ground, it takes very little care, according to Robbins. However, contrary to popular belief, they do require water. Robbins says that most people don't realize that when it does rain on the desert, the moisture is retained under rocks and deep in the ground, and that the cacti roots are long and can take advantage of the water sources.

Cactus plants are also very adaptable to various climates because they have expandable ribs which contract and when the moisture goes down, so less of the plant is exposed to the hot sun.

The old tale about cutting into a cactus to obtain water is also contradicted by Robbins. He said, "It might be possible for a person to survive using this method, but experiments show you'd have to take the pulp and compress it and you'd end up with a yukky mess."

Robbins has been a member of the Tucson Cactus and Botannical Society since 1966 and served as president in 1968. He has been a member of the National Cactus and Succulent Society since 1949.

BILL PLUEMER'S GIFT TO T C B S LIBRARY

A three volume set of "An Illustrated Flora of the Northern United States, Canada, and the British Possessions" has been donated to our library by our knowledgeable, botanical member and friend, Bill Pluemer. Our sincere gratitude to him.

EASTERNERS' YEARNINGS. So many of our newly-arrived Easterners, accustomed to verdant woodlands and tree-lined streets, immediately begin planting large-leaf trees and shrubs around their new homes. Then they complain about the cost of keeping plants alive, little realizing that they are fighting our desert environment. Our Sonoran Desert, or Microphyll (small-leaf) Desert has such low humidity that over the past ages it has developed specialized plants that have small leaves, some covered with minute hairs, others coated with resin -- all formed to withstand low humidity and scant rainfall. The ocotillo, for example, has developed the mechanical means to squeeze off leaves during dry periods to conserve moisture in its stems.

Many of out "new Westerners" knock themselves out by planting both winter and summer lawns, each requiring different species of grass. They had only one lawn a year back east. A lawnless yard is so easy to maintain, and it fits into our desert setting. It may take a newcomer a season or two to get used to this. You need a base of decomposed granite into which you plant your few cacti, desert trees, yuccas, ocotillos and century plants. Clean and rake around them about 3 or 4 times per year. Replace any dead plants and relax. For a small yard of a patio, the early Spanish used a pool surrounded with a paving of tiles and a few plants set around the area in colorful pots -- no mowing of grass for them. Years ago medical advice to asmathics and sinus sufferers was to move West to a low-pollen climate. With the introduction of so many exotic trees during the past 30 years, the pollen from these trees has increased our area's pollen count close to that of eastern areas. The dryness of our area keeps pollen suspended in the air longer than in humid areas. The dry pollen is much more irritating to the nose and throat. It all reminds one of the fellow who came to Arizona for asthma – and got it. (Saguaroland, November 1975, Volume XXVII No. 9).

DR. W.G. MCGINNIES AND A POSSIBLE ARIZONA NATIVE PLANT SOCIETY

Dr. William G. McGinnies, founding president of the Tucson Cactus Club, 1960, is exploring for possible interest in the future organizing of an Arizona Native Plant Society. Such groups are active in California, Oregon, Washington, Nevada. Several Tucson residents are interested. All native plants of Arizona are the concern and interest of such a society. Goals include: statewide protection, landscaping with them, water-saving by their use. Please call Dr. McGinnies -- 297-1506 and tell him about your interest in this. Look and listen for further announcements.

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THOUSANDS OF ALOES IN BLOOM were among the delights of Joyce Tate's fabulous trip to "Aloe '75" world convention in Rhodesia this summer. CHATTER editor received from Joyce a color photo of Aloe Candelabrum. These indigenous Aloes are shaped like candelabra and are easily recognisable by their small tree height and vivid colourings, usually growing in riotous colourful clusters.

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1977 C.S.S.A. CONVENTION IN CACTUS CAPITAL OF THE WORLD

This will be the third to be held in Arizona. July 2-5, 1949, the 3rd Biennial Convention was held in Phoenix, Arizona. The 11th was in Tucson and Phoenix, May 3-8, 1965. The 17th will be May 16-20, 1977, in Tucson, Arizona. E.S. Taylor is the new Convention Chairman of C.S.S.A. He has appointed as the C.S.S.A. Coordinator for the 1977 convention, Richard Wiedhopf of Tucson, Arizona, who is 1975 president of the Tucson Cactus & Botanical Society.

WORLD ALOE '75 CONGRESS IN RHODESIA

Attending ALOE '75 was a fabulous experience, and certainly unlike anything we have ever been to before. We surely wish that all of you could have been in Rhodesia, Africa with us. We saw thousands of Aloes, most of them in bloom in habitat and in public and private gardens. The first week we toured the Eastern Highlands by bus, and went to a different area each day. At Mtarazi Falls we saw Aloe ingangensis hanging from the cliffs at the side of the Falls. And yet we are told not to give our plants too much water. At La Rochelle, a National Trust, there is a large formal garden which has a separate section for Aloes, all of which have been in the garden a long time, and they are large, mature plants. We were privileged to see the famous Munch Garden, and it truly was a privilege as he seldom allows anyone to visit the Farm. Started in 1909 by his father, most of the plants are very large ones, many of them already there when the first plantings were made. Special plants were Aloes Munchii and Hazeliana, named for Mr. & Mrs. R. C. Munch. A big thrill was seeing Baobabs (Adansonia digitata) in habitat for the first time -- certainly an unbelievable tree! We spent an exciting time in the garden of Darrel Plowes of Umtali, who opened up his lath house to us and told us to take cuttings of any of the Stapeliads that we wanted -- there were several hundred of them -- I don't think that anyone has ever done this before. Mr. Plowes is a Stapeliad authority, and hopes to sometime revise the White & Sloane books. Everywhere we went we were served tea and cookies and sandwiches. We also went to several barbeques. We were treated like royalty, especially the 16 of us from the United States. Everyone wanted to meet us.

The second week was one of the formal sessions, with lectures by many of the world's great authorities in their fields. Professor H. Wild told us of the importance of the minerals in the soils where Aloes grow in habitat. One morning we went to the Great Dyke, Rhodesia's main geologic feature, to see Aloe Excelsa, Cryptopoda and Orthalopha hybrids where chrome is the main mineral mined. We were told that collected plants do not always survive because in their new home they will not get the same minerals as they do in habitat.

Other programs dealing with Aloes were, "The Evolution of Aloes" by M. Kamstra; "Aloes of Rhodesia and Their Environment", by E. J. Bullock; "Aloe Cultivars", by A. Koeleman; and "The Aloes on the Cote d' Azur" (Monaco), by M. Kroenlein. Other speakers touched on Aloes when talking about other succulents. There also was a plant show which really featured Aloes. These Rhodesians think nothing of digging up a 10 foot Aloe plant to put in the show. In fact, most of the Aloes shown were specimen plants. We were also interested in the number of "grass" Aloes shown, all in landscaped gardens. The arrangement section featured cut flower stalks used with other succulents. It must have been difficult to choose the prize winners – all were beautiful and unusual. Many of the Aloe growers in Rhodesia and South Africa are hybridizing and creating really superior qualities in these new Aloes - color, flower size and plant size. Aloe arborescens seems to be one of the best parents. All of you who went to Cynthia Giddy's program in San Diego will recall the hybrids she showed pictures of, many of them having Arborescens as one parent.

The second week ended with a tour of Ewanrigg National Park and its fantastic Aloe garden and a do-it-yourself barbeque. One of the plants we saw was a Cereus Peruvianus which has attained a height of 30 feet! Really something to see -- among African plants. Following the barbeque, we were entertained by native black people, with drums and other musical instruments; also by dancers. Another of the unforgettable events of the second week was the reception given by Premier Ian Smith of Rhodesia, with a band concert by the finest black band in the world. Afterwards we met informally with Premier Smith who welcomed us to Rhodesia, especially as we were from "America". Mayor G. H. Tanser and the Councillors entertained us on another evening at a reception in Salisbury.

The third week was a tour of the Western part of Rhodesia which was very different

from the Eastern Highlands. For many years I have wanted to see the Zimbabwe Ruins, and I was really fascinated with them. Not only are the Ruins spectacular, but there were many very tall Aloe Excelsa plants in bloom scattered among the Ruins. Old and weathered, the Ruins reminded me of some of our own Indian ruins in the Southwest and Mexico. No one knows who built the walls and conical tower; most Rhodesians believe that it was the Phoenicians of ancient times. Even though Aloes were our paramount interest, it was another thrill to see Victoria Falls and the Zambezi River from which they come, with rainbows in the mist. And on the cliffs not covered by the Falls, Aloe chabaudii was hanging with moisture on it continuously! Another fabulous garden that we saw, Hillside Dam Garden at Bulawayo, has 20,000 Aloes, most of them in bloom plus many other succulents also in bloom. In order to see some of the wild animals, we stopped overnight at Wankie to make two trips into the wildlife areas -- elephants, zebras, giraffes, warthogs, but my special interest was the baby elephants and giraffes. It was late afternoon and time for eating, and so we saw the animals foraging for food.

The highlights of our time spent in South Africa were our visits to South West Africa and to the Namib Desert where the Welwitchias grow, our view of the Indian Ocean and the Atlantic Ocean coming together, and the time spent at Kirstenbosch National Gardens at Capetown. There is a very large succulent garden there, scattered in many sections, Aloes, Mesembryanthemums, etc., and an especially fine collection of Pelargoniums, mostly succulents and species. All the plants at Kirstenbosch are indigenous to South Africa. And on all trips away from home, there is usually some one thing that makes a deep impression and is unforgettable. For me, it was seeing our United States Flag flying from the windows of our Embassy in Pretoria and our Consulate in Cape Town, South Africa. Seeing my flag, gave me a feeling of pride and security -- a beautiful ending to a life dream come true.

--Joyce L. Tate, Open Gates, Gates Cactus & Succulent Society, Riverside California.

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Mr. and Mrs. Daniels of T C B S have volunteered to mail CACTUS CAPITAL CHATTER during 1976. This is a real service to our members.

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T C B S TO REMEMBER LESS FORTUNATE TOTS FOR CHRISTMAS 1975

Young children in the Pre-School Exploratory Center for Cerebral Palsy and Other Neurological Impairments will receive toys and treats from their devoted friends -- members of T C B S. We will bring suitable toys and gifts of money to our annual Christmas dinner to be held this year at Tucson Botanical Garden, on December 14. Gift-giving to deprived youngsters has become the annual custom at Christmas parties of Tucson Cactus and Botanical Society.

BIRD REFUGE AT TUCSON NATIONAL GOLF CLUB

There is a tremendous amount of wildlife in the Tucson metropolitan area, despite the great amount of land clearing for building. It is time that some areas should be set aside for wildlife, not just for humans. A wildlife sanctuary need not encompass a large tract of land. The new bird refuge at Tucson National Golf Club is only 2.6 acres, surrounded by condominium apartments and fairways. This is an isolated haven of native vegetation including cholla, palo verde, mesquite, plus a variety of shrubs and forbs. It supports at least 200 Gambel quail, a wide variety of other bird life, plus rabbits, ground squirrels, and other desert inhabitants. Plans for this sanctuary are that it remain native, with no buildings or trails. Additional vegetation will be planted along the perimeter which will act as a protection to the wildlife inside. The only improvement to the area will be a small dripping fountain. William and Rosemary Nanini donated this land for a wildlife sanctuary and Tucson Audubon Society maintains it.