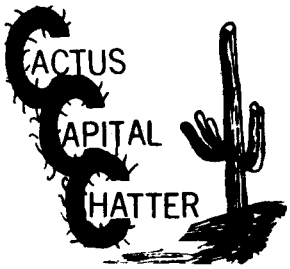

PUBLISHED BY

TUCSON CACTUS & BOTANICAL SOCIETY

P. O. Box 3723 College Station

Tucson, Arizona 85722

PURPOSE of Tucson Cactus & Botanical Society shall be to function continuously in study of cacti and native flora; to further the protection of cacti and native flora of Arizona; to sponsor a botanical garden in Pima County near Tucson, Arizona; to sponsor plantings of cacti and native flora in other suitable places. --- BY-LAWS of the Tucson Cactus & Botanical Society, Inc. Article I Section 2.

VOL. VII 1971 No. 1

E D I T O R I A L

CACTUS CAPITAL CHATTER editor invites all members of Tucson Cactus & Succulent Society to envision with us a 1971 CHATTER increasingly interesting, varied, stimulating. Toward which 1971 goal, I have reorganized and enlarged CHATTER staff. Evangeline Scott remains assistant editor. Reportorial departments include: Baja and Mexico; Arizona-Sonora Desert Museum; Conservation; Desert Crafts; Cacti Wherever; Cactus Culture, among others. Among our more knowledgeable members who specialize in their various fields of interest, the following have agreed to contribute to CHATTER 1971: William A. Pluemer, Carl O. Horst, Don Ducate, May Watrous, Earl and Mabel Benton, Harrison Yocum, among others. These contributions will be in addition to those turned in by other members, either voluntarily or by assignment. All members are invited to send or give to the editor at any time, material that they think might be suitable for publishing. -- Editor: Josephine Shelby.

1971 CACTUS CAPITAL CHATTER SUBSCRIPTIONS ARE DUE -- NOW!!

Rates: FREE to 1971 PAID-UP members of Tucson Cactus & Botanical Society. HAVE ALL OF YOU PAID YOUR 1971 dues NOW DUE? To U. S. addresses, CHATTER costs $1.00 per year. To foreign addresses, $1.50 per year. Please make your checks payable to Tucson Cactus & Botanical Society and mail NOW to us. Send or give cash payments to Josephine Shelby, CHATTER editor. Thank you.

First Independent Cactus Show Drew 1300 Visitors

The first attempt by Tucson Cactus & Botanical Society to stage its own independent cactus show was a success beyond all expectation. We presented it on November 7, 8, 1970 in Randolph Park Recreation Building. Betty Blackburn was general chairman, and she deserves great credit for the success of our show. 1300 persons saw and studied and enjoyed the 465 cacti and other succulents that were displayed in pots and planters. In addition to living plants, they enjoyed arrangements of dried desert materials, handcrafts created from these materials, oil and water color and photography portraits of cacti and of desert landscapes, pottery, demonstrations of some uses of cacti and other succulents, grafts, crests, monstrous plants, methods of propagating plants.

Our first cactus show was not competitive, and there were many outstanding entries. Entries were open to our 125 members as well as to the public. Non-members who exhibited were: Dr. Archie J. Deutschman showing his outstanding collection of mammillarias--his specialty; Ellen P. Derwin of Oracle, Arizona--her water color portraits of cactus blossoms; Shirley Lloyd, Helen Roubicek, A. L. Alvarado, Marika Cutrules---oil portraits of cactus blossoms; George Scannell, Tanque Verde Greenhouses----commercial exhibit; Steve Schroeder.

Following is a somewhat brief resume of some of the exhibits entered by many of our actively participating members. Dorothy Levering ---- a handmade desert landscape wall hanging. Evangeline Scott-- framed pressed flower and plant miniatures. Earl and Mabel Benton--1 table of handcrafted articles made from desert materials. William Pluemer--3 large crests from Baja California and Sonora, Mexico---2 organ pipe cacti, 1 machaerocereus gummossus. Also, a fine photographic portrait of a night blooming cereus flower. Jim and John Robbins--30 plants, mostly succulents from Africa. Their Turk's cap cactus from Bahia, Brazil was unusually interesting. Nancy Clarke exhibited the most plants of any individual---93, and 2 arrangements. Her Melocactus Intortus is a rare and expensive plant, native of West Indies. She had a crested euphorbia, a variegated gymnocalycium (Japan), also several crests (Japan). Roger and Goldie Dean showed 15 of their plants. Lura Fuller showed an interesting peanut cactus planter. Louise Coan's 13 entries included the only Christmas cactus in the show, and a very large stapelia. Kay Brown entered 1 oil painting, 2 potted succulents, a Haworthia and an echeveria planted in her own hand-molded planters. George Snyder--7 plants, some of which he brought to Tucson 8 years ago from Iowa and Michigan. Mrs. Herbert Stehulka--7 plants. Ruby Jennings showed 2 of her oil paintings. P. G. Nichols exhibited 6 of his paintings of cactus blossoms. Alan Blackburn entered 70 plants from his vast collections. Betty Blackburn, advocating "Do not be pot-bound; use anything around", entered plants in a cup, in a pottery shoe, and a dinosaur-looking saguaro shoe. She also prepared the exhibit on "Cactus as Food", and Aloe Vera's medicinal uses. Joe F. Brick showed dried arrangements in natural containers from the desert. Hildegard Nase had 25 entries, outstanding among which was her large log-patio planter containing an arrangement of different succulents. Also, a large crested Mammillaria wildii. Carl and Wanda Horst exhibited 40 plants from their varied and numerous collections.

Plants in our show were grouped for exhibiting, whether they were native to: United States, Mexico, South America, Africa. All persons who viewed the many exhibits of the show ere seriously interested in learning about cacti and the other succulents. They lingered before those exhibits of special interest to them. They made many inquiries of our members who were on floor duty for this purpose.

Hubert W. Earle, Director, Desert Botanical Garden, Phoenix, visited our Cactus

Show. He complimented us on varius aspects of our presentation of this show. Hal Gras of the staff of Arizona-Sonora Desert Museum was another interested visitor at our very successful show. Nancy Clarke suggested that the following quotation could apply to our successful show: "Never one thing and seldom one person can make for a success. It takes a number of them merging into one perfect whole.--Marie Dressler."

I N M E M O R I U M

Harry M. Anderson

Harry M. Anderson spent a three-month vacation in Arizona during the winter of 1959. The saguaro cacti so completely fascinated him, in their southwestern setting of desert shrubs and other cacti, that he and Mrs. Anderson became permanent residents of Tucson later that year. Emaly Anderson declares that their front yard shortly became a cactus forest. They have been members of Tucson Cactus & Botanical Society for several years. Harry Anderson, a native of Minnesota, retired from Northwest Heating Engineers, Inc., a firm of which he was a member, in 1958. He passed away on Dec. 10, 1970. The members of Tucson Cactus & Botanical Society extend their sincere sympathy to Mrs. Anderson. Her present plans are to continue to live in Tucson and to retain her membership in our Cactus Club.

A TRIBUTE TO JOE F. BRICK

Tucson Cactus & Botanical Society was very fortunate to have Joe Brick as its treasurer for six years, 1965-1970. The dictionary defines gratitude as a "feeling of thankful appreciation for benefits received, a warm and appreciative response to kindness." We the members of this Society take this opportunity at the start of anotehr year of our Club's existence, to express to our member, Joe Brick, our sincere gratitude for every contribution he has so unselfishly made to our organization. He joined Tucson Cactus and Botanical Society in 1963, and continuously has remained an actively participating member. In 1964, President Jack Meyer appointed Joe Brick to our Board of Directors. During this year, plans for creating our Haag Memorial Garden were in the talking stage, and Joe became intensely interested and active in it. In 1965, he was elected treasurer of our Society. He was re-elected annually, through 1970. This record distinguishes him as being our only elective officer who has served six terms continuously. This fact also speaks for the high esteem in which he is held by the majority of our members, and is based on his fortunate qualifications as a thorough, experienced, and conscientious financial manager. In the course of his service to our Society, he has established a treasurer's procedure for the manner in which to handle our income, expenses, and yearly budget. Joe's friendly manner and pleasant smile have greeted many of our visitors and new members who have told us about this and what it means to them.

COMMITTEE CHAIRMEN APPOINTED FOR 1971

President Hildegard Nase has appointed the following Committee Chairmen for 1971: Affiliate Director--Rosa Christensen; Program--J. A. Robbins; Budget--Maurice Hegarty; Membership--Lena Marvin, Lura Fuller; Cactus Capital Chatter--J. K. Shelby; Historian--M. Larsen; Hospitality--K. B. Brown; Librarian--John Robbins; Plant Sales--W. Murch; Refreshments--E. Wills; Publicity--Werner Nase; Parliamentarian--Chester M. Scott.

BENTONS' BUGS WILL BEAM IN ON THE CONVENTION BANQUET BOARD! WHY? ASK EARL AND MABEL BENTON!

ALAN BLACKBURN

A TRIBUTE TO ALAN AND BETTY BLACKBURN

Our member, Alan Blackburn, has been a "pillar" of Cactus Club ever since it was organized in 1960. Many of our members have been heard to state: "No Blackburns, no Cactus Club." Agreed. Betty Blackburn equally has been a "pillar." Blackburns may be properly referred to as the "hub" of Tucson Cactus & Botanical Society. Alan was a personal friend of Cactus John Haag who founded our Tucson Cactus Club in 1960. Alan and Betty are charter members, and he was our first vice president. He became president in 1966. Members that year seriously characterized Alan's administration as the "Educational Year". Through instructive programs at his meetings, he stressed learning specifically about the world of cacti.

His cactus collecting fever began in Ohio as he bought various little potted cactus plants in the dime stores. He and Betty arrived in Tucson in 1947 to live here permanently. Today at their Open Gate Ranch, Tucson Mountains, he has perhaps 700 species of cacti and other succulents. He is easily a cup and ribbon collector in cactus shows. In 3 shows sponsored by Desert Botanical Garden, Phoenix, Arizona, he has walked off on each occasion with the top honors for best in show. From 1952 to 1958, Alan was a botanist at Arizona-Sonora Desert Museum. For three years he was associated with the New Mexico Ghost Ranch Museum. Returning to Tucson after that, he has been in the maintenance department at Desert Museum. Alan and Betty have unselfishly worked on various committees for our club--field trips; cactus shows; entertaining our guest speakers; working on the refreshment committee; writing articles for CACTUS CAPITAL CHATTER; donating gifts of fine books to our cactus library. They invited our club to hold its annual Xmas party at their Open Gate Ranch, December 1967.

Alan and Betty Blackburn exemplify organization members who are greatly admired. It is hoped that all that they have accomplished for Tucson Cactus & Botanical Society is appreciated by every member. May we add that every member could very properly try to follow in Blackburns' footsteps.

NOTES ON SUCCULENT PLANTS --- PART I

By Larry W. Mitich

North Dakota State University, Fargo, North Dakota

The word, "succulent" is derived from the Latin "succulentus" which means juicy or fleshy. The designation "succulent plants" or simply "succulents" rightfully refers to all drought-resistant plants especially adapted to absorbing and storing large amounts of water in their thick leaves, stems, or branches. Succulents do not belong to any single family of plants. Indeed, there are

succulent species in over thirty plant families. Cacti are probably the most familiar family of succulents to most people. Generally all succulent plants other than cacti are called "succulents" or sometimes "other succulents" for the sake of convenience.

Succulent plants are able to survive the rigors of arid climates by accumulating in special storage tissues moisture from infrequent rains. This tissue is located in the plants' leaves or stems, or in both, and is responsible for the turgid appearance of the region where it occurs. This turgidity furnishes the simplest method of identifying succulents. The barrel cacti (species of Ferocactus and Echinocactus) are excellent examples of turgidity. A ferocactus two feet tall and one foot in diameter weighs approximately 50 pounds. The total surface exposed to the air is less than 10 square feet. But a young tree of equal weight presents a surface to the air of some 100 square feet because of its trunk, branches, and leaves. All plant surfaces exposed to the air transpire water. The cactus in the example has 10% as much surface exposed to the air as the tree has and consequently transpires 90% less water!

Most succulent plants inhabit deserts or arid sites (e.g. tree trunks or boulders) in the tropics. Conservation of water is very important. These plants develop turgidity, rigidity, and protective waxy coatings to survive and perpetuate their kind in harsh environments. Succulents do not grow in dry regions by choice, but because they, of all the leafy plants that grew in the regions before geological changes produced aridity, were able to adapt to changed conditions by modification of form and specialization of some of their parts. Of the succulent plants, Ferocactus has developed the greatest water-storing capacity. All succulents have this capacity but to a lesser degree. Water storage in columnar cacti occurs in the stems which are greatly enlarged as in the saguaro (Carnegiea gigantea). In some plant families, stem succulence is well developed, particularly in the African species of Euphorbia. Water storage tissue is confined to the leaves in other succulent plants, notably the Echeverias and other related genera in the Crassulaceae, the Agaves and some aloes and various other succulent genera. If succulence occurs only in the leaves, such leaves are generally arranged in rosette fashion around an abbreviated stem as in the Echeverias and Agaves. In some genera (e.g. Sedum) the leaves are borne in a rosette or grow alternately on the stem or are spiralled. In all cases, the succulent parts are arranged to reduce surface area and water loss by transpiration. Rigidity of stems or leaves is another water conserving feature. Leaves of a tree display motion to the slightest breeze. Brisk wind causes motion in the entire plant. This movement opens the leaf stomata (pores) permitting rapid transpiration of water to occur. Succulent plants possess very rigid stems and branches and the rosette arrangement on short stems greatly curtails their movement. Consequently, loss of water by transpiration is markedly reduced. Leaves in many succulents have evolved to mere traces or are absent altogether and their function has been assumed by the green stems. The reduction in size or absence of leaves conserves considerable amounts of water. Further, the total number of stomata is greatly reduced in succulents.

The waxy or hairy coating on the stems or leaves (or both) is also valuable in water conservation. In certain species the waxy coating becomes so pronounced that it appears as a white bloom on the leaf or stem surface. In some species a fine hair-like coating replaces or supplements the waxy covering. The hairy coating achieves the identical purpose as the waxy coating -- protecting the plant against water loss by transpiration. Echeveria setosa, Kalanchoe tomentosa and especially Cephalocereus senilis possess beautiful hairy coatings.

(to be continued)

Acknowledgement: Larry W. Mitich has given CACTUS CAPITAL CHATTER of Tucson Cactus & Botanical Society his permission to print his article above. Parts II and III will be appearing soon. The source of these articles is THE SPINE, official bulletin of the Cactus & Succulent Society of Australia, Vol. 18, No. 1, October 1969. Our thanks to Mr. Mitich and to THE SPINE.

A DESERT CURE FOR SCURVY

Ronald L. Ives

It is commonly stated by historians that the Spanish were most remiss in seeking a remedy or preventive for scurvy. Voluminous records of the trials and tribulations of voyagers on the Manila Galleons and the sufferings of the members of the Portala Expedition, amply support this generalization. Scurvy is a disease caused by Vitamin C deficiency. Ascorbic acid, contained in many fresh vegetables and fruits, relieves scurvy rather quickly.

The Spanish discovery of a powerful antiscorbutic came about as a result of the disastrous, but informationally successful Vizcaino Expedition of 1602-1603. A corporal named Antonio Luis went ashore on the Mazatlan Islands and saw tuna, fruit of the opuntia, or prickly pear cactus. Its juice is astringent and it is a powerful antiscorbutic. He ate several and found that his sore teeth and gums improved greatly. He shared tunas with his ship companions also stricken with scurvy. Although cactus fruits never became important items of commerce, knowledge of their antiscorbutic properties became widely known in Sonora and Baja California, especially at San Jose del Cabo which was specifically founded as the relief station for the Manila Galleons. Extensive personal travel in the deserts of Arizona, Sonora, and Baja California shows that field rations--rice, carne seca, cheese, tortillas--are greatly improved and made more digestible by the addition of ripe tunas or pitahayas (fruit of the saguaro). Both fruits seem to relieve travel weariness rapidly, and to speed the healing of boot-sores. Both effects are compatible with a high Vitamin C. content.

Members, you are urged to read the entire article of which the above is only a condensation. Go to Arizona Pioneers' Historical Society Research Library, 949 East Second Street, Tucson. Ask to see "the Journal of Arizona History". Summer Issue 1970, Volume 11, Number 2. Read "The Lost Discovery of Corporal Antonio Luis: A Desert Cure for Scurvy", pp.101-114. Dr. Ronald L. Ives, the author, teaches geography at Northern Arizona University. For permission to quote from Dr. Ives' report, we are indebted to Kenneth Hufford, Editor of The Journal of Arizona History.

ALONG CACTUS TRAILS

THE VEGETATION OF THE CENTRAL DESERT OF BAJA CALIFORNIA

This is the title of an illustrated talk which Dr. Robert R. Humphrey gave at the January 1971 meeting of Tucson Cactus & Botanical Society. After the meeting, Dr. Humphrey expressed his pleasure in talking to us -- an interested and responsive audience, he thought. And -- indeed we were exactly this. CHATTER editor has heard ever so many members state that this meeting was one of the finest they recall in the history of Cactus Club. Dr. Humphrey's fine color slides plus his vivid and interesting descriptions of each one gave us a thrilling trip, vicariously, through the Central Desert of enchanting Baja whose voice lures travelers back there, time and again, according to William A. Pluemer of our Cactus Club.

Dr. Robert R. Humphrey is Professor of Biological Sciences, the University of Arizona. He has spent much time in Baja California, under a National Science Foundation Grant, studying Idria columnaris. Tucson Cactus & Botanical Society members express to Dr. and Mrs. Humphrey their sincere appreciation for giving us this fine program. Mrs. Humphrey's exhibition of her intimate sketches and drawings of boojums especially, and several other plants and trees of Baja, fascinated our members.

DWINDLING SAGUARO FORESTS FACED BY EXTINCTION THREAT

The saguaro, or giant cactus, long a symbol of rugged stability in Southern Arizona and the Sonoran Desert, is in actuality a plant highly sensitive to its environment, and is being threatened with slow extinction in some areas where it has long thrived. While certain forests of saguaro are remaining stable and thriving, others appear to be gradually thinning because young plants are not reaching maturity. What is causing the slow demise of certain saguaro forests, such as the northern section of the Saguaro National Monument east of Tucson, is a complex environmental puzzle which University of Arizona scientists are attempting to unravel. According to Dr. Stanley M. Alcorn, a plant pathologist at the UA, a gradual "imbalance" in environment, resulting from insufficient rainfall and the reduction of desert vegetation from overgrazing, could be preventing many seedlings from reaching maturity. Vegetation provides protection from both the winter cold and the summer sun for the seedlings and is also a primary food source for rodents. When the desert is stripped of this, the rodents turn to secondary food sources, including saguaro.

What causes decay or "soft rot" in adult plants is another matter, for which science has not yet found an effective antidote. Saguaro rot might be compared to a severe bruise on a human because the discoloration that takes place--starting with yellow and turning light brown, purple then black. Several explanations have been put forward for its occurrence, including the effects of freezing temperatures and a growth called "bacterial necrosis." Dr. Alcorn has inoculated saguaro with the bacteria and found that the discoloration process almost always takes place. The first symptom is a small, circular, light-colored spot, usually with a water soaked margin, on the surface of the trunk. As the infection progresses, the spot enlarges and takes on a purple color. When the rotting is not checked, the spot breaks, and a brown liquid exudes. This "bleeding" indicates an advanced state of disease according to Dr. Alcorn. Can anything be done to check the decay, once it starts? "As yet we have no chemical antibiotic which has proved effective, although we are still working on it," he said. " In some cases, a mature saguaro can stop the decay itself, by walling off the infected area with a "boot" of hard tissue. If the rot pocket is superficial, one can cut around it and souse the area with a 10% solution of household bleach, which kills the bacteria."

Quoted from Arizona Daily Star, Oct. 22,1970, Page 14, Sec. C

PARLIAMENTARY PROCEDURE IS A NECESSITY FOR SMOOTH OPERATION OF ANY GROUP

The purpose of parliamentary law is not to get organizations out of trouble but to keep them out of trouble. Parliamentary procedure is vital to the successful operation of any organization. It allows the members to know their rights and to understand their limitations. Parliamentary law consists of five major principles -- equality, justice, rule of the majority, right of the minority, and one-thing-at-a-time. It should be taught as early as elementary school. Even if you are not a member of an organization, parliamentarians believe that the sense of justice and fairness encouraged by the procedure will be beneficial in every phase of life. Parliamentary law protects the presiding officer as well as the organization member. For it to work, every member of the group must understand the procedure. The presiding officer may have an excellent working knowledge of parliamentary law, but if every member does not also, the president is at a great disadvantage. Individuals joining any organization should read its by-laws carefully.

MEMBERS, Do all of you carefully and thoroughly read your copies of the By-laws of Tucson Cactus & Botanical Society, Inc.? You should. They state in ARTICLE XI Procedence, SECTION 1: "Robert's Rules of Order shall govern all meetings and all points not covered by the Articles of Incorporation and the By-Laws of the Corporation." Chester M. Scott is our Parliamentarian and guides our business meetings according to Robert's Rules of Order.

DON DUCOTE AT THE ARIZONA-SONORA DESERT MUSEUM

Don Ducote is the present Curator of Plants at Arizona-Sonora Desert Museum. Lately he gave CHATTER editor a conducted tour of the botanical areas of Desert Museum. The Mammillaria Ramada is filling up as the various mammillarias of the Sonoran Desert become available. The second phase of the Desert Demonstration Garden has been completed. It was planted in 1970 and is the Sonoran Mexican Section, featuring southern Sonoran Desert plants. In the Beaver-Otter-Sheep Area, artificial boulders and rocks have been created by blowing concrete on structures of wire and enforcing steel. Built-in pockets or planting holes furnish planting spaces for cacti and native shrubs in the boulders. This is experimental, to see if plants will grow there. Planters will be placed on top of the large boulders and planting will be done in crevices also.

Don Ducote is proposing to resurrect and redevelop the John Haag Memorial Garden in Arizona-Sonora Desert Museum. He says that perhaps a Haag Garden Committee might confer with him, to decide what needs to be done to bring the Garden back to life and to restore its attractiveness and appeal to the public for both educational and enjoyment purposes. When he learned that a permanent Haag Garden committee was authorized in past years, he expressed his idea of the great service that it can render his proposal if Tucson Cactus & Botanical Society accepts it, and if our members work with him to accomplish this goal. He says that the Garden would welcome contributions from our members of plants native to the Sonoran Desert and suitable for planting in the Garden. He would most certainly welcome volunteer help from our members to work in the Garden. This was the original plan for maintaining this Garden which memorializes Cactus John Haag who founded the Tucson Cactus Club in 1960, which was later named Tucson Cactus & Botanical Society. Don says that he will certainly look forward to working with our members and keeping us advised and instructed about our work for and in the Garden. In one section, the Echinocereus Area, there is an erosion problem demanding an underground drain. The Garden paths are in rather good condition. Rodents have not attacked plants. Some cacti need more protection for good growing. Perhaps more suitable soil would promote better growth in certain areas.

COLLEGE STUDENTS -- GUESTS OF THE CARL O. HORSTS

Mr. and Mrs. Carl O. Horst entertained 14 students and their two instructors from McAlester College, St. Paul, Minnesota, one January day. They described their guests as "a charming and courteous group of college youths." One boy saw 10 birds from Horsts' window that he had never before seen. Carl Horst gave them a three hour slide show of flowers, birds, and many animals. Wanda served them refreshments.

Tucson groups also, are enjoying Carl Horst's talks. He was guest speaker at a Welcome Wagon meeting at Three Sovereigns Restaurant in early February. He illustrated his "Arizona Cactus" talk with some of his fine color slides. The Golden Age Group of Catalina M.E. Church invited him to give a program this spring. "Mostly Flowers" was his theme, and he showed many of his exquisite color slides of flowers.

TUCSON PUBLIC LIBRARY PLACES CACTUS CAPITAL CHATTER IN ITS BRANCHES

Recently, Cactus Capital Chatter editor Shelby learned from Tucson Public Library that its branches would like to place our CHATTER on their periodical shelves. The Library branches so doing are: Valencia Branch, 202 West Valencia; Wilmot Branch, 530 North Wilmot Road; and the G. Freeman Woods Memorial Branch, 3455 North First Avenue. Speaking for our entire membership, your CHATTER editor expressed to the Library branches our appreciation for their offering CACTUS CAPITAL CHATTER to the Tucson reading public.

CACTUS CAPITAL CHATTER

PUBLISHED BY

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VOL. VII 1971 NO. 2

WE CAN SAVE THE ENVIRONMENT OF OUR GOOD EARTH. In our PRIVATE LIVES, each can pledge to stop being litterbugs, contribute as little garbage and junk as absolutely necessary. There is a ROLE for all of us. GET BUSY TODAY.

WILDERNESS IS . . . .

"an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain." -- The Wilderness Law, 1964. The 1964 Wilderness Law provides for the protection of public wilderness lands of National Park, Wildlife Refuge, and National Forest systems in the National Wilderness Preservation System following public hearings. But only 20% of these wilderness lands were included in the System initially. The rest must be added by Congress. The government agencies and citizen groups are now conducting studies on 152 separate areas throughout the country. WILDERNESS is not "locked up". Most is publicly owned and for recreational, educational use. But fragile watersheds and their natural biological communities are protected from developments.

"A culture without an opportunity for modern man to know the ancient rhythms, the great silences, and to be at one with the cosmic forces will be a barren one. No greater challenge faces us than to preserve some places of quiet and beauty for the sanity of mankind. The time to provide such places is now. There will be no second chance."--Sigurd Olson.

FRUIT FLIES AND THE GIANT CACTI OF THE SONORAN DESERT. The relationship between the various species of giant cacti in the Sonoran Desert and the different kinds of fruit flies, drosophila, which are associated with these plants, will be investigated. Harold L. Bird, Jr., lecturer in the Department of Chemistry at the University of Arizona, will spend the 1971-1972 academic year completing his doctoral dissertation in agricultural biochemistry. The study of drosophila and giant cacti is related to his program.

Air Pollution Effects on Vegetation*

Roger L. Caldwell
Department of Plant Pathology
University of Arizona

Air pollution in many areas of the United States is sufficient to cause economic losses to certain crops. The Air Pollution Control Office of the Environmental Protection Agency has estimated that air pollution damage to crops, ornamentals, and forests amounts to over $500 million nationally per year. Included in this figure is an estimate of non-visible damage which is represented as reduced growth and yields; for example, citrus and grape yields in southern California may be reduced as much as 50 percent because of the effects of photochemical smog.

There are several types of air pollutants that are of concern in plant damage. The most common term one hears in this regard is smog. Smog is generally a combination of two pollutants, ozone and peroxyacetyl nitrate (PAN). PAN is formed as a result of the interaction between hydrocarbons and nitrogen oxides, both produced in the normal process of combustion. PAN produces a bronze-like color on the lower leaf surface; young leaves are the most susceptible. Some common plants that are susceptible to damage by PAN are bean, lettuce, alfalfa, and pigweed.

Another air pollutant is ozone, produced largely as a result of reaction between sunlight and nitrogen oxide. Ozone injury is evident on the upper side of the leaf and appears as a flecked, chlorotic pattern; ozone affects leaves of intermediate age. Some common plants that are susceptible to damage by ozone are bean, alfalfa, grape, and tomato.

Another common air pollutant is sulfur dioxide, produced largely as a result of electric power production (major source nationwide) and copper smelting (major source in Arizona). Sulfur dioxide damage is normally confined to within about 40 miles of the source and results in an interveinal bleaching of leaves; leaves of intermediate age appear to be more susceptible than either young or old leaves. Some common plants that are susceptible to sulfur dioxide are alfalfa, cotton, bean, sunflower, zinnia, squash, careless weed, cosmos, and pigweed.

There are many problems other than air pollution that may produce some very similar damage symptoms, such as herbicide injury, insect damage, plant diseases, and nutritional deficiencies or excesses. It is therefore extremely difficult to diagnose air pollution damage to vegetation. However, certain critical factors may aid in the diagnosis, such as, the proximity of a large industrial plant or symptoms on naturally occurring indicator plants (susceptible wild plants) in the area.

The basis for plant damage by air pollution is very complicated. Persistent inversion layers, high temperatures and humidities, and stable wind conditions generally favor increased damage. Plants themselves, even within one species, have a wide range of sensitivities to the various pollutants.

* Tucson Cactus & Botanical Society Newsletter, May, 1971

Many plants are able to absorb and metabolize air pollutants without a significant effect on the plant; thus it may be said the plants help cleanse the air.

Damage of vegetation by air pollution can be reduced by 1) legal and economic incentives to reduce pollution at the source, 2) breeding resistant varieties, 3) exclusion of very susceptible plants from heavily polluted areas, and 4) possible protection with chemical sprays.

In Arizona the only confirmed air pollution effects on vegetation have been due to sulfur dioxide in the immediate area, say within 40 miles, of a smelter. The plants most commonly affected have been alfalfa and cotton. The lack of large population centers and major industry and the arid conditions prevalent in much of Arizona are probably the main reasons we have had so little air pollution damage. Plants that are drought tolerant also appear to be somewhat pollution resistant. While damage has been observed on native vegetation, such as tobacco, mesquite, and sycamore, these observations are normally very near a pollution source, particularly when water is present. The presence of water greatly enhances the susceptibility of a plant to damage by air pollution. We have therefore not observed any damage to such drought tolerant plants as cacti or creosote bush.

CACTI AT TUCSON SUN FAIR 1971. Tucson Cactus & Botanical Society once again took part in what has become Tucson's annual Sun Fair. Our enthusiastic and dedicated Chairman of Plant Sales, Wilfred Murch, and his helpers, Paul Henshaw, George Snyder, and Kay Brown, worked at the distribution tables, passing out plants, offering advice on cactus culture, and collecting donations. Jim and John Robbins displayed several South African Mimicry desert plants and grafted specimens. Hildegard Nase donated many arrangements of miniature cacti for distribution. Alan Blackburn provided several large, blooming specimens for the display table. Crowds gasped at seeing cacti in bloom! A near-catastrophic dust storm lent excitement one afternoon. Lending color and interest to the cactus show were various types of persons attending -- mostly winter visitors, but of all ages, all interests, all life styles. There was the ever-present hippie who tried to find a coveted peyote plant among the plants! Our participation in Sun Fair 1971 was a real success, under the excellent leadership of Wilfred Murch. Donations to our club treasury totalled approximately $70.00.

Report of 24th Annual Cactus Show at Desert Botanical Garden

This Show held between Feb. 21-28 was another fine one, all in all. The specimen plants were in good condition. Despite the January Freeze, there were ample leaf succulent plants on display. Sweepstakes were awarded for the most Blue Ribbons accumulated in the 4 large Sections. Small trophies were given for outstanding exhibits in the various classes. Ribbons were given for 1st, 2nd, 3rd and Honorable Mention, if merited, in each classification. Tucson winners were: Sweepstakes Awards: Leaf succulents -- James A. Robbins. Cacti -- Alan Blackburn. Trophy Winner: Alan Blackburn-- Mammillaria. Members, please read SAGUAROLAND Bulletin, March 1971, Vol. XXV, No. 3, pages 29-34, for the Tucson winners of Ribbon Awards which are numerous indeed. Receiving these were John Robbins, Betty Blackburn, Jim Robbins, Alan Blackburn. John Robbins exhibited 10 plants and got 3 first ribbons and 1 Honorable Mention. Alan Blackburn showed 107 cacti and walked off with 55 ribbons, 14 being firsts; and 3 cups. Betty Blackburn took 1 first, 2 seconds, 3 thirds, 4 fourths. Read Jim Robbins' awards in the story about him in another part of CHATTER.

GREEN VALLEY NEWS: April in Green Valley showed the four members of Tucson Cactus & Botanical Society who live there that the Great Freeze of January failed to do as much damage to their plants as had been feared. Alma H. Steininger, Cactus Capital Chatter reporter for Green Valley, tells about beautification plans there. Abergo Drive's unsightly barren center strip is being landscaped in native Arizona plants against backgrounds of attractive rocks. Already, opuntias and ocotillos have been planted there. This is a cooperative community beautification project by Green Valley Garden Club, the Duval Corporation, and Mr. Gilbert Ray who is Landscape Architect for Pima County.

NOTES ON SUCCULENT PLANTS*****PART II

By Larry W. Mitich

North Dakota State University, Fargo, North Dakota

Leaf-bearing succulents occur in many genera, as exemplified by the agaves, haworthias, sedums as well as numerous others. The leaves of such succulent plants differ from those of the mesophytes---plants which grow under moderate moisture conditions. The chlorophyll in leaves of mesophytes is concentrated in the upper surface which is sometimes waxy. The lower leaf surface is generally lighter green than the upper surface and is pitted with numerous stomata (pores) which permit rapid transpiration. In leaves of succulents, however, both surfaces are similar in composition and equally waxy, and possess few stomata. The leaves in some species of succulents grow very close to the soil surface or even below it. In its native habitat, Fenestraria rhopalophylla grows buried almost entirely in sandy soil. Light is admitted to its interior through exposed "windows" in its leaf tips. Some species consist of only one or two pairs of leaves. Pleispilos nelii is an example of this extreme succulence in leaves. Leaves of succulent plants are well adapted to the constant expanding and shrinking which is correlated to the seasons of moisture and drought.

Succulent stems are characteristic of many species of cacti, particularly members of the Cereus tribe, and several species of other succulents, including many of the African euphorbias. Such stems are always ribbed or nippled to allow an accordion-like expansion and contraction. Flexibility is essential to prevent the stems from splitting during periods of available moisture when the uptake of water is rapid and the stems quickly become turgid. Ribbed stems are fluted in cross section. Columnar stems, as in the majestic saguaro (Carnegiea gigantea), are usually ribbed. The fluted stems of some cacti and euphorbias resemble the pipes of a great organ. Indeed, certain species of cacti locally are called organ pipe cactus. Arizona's famous Organ Pipe Cactus (Lamaireocereus thurberi) is protected in the Organ Pipe National Monument.

Some globe-shaped succulents are ribbed but more frequently they are warted or tubercled to allow for the inevitable expansion and contraction. A beautiful tubercled cactus is Dolichothele sphaerica of southern Texas and northern Mexico.

Most species which comprise the sparse desert vegetation have developed a formidable armament of spines. The interlacing spines create shadows which reduce the intensity of the desert sunshine and help raise the humidity next to the plant surface, thus reducing evaporation. The spines also serve to protect the plants from herbivorous animals which would find any unprotected plant an excellent source of moisture and food. In addition to the cacti, aloes, euphorbias, and agaves are armed with sharp spines or teeth. Some species without armament, like the gasterias, evolved a tough, thick skin. The tender sedums and epiphyllums are protected by growing in rocks, cliffs, or trees. Lithops depend on protective coloration for protection. Certain species protect themselves with poisonous or bitter

sap. The mesembryanthemums of South Africa are extraordinary mimicry plants. They have evolved forms with coloration of the pebbles in which they grow. Young plants resemble single pebbles, but old specimens mimic piles of small pebbles. Old plants of Gibbaeum heathii are striking examples of this. A few species of cacti also imitate their surroundings. Notable are plants of the genus Ariocarpus to which the popular Mexican Living Rock (A.fissuratus) belongs. The flattened, papery spines of Toumeya papyracantha closely resemble the bunch grass in which it grows.

In addition to the storage tissues in the leaves or stems, some succulents store considerable amounts of water in great tuber-like roots. The Arizona Queen of the Night (Peniocereus greggii) has a large carrot-like tuber below the ground which gives rise to slender stems. Species of Wilcoxia develop clusters of dahlia-like tubers. Euphorbia squarrosa as well as other euphorbias also has an enlarged root for water storage. Enlarged roots, however, are an exception in succulent plants. Most of them have a fine network of roots spread shallowly for several feet about the plant. This enables them to absorb maximum rainfall in the minimum of time. Consequently, plants are wide spaced in extremely arid regions. A saguaro 30 feet tall possesses no tap root but has a root system which extends for about 65 feet around the plant and close to the surface. Still another water conserving feature of succulents is their mucilaginous sap. Most of the cacti have greatly thickened, mucilage-like sap but some species have milky juices. The euphorbias are characterized by their milky sap which is poisonous in many species. Most of the other succulents have mucilaginous sap. The thickened sap retards evaporation and coagulates rapidly when exposed to air. This prevents loss of precious moisture if the plants become wounded.

(To be continued.)

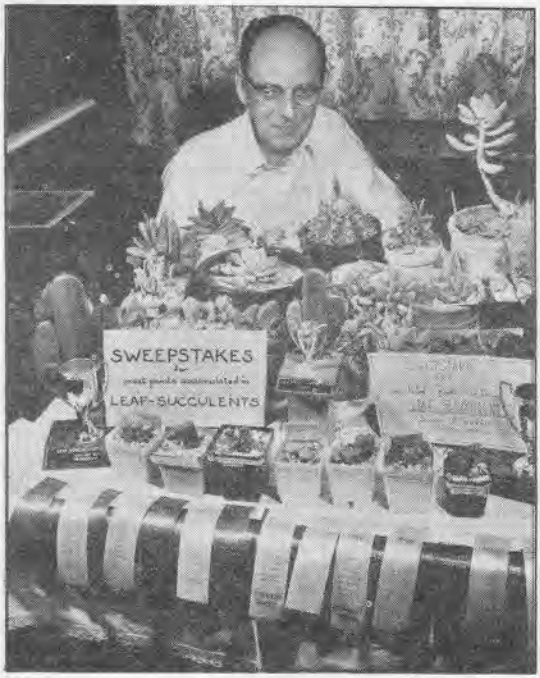
"HOW PLANTS ARE NAMED", in booket form, is now available through Harrison Yocum, at the nominal cost of one dollar, except when sold at the meetings of Tucson Cactus & Botanical Society. In this case the cost would be $1.25, the quarter going to the club treasury for each booklet sold. This booklet is a result of a series of articles published in CACTUS CAPITAL CHATTER for over a period of two years (1968-1970), and has become quite popular. Harrison Yocum presented a slide program on Desert Plants at Tanque Verde Guest Ranch this spring. He gave another on Landscaping with Desert Plants in Public and Private Gardens at the El Paso Cactus & Rock Club meeting on April 3. He has been a member there since 1959, and is also a member of the Sociedad Mexicana de Cactologia y Succulentas. His membership in National Cactus & Succulent Society dates from the mid 1940's.

CANS! CANS! CANS! = SALVAGE = MOBILE MEALS

Rinse your cans clean! Flatten your clean cans! Take your clean cans to: 802 East Prince Road and to 4410 East Grant Road, any day of the week. WHY? Cans are salvaged to benefit MOBILE MEALS, a local volunteer agency which feeds elderly handicapped persons whom you are anxious to help.

CACTI AND RETIRING GENERALS ----- AT PEACE WITH EACH OTHER!

"Desert Plants" and "Cacti and Succulents" are two books written by a cactus-growing, retired British Military leader--Sir Oliver Leese. He is convinced that retiring generals need a "peaceful" hobby. Many of them raise flowers, but Sir Oliver wanted to raise something different. He decided "what else but cacti?" This he finds "terribly, terribly exciting." Since his retirement in 1946, he has developed an extensive cactus garden of perhaps 150,000 plants, at his ancestral home at Bridgnorth near Shropshire, England. Earlier this year, he visited the Arizona-Sonora Desert Museum where he enjoys seeing cacti grow "wild". On an earlier trip to the Museum, Alan Blackburn escorted Sir Oliver to some of the habitats of native Arizona cacti.



JAMES A. ROBBINS

JAMES A. ROBBINS

We proudly present this vignette of one of our outstanding members who is highly knowledgeable in the world of succulent plants.

Jim Robbins is a native Hoosier. He graduated from high school in Indiana; joined the U. S. Navy, 1941, serving as Pharmacist Mate all over U.S.A.; was with the 2nd Marine Division for 23 months. He and his wife, Jeanne, moved to Tucson in 1947. The following year he became interested in succulents and brough native cacti in off the desert; planted them in sand; placed them in full sun; never watered them. Then-- he wondered why they dried up. Next, he learned all he could from books on cacti and succulents in our local library. Also, he took all the courses about them at the University of Arizona where he obtained the B. S. degree in Pharmacy in 1951; the M.S. in 1954. He earned over 30 units in Botany. Jim joined the national Cactus & Succulent Society in 1949 and has remained a member ever since. He joined Tucson Cactus & Botanical Society, 1966; became our vice president, 1967; and our president, 1968. He first showed his plants at Desert Botanical Garden's Cactus Show in 1969 and won several ribbons. He showed again in 1970 and took Sweepstakes, and again in 1971. In the 1971 Show, he exhibited 56 plants and won 30 ribbons plus a cup -- 12 Firsts, 8 Seconds, 8 Thirds, 2 Honorable Mentions. He was Associate Editor of the March-April 1970 issue of the American Cactus & Succulent Journal.

NEWS OF NEW MEXICO CACTUS & SUCCULENT SOCIETY: Louis and Hazel Hicks had a vacation trip to La Paz, Baja California, Mexico lately. Louis had a severe heart attack there, but is reported recovering well, at home in Albuquerque. They have several friends in Tucson Cactus & Botanical Society, and have been subscribing to CACTUS CAPITAL CHATTER.

WANTED: Tucson Kactophiles who have information about USES OF CACTI--medicinal, edible, commercial, are invited to send it to: Mrs. Rose Blanchette, 11213 Constitution Ave., N.E., Albuquerque, N.M. 87112. She has created a most attractive design to be used on the official note paper of N.M.C.S.S. She is especially interested in Harrison Yocum's series on "How Plants Are Named", that was published serially in CACTUS CAPITAL CHATTER. The Albuquerque Society reports "quite a library which is open to all members." At the N.M. State Fair 1970, N.M.C.S.S. served chopped opuntia pads that had been marinated in French dressing. Talk about Big Brave Parents! They would nudge their kids to taste these. If their kids did not keel over dead, then their parents would gingerly try some. These are really good, this way, and used in salads.

1971 Membership Directory of Tucson Cactus & Botanical Society

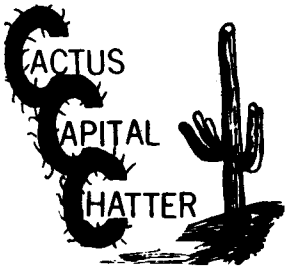
NAME *	ADDRESS ***		TELEPHONE
Almquist, Mrs. J.A.	Route 2 Box 812	85715	298-0075
Anderson, Mrs. H. M.	4333 E. Monte Vista Dr.	85716	325-7443
Bateman, Scott	1440 N. Torino Ave.	85712	793-8757
Benton, Mr. & Mrs. Earl	1231 N. Rosemont Blvd.	85716	327-2021
Black, Mrs. Agnes	1438 E. Miles St.	85719	623-1396
Blackburn, Mr. & Mrs. Alan	Rt. 9 Box 964 M	85705	623-0490
Brown, Mrs. K. B.	Box 11070	85706	294-0239
Busch, Mr. & Mrs. Edward	Rt. 1 Box 727 N	85704	
Byron, Bernice R.	4633 E. San Francisco Blvd.	85712	325-4147
Carroll, Alice	1600 E. Roger Rd.	85719	
Centner, Bernice M.	665 N. Jefferson Ave.	85711	
Christensen, Rosa & Anne	4202 E. Kings Rd.	85711	327-4601
Church, Mary	1090 E. Grant Rd.	85719	624-7976
Clarke, Mrs. Lois & Nancy	3315 Treat Circle	85716	325-1838
Coan, Mrs. Louise	2762 N. Grannen Rd.	85705	623-5279
Craine, Mr. & Mrs. C.P.	4233 N.Flowing Wells, #58	85705	887-6125
Curtis, Katherine	522 A Madera, Green Valley	85614	625-4922
Dean, Mr. & Mrs. Roger	1405 E. Grant Road	85719	326-9863
DeHaven, Mr. & Mrs. T. V.	Apt. 103, 431 S. Alvernon Way	85711	327-0676
Dougherty, W. J.	315 Los Rincones, Green Valley	85614	625-4701
Eichenberger, Esther A.	910 W. Miracle Mile, #56	85705	
Ellinwood, Mrs. R. E.	40 E. Calle Claravista	85716	325-9533
Ferguson, Mr. & Mrs. E.B.	1230 W. Ina Rd.	85704	
Finney, Mrs. E. W.	4430 E. San Carlos Pl.	85712	327-2078
Fisher, Mr. & Mrs. E.	31 E. Kings Rd.	85705	
Fisher, Mrs. Lillian	5610 E. 22nd St.	85711	298-7961
Fuller, Mrs. Lura B.	1171 E. Seneca St.	85719	623-1115
Geest, Mr. & Mrs. J. C.	8302 E. Kenyon Dr.	85710	296-6908
Greer, Mr. & Mrs. D. M.	6030 N.Camino Esplendora	85718	299-9165
Haselton, Mr. & Mrs. W. D.	5155 N. Campana Circle	85718	
Hegarty, Capt. & Mrs. M. H.	9001 E. Calle Pasto	85715	296-7829
Henshaw, Dr. & Mrs. Paul S.	6050 N. Camino Esquina	85718	299-9023
Herrick, Mr. & Mrs. Palmer	5121 N. Calle La Cima	85718	299-6246
Hillgert, Mrs. Louise	1225 E. Adelaide St.	85719	623-3033
Horst, Mr. & Mrs. Carl O.	5656 S. Joseph Ave.	85714	889-2545
Housman, Mrs. Martin	1232 N. Swan Rd.	85712	
Jones, Mr. & Mrs. Henry	6142 E. Lee St.	85712	298-6365
Kerns, Joseph	2865 N. Eastgate Dr.	85712	327-4690
Kesson, Dr. Thos. J.	752 S. Craycroft Rd.	85711	327-6841
Klein, Mr. & Mrs. Arthur	2617 E. 9th St.	85716	325-2250
Kresel, Zelma	1042 E. Water St.	85719	622-4307
Larsen, Mr. & Mrs. Thorleif	6100 N. Oracle Rd.	85704	297-0596
Levering, Mrs. Dorothy	7660 N. Village Ave.	85704	297-2118
Mace, Edward V.	2009½ E. Grant Rd.	85719	
Martin, Mr. & Mrs. C.H.	7360 N. La Oesta Ave.	85704	297-3800
McGinnies, Dr. & Mrs. W.G.	530 E. Cambridge Dr.	85704	297-1506
Merrill, Mr. & Mrs. J. Vick	229 Avenida del Porvenir	85705	622-5409
Mollison, Mr. & Mrs. Alan W.	1415 W. Wetmore Rd.	85705	887-3750

N A M E *	A D D R E S S ***		TELEPHONE
Morin, Mrs. Jessie	2731 W. Alvaro Rd.	85706	294-6084
Murch, Mr. & Mrs. Wilfred	5912 E. Hawthorne St.	85711	296-9176
Murchison, Mr. & Mrs. A.H.	2215 E. 7th St.	85716	325-6449
Marvin, Lena	1324 E. Seneca St.	85719	327-9106
Nase, Mr. & Mrs. Werner	1240 E. Drachman St.	85719	625-2034
Neher, Mr. & Mrs. H. T.	5525 N. Maria Dr.	85704	887-5959
Nichols, Mr. & Mrs. P. G.	4471 N. Pomona Rd.	85705	887-0194
Niehus, Elsie	392 B Paseo Lobo Green Valley	85614	624-8420
Pagel, Mr. & Mrs. Raymond	5676 S. Joseph Ave.	85714	889-2506
Patton, Mrs. Marta	1415 W. Wetmore Rd.	85705	887-5571
Pierce, Mr. & Mrs. W. B.	6530 N. Camino Padre Isidoro	85718	297-3105
Pinion, Mrs. Virginia B.	1438 E. Miles St.	85719	622-1396
Pluemer, William A.	4825 E. Camino La Brinca	85718	299-9015
Porter, Mrs. Julie	8500 Old Spanish Trail, Apt.13	85711	298-8766
Plym, Mrs. L. M.	6100 N. Oracle Rd.	85704	
Robbins, Jas. A. & John D.	4820 E. Bellevue	85716	326-7094
Scott, Mr. & Mrs. Chester M.	2045 E. Adams St.	85719	326-4939
Shaw, Mr. & Mrs. Paul Shaw	2460 Las Canoas Rd.Santa Barbara, Calif.	93105	
Shelby, Josephine K.	P.O.Box 375,Oracle,Ariz.	85623	896-2451
Simmons, Mrs. Ursula B.	1639 E. Water St.	85719	326-1735
Smith, Mr. & Mrs. B. N.	Rt.9, Box 946	85705	622-1410
Snyder, George	1527 E. 12th St.	85719	
Spring, Mr. & Mrs. David	6840 N. Casas Adobes Dr.	85704	297-2414
Stehulka, Mrs. Herbert	4607 E. 14th St.	85711	325-8750
Steininger, Alma	P.O.Box 643,Green Valley	85614	625-3177
Steinmetz, Anthony N.	3120 N. Romero Rd.	85705	
Thomas, H. Scott	2101 E.Water St.	85719	
Tillman, Mrs. Anne	2320 E. Adams St.	85719	795-3993
Toombs, Mona	333 E. Drachman St.	85705	622-7569
Trimble, Mrs. C. H.	5337 E. Willard Ave.	85716	326-9509
Walker, Mrs. M. F.	4618 E. Cooper St.	85711	325-8750
Watrous, May	3656 N. Mountain Ave.	85719	326-0631
Wilhite, Mrs. E.	1021 E. Water St.	85719	624-5771
Wills, Mrs. E. M.	2539 E. Linden St.	85716	326-8967
Yocum, Harrison	1628 N. Jefferson Ave.	85716	296-0764
Yocum, Mr. & Mrs. Harry	1628 N. Jefferson Ave.	85716	296-0764
Young, Col. & Mrs. W. H.	P.O.Box 4758	85717	297-2179

* All names listed are of members who have paid 1971 dues as of this CHATTER publishing date.

***All addresses are for Tucson, Arizona except as otherwise indicated.

NATIONAL CONVENTION OF C.S.S.A. to be held at El Paso, Texas, May 10-14, 1971. T.C.& B.S. delegates: Earl and Mabel Benton, Harrison Yocum, Nancy Clarke. Alternate delegates: William A. Pluemer and Alan Blackburn.



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TUCSON CACTUS & BOTANICAL SOCIETY

P. O. Box 3723 College Station

Tucson, Arizona 85722

VOL. VII 1971 NO. 3

IN MEMORIUM: Helen Brick died, May 9, 1971. She was our faithful member for seven years who greatly enjoyed cactus gardening with her husband, Joe F. Brick who was our long-term, very efficient treasurer. Helen's frail health for several years restricted her activities. Most pleasant memories of happy and friendly Helen Brick will long remain with those who are her friends in Tucson Cactus & Botanical Society.

IN MEMORIUM: Rosa D. Christensen died August 3, 1971. Our member of long standing seriously studied the cactus clan with her sister, Anne, who is equally interested. Rosa and Anne have greatly enjoyed their serious cactus gardening interests through many years. Rosa served a number of terms as Affiliate Director for Tucson Cactus & Botanical Society. Many members of CSSA and of our Tucson Cactus Club are Rosa's sincere admirers and good friends.

THREE-GENERATION FAMILY MEMBERSHIP IN TUCSON CACTUS & BOTANICAL SOCIETY.

Christina Walker and her second husband, Monte, now deceased, joined TCBS in 1963 under the presidency of David Spring. Monte's daughter, Mrs. Helen Bolton, became a member also, as did Monte's grandson, Craig Bolton. Christina's daughter, Kay Stehulka, also joined. All members of this family have remained steady and active in our organization which considers this three-generation family membership rather unique and outstanding. Christina, the beloved head of her family, spent her early life in her native Germany on a farm, working hard at caring for the animals, cooking, cleaning house, yard, and street in front of her house. She married a baker, Herr Yetter, and in time, they migrated to New Jersey, U.S., where they operated a bakery for 26 years. Her interest in cacti began after her arrival in USA. She bought them from Five-and-Ten stores and greenhouses, to start her plant collection. Many are still in her garden and her sunroom here. Limited space prevents our telling further and interesting facts about Christina Walker. Members, get acquainted with her and enjoy knowing a very interesting cactophile of TCBS.--

-----Reported by Wanda Horst.

Handy Knicknax recommend cake tongs to hold cactus while potting, eyebrow tweezers to remove dead fruits and debris lodged in the spines, and pastry brush to finish the cleaning job neatly.

The cut edge of a leaf taken from Aloe Vera applied to a burn, gives instant relief and takes away the redness. This plant has been used medically for many years. There is now on the market, and available in Tucson a face cream using aloe as an ingredient, Vedra. It has been tested and is recommended in a recent Consumer Bulletin. It is hypoallergenic and non-greasy, and an excellent moisturizer. A very fortunate find for one Cactus Chatter reader.

BAJA CALIFORNIA is featured in this issue of Cactus Capital Chatter. Our member, Bill Pluemer, travels there often and feels the lure of Baja always. In this account of his latest trip there, he has attempted to write it more as an adventure story rather than a scientific paper. However, botanical names really have to be used if one is to identify the subject. CHATTER editor, J. Shelby, is indebted to Bill Pluemer for his fine contribution to this issue. Now, let us follow him in his

ADVENTURES IN BAJA

April 7, 1971 found me once again headed west toward the cactophiles' Garden of Eden - Baja! This time my itinerary included a stop in Los Angeles to pick up collecting partner and agave expert, Joe Kellet of the Board of Governors of our National C & S Society. Armed with Gerhard & Gulick and Cliff Cross' Guides to Baja, 25 gallons of water, 38 gallons of gas, 3 cases of canned goods, camping equipment and boxes of used clothes, we left Los Angeles at 5 A.M. on the 9th of April. Our spirits were high as we drove southward on the freeway toward San Diego and Promised Land...

Our objectives were threefold: (1) to collect the "Totem-pole" (Lophocereus schotti forma. monstrosus) at the type locality near Pozo Aleman; (2) to collect Cochemiea maritimus on the Pacific coast near Bahia Rosalillita, and (3) to collect the "Torote" or "Elephant Tree" (Pachycormis discolor). Having collected Idrias on previous trips and learning that the squat Torote makes excellent bonzai material, we placed their collection high on our want list. Our only concern was whether the seedling trees would be recognizable as such.

Our first night's campout found us several miles past El Rosario. At first light of dawn, we were scouring the surrounding hillsides, choosing specimens amongst the heavy population of dudleyas, mammillarias and agaves. After breaking camp, we back-tracked to El Rosario for gasoline and a pleasant conversation with Mrs. Anita Espinosa, over cups of her excellent coffee. Senora Espinosa is held in high esteem by all botanists and cactophiles who regularly visit Baja. With her "Vaya con Dios" we finally set off, promising to return in about 10 days.

Leaving El Rosario along Arroyo del Rosario, we passed many small, outlying habitations. One of the last caught our attention as it sported three crests of Machaerocereus gummosus in the yard. Here was an excellent place to leave off some of our old clothes! This being done, the crests were ours for the asking, but a quick decision was made to leave them, pending our return. Space would be at a premium and we might perhaps find better specimens! With friendly waves and smiles, we finally drove off to begin our adventure.

The road finally leaves the arroyo and turns south into a fine canyon, continuing its climb for a full 10 miles. The sheer cliffs of El Castillo on the north rim of the arroyo are visible for several miles during the initial ascent. We sampled two likely looking areas on the west side of the canyon, collecting seedling plants of many varieties. Senora Espinosa had informed us that no rain had fallen for a year in this area which brags of a normal annual rainfall of but 4 inches. The plant population, however, lived up to our highest expectations. Here, in the canyon, the first Idrias appear, and it is at this point that I personally feel I have returned to Baja. Thus our first full day of collecting passed, each hill and turning bringing new discoveries and thrills. Late afternoon found us setting up camp amongst the inspiring boulders of the Catavina Plateau.

With the Toyota Landcruiser backed into a rocky cul-de-sac, camp set for nightfall, we scrambled among the rocks. The scene was so beautiful as to be

almost unreal. Had the late Walt Disney ever cartooned it, people would have said it was just another Disney fabrication. Our cameras worked overtime into the sunset. How can anyone resist the sight of such strange plants as idrias, cardons, torotes, red-spined barrel cacti and a parade of smaller plants emerging from solid rock? We found the classic scene nearby the road and photographed the high plateau through a perfect Idria arch. These weird plant forms gradually became etched in black as the afterglow gave way to night. With the darkness came the complete stillness of the desert and a covering of stars so brilliant we wondered aloud if there were some places "at home" where such smog-free simple delights as star-gazing could still be enjoyed.

By the third morning, we had fallen into a routine to last for the rest of the trip. Up at first light (5 A.M.), a quick cup of coffee to ward off the chill and thence an hour's collecting to whet the appetite. After breakfast an hour was devoted to cleaning, marking and packing plants. By doing this on a daily basis, we managed to keep some semblance of order within our cramped quarters.

Coming off the mountain pass into Lake Chapala (a dry lake bed) I made an error in navigation that cost us an hour's time. Entering the lake bed from the North, with its deep dust, chug-holes and lack of reference points, it is literally "every man for himself". The selection of trails is confusing, as each seems to seek its own easy path, failing nobly in the end. Eventually a truck converged on our course, and I recommended to Joe that we follow it. After several dust-chocking miles, it became evident that the truck was not going South, and now we really had no idea of our position. Fortunately, the truck driver noticed a gringo vehicle behind and finally stopped to inform us that he was headed for some remote pasture in the Western foothills and that we should turn around. At this point, I recalled the ranch house on the eastern edge of the lake, and we took a direct compass course in this direction. A cold drink at Rancho Chapala settled our nerves and we were off once again.

The third night's camp was 3 miles North of the Bahia de Los Angeles cutoff in flat, dusty, uninviting desert. My routine vehicle check revealed a loss of brake fluid, and the break was quickly discovered on the right rear wheel line. Oh, the joys of driving the Baja! Over breakfast we decided we would continue to Bahia de Los Angeles sans brakes in hopes of there finding a knowledgeable "mecanico" who could solder steel tubing. The parking brake was still useable, but grossly inadequate in stopping a 2-ton vehicle. We were 50 miles from our destination, confronted with a final 10 miles of steep descents going down to sea level.

In order to overcome an automatic reflex to push down on a now useless brake pedal, Joe was to actually yell (or scream) "NO BRAKES!" at me on each hill, turning or encounter necessitating caution. Although he became slightly hoarse in the next 4 hours, we did develop a smooth-working procedure. Along with deliberately brushing against cardons, rocks, shrubs, idrias, or simply driving off the road in order to slow down or stop, we finally raised the Sea of Cortez and began a thrilling descent to our destination. The spectre of mechanical failure continually looms large in Baja, and we had now had our ration for this trip.

Provided with comfortable quarters, showers and a change of clothes, we went to work on the immediate problem. The local "mecanico" threw up his hands when asked to silver-solder a steel tube. With the help of several friendly San Diego policemen, we stubbed off the rear line, refilled the master cylinder and were once again operational with the front wheel brakes only. Our initial test ride was along the coast south of Bahia de los Angeles, into the massive cardon forest where I had previously found Machaerocereus gummosus crests.

En route we had the opportunity of towing one of the local citizens some distance and were to learn later that this man had been one of Erle Stanley Gardner's Baja guides. More clothes went off at a small rancho to make room for plants, and we quickly found two nice crests and several new mammillarias. Returning through the forest, I suddenly registered on a cardon sporting three monstrous growths. Here was a real oddity! After some discussion, the Toyota was driven under the plant. By standing on the hood, we managed to saw off two specimens. Now, the question is, will these root? Our second and last night at the Diaz' resort was topped off by a delicious broiled lobster dinner. With our mechanical problem behind us, a radio-telephone call was made to the States, informing anxious wives that we were well and continuing the trip as planned.

Our sixth day began with a hearty Diaz breakfast of eggs cooked to order, bacon, toast, jam and pots of excellent coffee. Retracing our route to the Punta Prieta turnoff, we ascended gently into sandy desert of great beauty. Here we found our first crested euphorbia, Pedilanthus macrocarpus. Some of these plants were in bloom, with the distinctive slipper-shaped crimson flowers suspended daintily from the stems. We were to later learn from Ed Gay that rooting these particular cuttings is near impossible. He recommended that next time we follow the crest to the ground and attempt to get some root. This, of course, means packing a 2-3 foot specimen. In this area we found a small stand of elephant trees with beautifully swollen trunks and were able to add several rotund seedlings to our growing collection.

Our sixth night was spent in dusty desert about three miles North of El Arco, our southern terminus. The demarcation line spearating State from Territory runs through this point, some 410 miles south of Ensenada. The weather was changing rapidly, with fast, low scud cloud being blown in from the Northwest. A decided drop in temperature accompanied this front. About 11 P.M. the first showers came, driven by gusty winds. We quickly moved all the excess gear and plant boxes under the Toyota, threw our sleeping bags inside and scrambled after them. Several hours later we were outside, but the first light brought a dull, overcast, windy day. But this was "The Day of the Totem Poles"-- so who cared? No time for plant cleaning this morning!

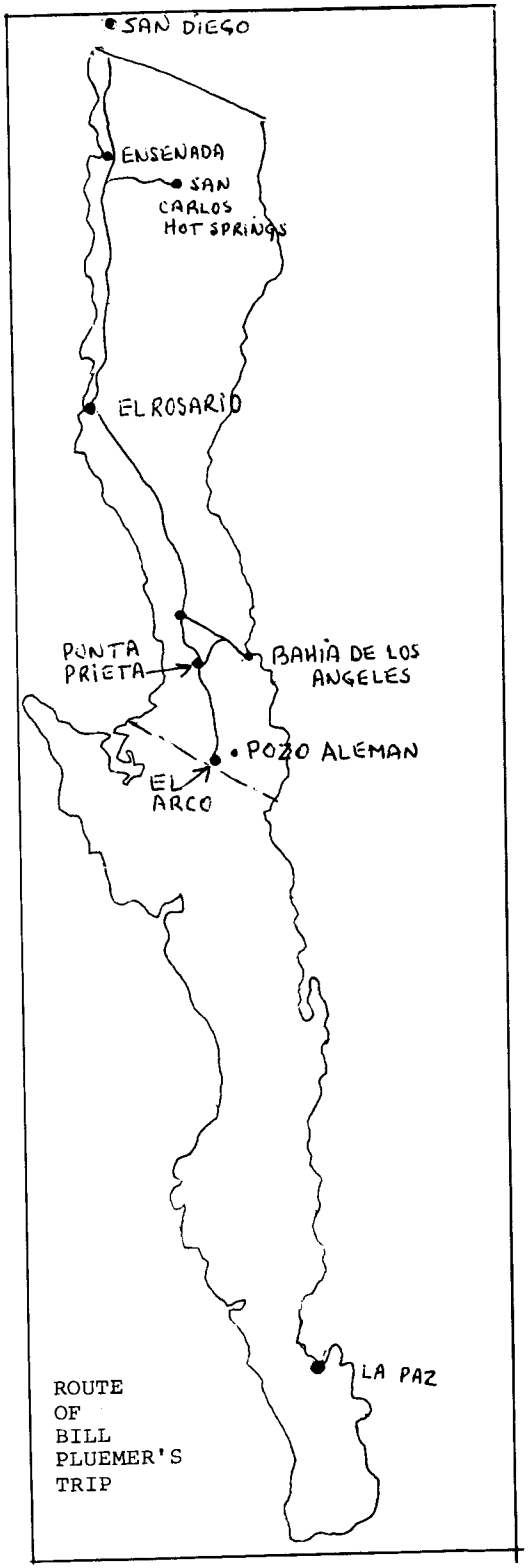
Taking the road from El Arco to Pozo Aleman, we kept a sharp eye for the monstrous plants, but saw none. Pozo Aleman is an all but deserted village, but here we were fortunate in immediately accosting a jovial native making his way toward the road as we approached. With considerable communications difficulties, assisted by my off-hand pencil sketch complete with hand-rubbing exhibition of my shiny pate, the word "garambulo" finally surfaced and we then knew we had gotten the message through to Garcia. The gentleman took us to his yard and pointed with pride to a fine cutting growing there. Joe then went to work in his best Los Angeles Spanish to convey that we wanted to be taken to the location of these plants. At this moment a very handsome woman appeared; there was considerable discussion beyond our ken, and we were asked to wait for a few minutes. As it turned out, the lady wanted to "pretty up" for the visitors! Now following our two guides, who were riding in a very antique truck, we turned back toward El Arco. In less than a mile, very close to the road, they stopped and showed us a fine young specimen. Off we went again, turning up into the hills and in a few minutes we were in the midst of a whole stand of Lophocereus schotti forma monstrosus. Since the mature plants are prone to be rather emaciated and spindly in appearance, they blend into the surrounding cover so well we had driven right past them! Our 10-peso note brought a torrent of "gracias" and we found ourselves alone and almost too excited to do much but stare at this scene.

Here was the high mark of the trip. Out came the cameras even though the sky was dark and the wind strong. Stuffing extra kleenex tissues in our pockets, we began to explore. Why the kleenex? This tissue will adhere to any thorny plant under any wind condition, making an easy mark for relocating the plant. Within an acre of ground we found a crested gummosus, the crested Pedilanthus and, of course, the Monstrous Schotti. Three abnormalities so close together! A bonus developed in the finding of several Ibervillea sonorae var. peninsularis tubers, almost completely hidden in the red earth. The pictures taken, the cuttings safely wrapped in blankets, we took a last look at these grotesque plants, and, for the first time, turned North toward home. The cool, blustery day did nothing to dispel our high spirits over this adventure. As luck would have it, failing daylight found us within easy reach of the previous night's camp. Unpacking was held to a minimum, and when the first showers came, our move into the Toyota was quick and efficient. Still brimming with excitement, here we sat, dome light on, portable radio bringing music from San Francisco, and Joe's bottle of Mexican brandy on the floorboards between us. As the assumulation of dust, now turned to mud, slowly seeped over our windows, we vowed to return to Pozo Aleman in the Fall.

We had lost several of our torotes the day before, as the incessant bumping worked them loose from their tie-down in the top carrier. Now, returning over the road almost two days later, we were happy to find two of them in the center of the road, untouched, but with wheel tracks leading around them on both sides. It would be interesting to learn if these drivers gave any thought to why two up-rooted torotes were lying so far from home. Somewhere we missed our turnoff to the Pacific coast and after many false starts decided to strike Cochemiea maritimus off the list until next time. In our quest for the road we wandered down through some farmlands. As the elevation gradually increased, we came into a gorge containing a clear, flowing stream. Rounding a curve, with the road now far above the stream, we came suddenly upon a display of desert plant life such as we never could imagine. From the black, volcanic rock sprang agaves, idrias, myrtillocacti, mammillarias, echinocereus, torotes, in such profusion one was hard-pressed to focus on any particular plant. It was a photographer's dream. Each plant so artistically and beautifully placed amongst its neighbors that the classic photographic background existed for all, individually and collectively. Here was the ultimate example of the Great Landscaper's art - but we were not sure exactly where it was! This, however, will not dampen our enthusiasm for a return trip in the Fall to our own private Garden of Eden.

Our eighth night camp was in a picturesque, sandy arroyo, surrounded by a magnificent display of plants. Since our storage space was now at a premium, we had become much more selective in our collecting. Having eaten our way through a case of canned goods, the empty box was quickly made available for a young, colorful, eight-headed specimen of Ferocactus gracilis, which I "just couldn't resist". As always, pleasant surprises awaited as we explored about the campsite. Three crested cardons were there, and this discovery brought to an end another exciting day.

The ninth day we devoted mainly to driving. By late afternoon, we were camped in the canyon south of El Rosario, within sight of the El Castillo massif. Here on the following morning we busied ourselves, photographing large specimens of Dudleya pulverulenta, whose powder-blue rosettes lit up the dark hillside in the early morning sun. I was amazed to learn that a white powder can be shaken from these plants, but what purpose it serves remains a mystery.



It was shortly after 9 A.M. on a windy morning that we once again pulled to a stop in front of Senora Espinosa's place. Fresh coffee and relief from the wind were enjoyable as we talked of many things related to plant-hunting, ammonite digging and Baja in general. Joe eventually sterred the conversation around to a photograph on the wall depicting the rare Pachycereus orcuttii, a natural hybridization of Pachycereus pringlei (cardon) and Bergerocactus emoryi. (see C & S Jl's May-June 1969, July-Aug. 1950 and B & R Vol. II p.70). Much to our surprise, Senora Espinosa offered to provide a guide if we would like to make a side-trip to the type locality. What cactophile could refuse such an offer? All other plans were immediately dropped, the Toyota gassed in a sudden rain shower, and we bounced off with Emilio Espinosa jammed between us in the front seat. After considerable discussion, we estimated the trip to be about 2-1/2 hours, for a distance of 25 miles. How slowly my watch ran! Ascending through a second and last canyon, with nothing but sky over the hood, Emilio cautioned me to stop. Creeping forward, the answer was obvious - nothing in front but a sheer cliff, with the "road" making an unseen hairpin turn to the right, hugging the face of the cliff as it descended. What price guide? Another 15 minutes found us parked on a wind-swept mesa, which I thought was an unlikely place if I ever saw one. Very few cardons appeared in the overall scenery.

Emilio led off at a quick pace, Joe and I following with collecting bags and marking our trail with kleenex, should we want to return for the cameras. The first arroyo did not give up our plant and Emilio seemed a little confused. He then told us it had been 21 years since he had brought three men to this plant. We followed him over an intervening hill into a second deep arroyo, and after some wandering, I saw him look very hard and instinctively knew he had found the quarry. Senora Espinosa's color print showed a fine, golden spined cereus, and this was the image I had carried with me. Instead we found an emaciated, multilated remains of this once beautiful plant. Obviously, the plant had given up

many cuttings through the years, and because of its poor condition, we gave no thought to photography. Emilio busied himself looking for a second specimen which he remembered nearby without luck. But we had been successful, and each had a cutting from this rare plant taken at the type location - one of the great thrills for any cactophile. On the long ride back to El Rosario we could talk of nothing else. We now had in our collection specimens that even the most sophisticated of the cacti cognoscente could appreciate. Our late afternoon return to the Espinosas was accompanied by light showers and gusty winds. Exhausted by our unplanned adventure, we decided to avail ourselves of one of the new rooms there where we found the beds warm and comfortable. Supper came by kerosene lantern - a true gourmet dish in the form of a fresh lobster omelette.

Over a fine breakfast the following morning, we promised to send Senora Espinosa some back issues of the National Geographic for the local school. With the Toyota crammed with our plants, we started North, planning on a hot shower in Ensenada that night. The San Quintin area boasts of the most horrendous, arm-twisting back wrenching stretch of road, and we plugged along, chuckhole to chuckhole. A side trip into San Carlos Hot Springs for Echinocereus pacificus was our final stop of the trip. Here we found huge clusters of this plant together with magnificent specimens of Ferocactus viridescens. A lot of cliff climbing and patience was required to locate small clumps of the former. By 5 P.M. we were checking into the Ensenada Travelodge. It had been 7 days since our last shower, shave, and change of clothes. For a moment, I thought we were going to be turned away at the desk because of our appearance. The E. pacificus had clods of sticky gumbo attached to them, and as a last resort, we took them into the shower with us, so that they also would pass inspection the next morning.

The Department of Agriculture people in San Diego were most accomodating, and by 3:30 P.M. we were back in Los Angeles. Still jubilant over the trip, and faced with unpacking and sorting so many boxes and bags still clogged with Baja dust, we began planning for the Fall trip - such is the great lure of "The Baja"...

.....William A. Pluemer.

ADDENDA TO 1971 TCBS MEMBERSHIP DIRECTORY. Mr. & Mrs. Bernard W. Ethington, 3490 N. Iroquois Ave., 85705, Phone 887-4507. Miss Irma Johnston, Box 344, Green Valley, Az., 85614, Phone 625-3105. Mrs. G. A. Lash, 2550 Grannen Road, 85705, Phone 792-0587. Gretchen Kunze, 5674 Lazy Heart St., 85713, Phone 889-1338. Mrs. Loleta C. Schacht, 9525 Beverly Place, Wauwatosa, Wis.53226. Rilla Stonechek, 5757 Lazy Heart St., 85713. C. O. Horsts' new phone number: 883=1325. Mr. and Mrs. Werner Nase's new address: 2540 E. Ross Place, 85716. Bernice R. Byron's new address: 5356 W., Box $, Tucson Estates, 85713, Phone 889-1267. Halloran, Rear Admiral E.R., U.S.N. (Ret.).Halloran, Flavia, P.O.Box 12581, 85711, Phone 296-5888. Robbins, J. A. & J. D., Box 1, Vista, Az. 85637.

Sierra Vista,AZ
85635

TCBS MEMBERS WIN AWARDS FOR RARE PLANTS. Cactus Expo 71 was the 6th Annual show sponsored by CSSA in Arcadia,California, and was held July 3-5, 1971. Our members, Carl and Wanda Horst, entered this show. They won 2nd place in the Rare Plants Division for their Gymno. ragonese; 3rd place in the same Division for their Eseobaria organinsis. TCBS heartily congratulates them for their fine achievement.

CACTICON -- C.S.S.A. BIENNIAL EL PASO, TEXAS, MAY 10-14, 1971. Members of TCBS attending: Col. and Mrs. W. H. Young, Mr. and Mrs. Earl Benton, Harrison Yocum, Mr. and Mrs. Alan Blackburn, Anne Christensen, Nancy Clarke. TCBS furnished table decorations and door prizes on May 13. Bill Pluemer donated fine cacti for door prizes. Bentons fashioned clever centerpieces from devil's claw and feathers, into birds; also, insects from yucca pods -- used on the tables. Also used thus were attractive cholla wood planters containing cacti seedlings donated by our friend, Archie Deutschman. These were made by Kay Brown and her assistants. Highlights of the meeting were field trips offering collecting of cacti. The Sierra Blanca, Texas trip offered: Echinocactus horizonthalonius, and Fendleri; Echinocereus chloranthus, coccineus, dasyacanthus, straminius, polyacanthus var. rosei;Ferocactus uncinatus; Coryphantha Muehlenfordtii; and Escobaria tuberculosa. The Oro Grande, N. M. trip offered: Echinocactus horizonthalonius; Echinocereus stramineus, rosei, Roetteri dasyacanthus and Fendleri; Echinomastus intertextus; Mammillaria microcarpa, meiacantha, Heyderi and lasiacantha.

.....condensed from a report by Anne Christensen, TCBS.

HAAG MEMORIAL GARDEN -- JAMES ROBBINS' GIFT -- PAUL HENSHAW

Paul and Christine Henshaw came to Tucson in September 1969. Although both were born in midwestern states, Oklahoma and Nebraska, respectively, they have lived and worked mainly in eastern localities -- New York Washington, and Philadelphia. Both have done special work in biology and only recently have come to have a special feeling about cacti and other succulents of the Southwest. Dr. Henshaw is associated with the University of Arizona, managing that part of the Biology 1-A course having to do with The Evolution of Man.

In March 1971, Dr. Henshaw agreed to help redevelop the Haag Garden Committee of Tucson Cactus & Botanical Society. The membership of this organization appreciates his interest in leading the latest effort to restore Haag Memorial Garden at Arizona-Sonora Desert Museum. This is a real task, involving long hours of planning, physical effort, plenty of patience and perseverance.

James A. Robbins, our member who lately moved to Sierra Vista, Arizona, gave to the Desert Museum 240 individual native plants of the Sonoran Desert, evaluated at $400.00. Briefly, they include: Agaves, Ferocactus, Echinocactus, Echinocereus, Lophocereus schotti, Carnegia gigantea, Mammillaria, Echinomastus, Coryphantha recurvata, Peniocereus greggii, Opuntia, Lamaireocereus thurberi, and Erythrina flabellifornis. For more detailed information about Jim Robbins' donation of these plants, please refer to the Scrapbook History of T.C.B.S. All of the Robbins' plants were planted in the Haag Memorial Garden at Desert Museum and they look nice in that setting. The Garden is so large, though, that many more plants are needed to complete the plantings there where they are seen. studied and enjoyed daily by many of the thousands of visitors to Desert Museum.

CACTUS CAPITAL CHATTER

DEDICATION

Tucson Cactus & Botanical Society dedicates this issue of Cactus Capital Chatter to HAAG MEMORIAL CACTUS GARDEN at Arizona-Sonora Desert Museum. In so doing, we again honor the memory of our founder, "Cactus John" Haag. Also, we rededicate our interest and our physical efforts to the renewing and to the replenishing of this Garden which is a memorial to our founder, and "a source of pride and pleasure to us."..... ...Chatter Editor: Josephine Shelby.

VOL. VII 1971 NO. 4

"CACTUS JOHN" HAAG
Founder of Tucson Cactus Club 1960

HAAG MEMORIAL CACTUS GARDEN AT THE ARIZONA-SONORA DESERT MUSEUM

Founders

In May 1965 the Tucson Cactus and Botanical Society dedicated the Haag Memorial Cactus Garden at the Arizona-Sonora Desert Museum in honor of its founder "Cactus John" Haag. Jack Meyer was President of the Society when the Haag Garden was started, and Hugh Copenhaver at the time of the dedication.

Allan Mollison was chairman of the first Haag Garden Committee, and under his direction, concepts and plans for the garden emerged. Among those who gave ideas, sweat and blood, along with Mr. and Mrs. Mollison, were Mr. and Mrs. Jack Meyer, Mr. and Mrs. Leo Wanner, Mr. and Mrs. Roger Dean, Hugh Copenhaver, Joseph Brick, Roy Doss, P. G. Nichols, Anton Nosek, Harry Bolenski, and George and Bernice Renie.

Society-Museum Joint Understanding

Arrangements were that the Museum would provide a choice location within its grounds for a cactus garden dedicated to John Haag who had also contributed much to establishment and development of the Museum, and that the Society would plan and design and help create the garden, collecting and preparing plants and seeing to it that they were identified and displayed well. The Museum imposed only one restriction-- the one it imposes on itself with respect to all of its displays--that the plants used must be native to Arizona or Sonora, or both.

Objective

Purpose of the Haag Garden, as stated in Volume 2, Number 2 of the 1965 Cactus Capital Chatter, is to be a source of lasting pleasure and education to generations of visitors.

Design Plan

The Haag Garden, as most TCBS members know full well, is arranged to provide opportunity for self-guided tours among some of the region's most fascinating plants.

There is a central island containing various novel and interesting succulents and some agave. This is bordered by well-arranged paths with peripheral groupings of plants in the following areas: 1. Mammillaria; 2. Pineapple and Pincushion Cacti; 3. Agave; 4. Prickly Pear; 5. Cholla; 6. Columnar Cacti; 7. Yucca; 8. Hedgehog Cacti; and 9. Barrel Cacti. In connection with each area there is a nomenclature box with names and numbers arranged so that anyone can locate particular plants and associate both common or scientific names. Near the main entrance to the garden is a ramada which is most welcome on hot days, and in front of this is the memorial plaque with wording as follows: "Haag Memorial Cactus Garden, sponsored by the Tucson Cactus and Botanical Society in honor of its founder 'Cactus John', dedicated May, 1965."

Present Situation

The Haag Garden, like all gardens, benefits from care. The extreme low temperatures of the past winter and the heavy rains of the past summer, have had their influence. Many interesting plants and the nomenclature boxes are in place and the paths are in reasonable condition, but all would benefit from more attention. Certain plant replacements and additions are needed. Likewise, certain rocks and shade plants are needed for protection and aesthetic effects, and certain wash and drainage problems need additional attention. The Museum is doing what it can with limited staff, but more could be done, and indeed should be done if the fullest potential of the garden is to be realized. There is opportunity now, as earlier, for those who enjoy such things, to provide assistance and to aid in further development work.

Present Haag Garden Committee

With assistance from members of the first committee a new one is being formed with Paul Henshaw acting as chairman. Two interest-group meetings have been held recently in the Henshaw home, one in August and one in September. The next meeting will be at 4 P.M. October 24, at the Museum. Membership at present includes Mr. and Mrs. Alan Mollison and Mr. and Mrs. Roger Dean, Mrs. Dorothy Levering and Mrs. Louise Hillgert. Mr. Donald Ducote, Plants Curator at the Museum, met with the group each time also, as well as some others who have given generously with ideas and information. Additional members are needed on the committee and they are welcome (see Paul Henshaw).

Work in Progress

During the past four months more than 250 plants have been donated by TCBS members and these have gone directly into the Haag Garden. Most of these were given by Mr. James Robbins as he moved recently from his Tucson home. Other donations have been made by Mrs. Louise Hillgert and Mrs. Harry Anderson. Mrs. Anderson is also donating a most unusual 12-headed barrel cactus in memory of her late husband (more on this later). Some searches have been made to find suitable new natural materials, and by getting in ahead of certain real estate developments, some fine sahuaro and barrel specimens are becoming available.

Special Projects

At the August and September Interest-Group meetings there was discussion of needed new developments. Among things considered was the need for and the opportunity to transform the Haag Garden central island into a more outstanding cactus area. Present thoughts are that the mammoth 12-headed barrel (estimated to weigh 400 pounds) could be made a special feature, with sahuaros and other giant barrels to accentuate it. Tentative plans have been made to recommend a Haag Garden Spring Festival for the entire Society at the Museum in April when the bloom is greatest, involving a slide lecture, a guided tour and a pot-luck picnic lunch. Still other activities are being planned.

Plant Materials Needed

The plan for the Haag Garden, as indicated in part already, is to display plant materials indigenous to Arizona and Sonora, but to give emphasis to the more common forms. Don Ducote has made an inventory of display materials on hand and prepared a list of what he considers to be the most needed plants. Similarly, Joe Brick and Dorothy Levering have made a list of additional materials they feel would be especially suitable in the central island. A number of plants of each type are needed. The lists when combined make a grouping as follows:

Prickly Pear and Cholla

Opuntia gosseliniana (Santa Rita)
" basilaris (Beavertail)
" nicholii (Navajo Bridge Prickly Pear)
" erinacea, var.ursina (Mojave Prickly Pear)
" chlorotica (Pancake Prickly Pear)
" fulgida (Jumping Cholla)
" Biglovii (Teddybear Cholla)
" gracilis

Mammillaria

Mammillaria mainiae
" wrightii, var. viridiflora

Hedgehog

Echinocereus pectinatus
" " var.neomexicana
" triglochidiatus (Claret Cup)

Columnar

Carnegiea gigantea (Sahuaro)
Pachycereus pringlii
Myrtillocactus cochal

Barrel

Ferocactus acanthode
" wislizenii (Candy or Fish-hook)
" covillei
Echinocactus polycephalia, var.xeranthemoides
" horizonthalonius

Announcements will be made from time to time about collections and donations. Hopes are that the Haag Garden will be a special feature of the TCBS activities.

Paul S. Henshaw 6050 Camino Esquina Tucson, Arizona 85718
Phone: 299-9023

IN MEMORIAL

Mildred Maio Jones passed to rest on September 14, 1971. She had been a member of Tucson Cactus & Botanical Society for several years after her arrival in Tucson in 1961. She was a Registered Nurse and practiced her profession for forty years. She served in SPARS during World War II. She is survived by her husband, Henry H. Jones, also one of our members; and by one son, John W., and several grandchildren and great-grandchildren. Mildred Jones' attenance at our meetings was restricted, due to her health problems. Those of our members who knew her will indeed miss happy and friendly "Bobbe." We extend to her husband and our good friend, Henry Jones, our sincere sympathy. Also, we wish for him a return of physical well being.

Henry Jones suffered a light stroke several months ago. Presently he is undergoing physical therapy. He reports that he is getting around quite well. He tells us that he is always glad to have his friends visit him at any time except on Mondays. His address is 6142 East Lee Street, Tucson 85712.

CARL AND WANDA HORST AND THEIR PETS

CARL O. HORST

Carl O. Horst was president of Tucson Cactus & Botanical Society in 1969. He is one of our several most knowledgeable members in the field of science. Some of our members have dubbed him "a walking encyclopedia." He was a civilian aerodynamics engineer with the U.S. Air Force for 28 years at Wright-Patterson Air Force Base, Dayton, Ohio. He retired as director of enginnering there. In his engineering duties, he has travelled over 400,000 miles, his camera always his constant companion. He has photographed thousands of flowers, mushrooms, and various wild animals. He was president of Aullwood Audubon Society in Ohio, and has lectured on wild life. He contributes flower photographs to a six volume work by Dr. H.W. Rickett, entitled "Wildflowers of the U.S."

Carl's lifelong interests in aeronautics and nature began in his childhood when he became attracted to hawks. Over the years, he raised and trained 50 hawks. He was raised in an Ohio orphanage and was ill during most of his early years. Because of this, he was able to devote much of his time to his two interests.

He has made a study of birds, particularly hawks, whom he considers nine times as efficient as an airplane. As a civilian aerodynamics engineer, he conceived ideas, made changes, evaluated and improved plans involving nearly every type of aircraft ever flown by the military. He is author of a book titled "Flying and Soaring".

The study of bird flight is only one of his avocations. He has made detailed studies of cacti, mushrooms, wildflowers, and is a studied authority on American and Mexican reptiles. His wife, Wanda, joins Carl in their mutual hobbies of coin collecting, archaeology, and cactus collecting. Carl says that he always intended to retire to the Southwestern Desert. He became a confirmed "desert rat" on trips he made here during the 1930's. He considers himself "an elusive type", and says that he and Wanda take off for the trails at just any time. They exhibit many of their specimen plants in Tucson shows, such as ours, the Tucson Botanical Garden's, the Men's and Women's Garden Clubs'. Also, at Desert Botanical Garden, Phoenix, and at various California shows. Their fine plant exhibits win many high awards for them.

This briefly presents to members of Tucson Cactus & Botanical Society another of our very interesting and gifted members.

"LANDSCAPING THE WILDERNESS"

Joseph F. Brick

To landscape the wilderness requires, in some respects, the same concepts, enthusiasm, dedication, and at times, the sweat of the brow as landscaping the surroundings of one's home. In return for one's efforts, he appreciates occasional praise which in turn stimulates more enthusiasm and belief in one's goal. Praise being what it is, is reward enough for the end result. So it is with the members of the Pima Cactus Preservation Group, an independent group who organized themselves for the purpose of preserving and propagating desert flora, as the result of the Tucson Cactus & Botanical Society's abandoning the original concept of the Cactus Reforestation Project.

The Pima Cactus Preservation Group follows the original plans of cactus reforestation. There are a few exceptions. One is a membership limited to persons who are knowledgeable about desert flora, cacti in particular, Members must be willing to raise native Arizona cacti from seed in sufficient quantities, and to plant cacti in designated areas which are suitable for specific cacti species and under controlled and supervised conditions. The Group itself has officers and operates within the confines of its by-laws. At the present time, we have an opening for five members who can qualify. We have the complete cooperation of Mr. Clyde Doran and his staff of the U. S. Coronado Forest Reserve. We do our planting within their rules and regulations. The seelding cacti that we have set out this summer are responding nicely and beyond expectation in their new home. This in itself is conducive to our enthusiasm. Our Project has been received by both the public and the news media very favorably. We have received many phone calls and letters in addition to the very comprehensive article in the Tucson Daily Citizen, July 29, 1971; and another in the Los Angeles Times. A long distance call was received by us from Radio Station WFLA of Miami, Florida. They requested a tape recording regarding our Group's activity, and I obliged them by doing this. As a result of this support, we are attacking our Project "with a vegeance", and are making believers out of non-believers.

Finally, I wish to quote a statement which appeared in the Tucson Daily Citizen's article on this subject. It expressed the really deep feelings of the people involved in this worthy effort. "Fundamentally, the original concept was based on the idea that it is essential that every man at one time or another return something to this earth, to compensate for what he has taken out of it." The Pima Cactus Preservation Group wishes the Tucson Cactus & Botanical Society success in landscaping the John Haag Memorial Garden at Desert Museum, and in all their worthy undertakings.

George Snyder Reports His Correspondence With Other Cactophiles: George got the address in Nov. 1970 of a young man in Belgium wanting to correspond with an Arizona cactophile. Freddy Lampo and George have exchanged cactus seeds and even coins now. They enjoy writing each other very much. In May 1970, George began writing to Mrs. June Suhm of Kingsville, Texas who wanted to exchange native cacti and seeds. This they did. Next, June sent George a "surprise" package of plants, one of which is quite rare. In return George sent her a box of native Arizona cacti. George obtained these addresses from the correspondence file of CACTUS CAPITAL CHATTER editor.

Harrison Yocum Conducts Unique and Exciting Experiments on Others: Harrison works at the Experimental Research Laboratory of the U. of A. where 25 varieties of cucumbers had been grown in high humidity, plastic greenhouses in the summer. He cut slices of cucumbers 1 inch from stem ends of the 25 varieties. These slices were chewed up by: Carl and Wanda Horst, Mr. and Mrs. Harry Yocum,, Harrison Yocum and Josephine Shelby. Each person graded the various cucumbers according to: their excellent taste; their less excellent taste, and so on.

NOTES ON SUCCULENT PLANTS -- PART III

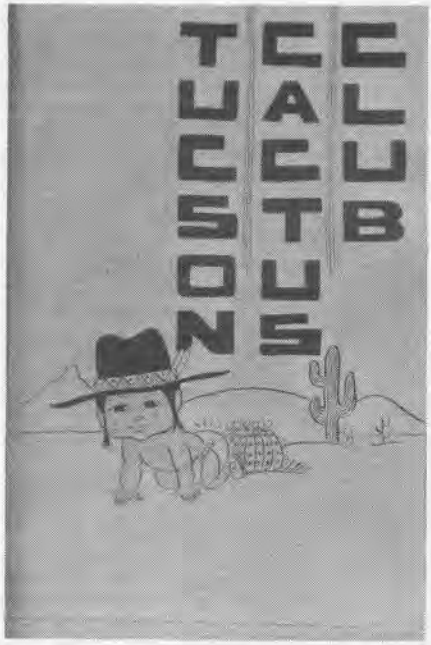
By Larry W. Mitich
North Dakota State University, Fargo, North Dakota

Regions that comprise present day deserts were blessed with abundant rainfall some 50 million years ago during the Eocene Epoch. Then a vast expanse of water extended from the Gulf of Mexico to the Artic. The climate of the entire North American continent was subtropical and humid. Then slowly geological changes of great magnitude began to occur. Giant mountain barriers arose, the seas retreated and tremendous land masses were exposed. The abundant rainfall and continuous warmth were gradually replaced by climatic belts and the four seasons. Certain mountain ranges prevented the moisture-laden seacoast air from reaching interior plateaus, and the deserts evolved. These changes occurred gradually over a period of perhaps some 20 million years. Ancestors of present day succulents were leafy mesophytic plants of the Eocene Epoch. They survived the drastic climatic changes by modifying their structure to permit water storage during infrequent rains. This insured them a reserve of precious water during periods of prolonged drought so characteristic of the desert. Peculiar conditions of climate, geography and development undoubtedly have been the reason for the response that desert plants have made to their environment. Unrelated plant families on widely separated continents have evolved astonishingly similar forms but with vastly different flowers. This remarkable phenomena of similar forms of parallelism occurs because there are only a limited number of modifications a plant can adopt to survive the rigors of prolonged drought and intense sunshine. The African aloes, members of the lily family, have forms identical to the American agaves, members of the amaryllis family, Aloe marlothii and Agave decipiens look like they were cast from the same mold! Some Mexican Echeverias (crassula family) have evolved forms similar to some of the smaller aloes. Echeveris kewensis has its counterpart in Aloe humilis. Many species of American cacti have identical forms with species of African and Asian euphorbias. Have you ever compared Astrophytum asterias of Texas and northern Mexico to Euphorbia obesa of the Cape Province of South Africa? The resemblance is remarkable! Euphorbia meloformis from Cape Province compares favorably with Astrophytum ornatum, the famous Bishop's Cap from the states of Hidalgo and Queretaro, Mexico.

The columnar cacti, too, have duplicates among most of the columnar tree-like euphorbias. The stately Lemaireocereus humilis closely resembles the celebrated Euphorbia ingens. The Echeverias of North America and the Sempervivums of Europe comprise another excellent example of parallelism. These genera form small, compact rosettes of broad, flattened leaves. Many species of both are commonly called "Hen and Chicks". Finis.

BREAKING GROUND FOR HAAG MEMORIAL GARDEN IN 1964
Tucson Cactus & Botanical Society members are, from left to right: "Piney" Wanner, Joe Brick, Paul Shaw- Curator of Plants at Desert Museum, Alan Mollison-Chairman of Project, Jack Meyer-President of club at start of Garden, Alice Wanner. (photo courtesy of Isabelle Meyer)

Here you see the first poster made to announce the organizing of the TUCSON CACTUS CLUB, 1960. The "artist" failed to sign his clever work!- Beneath this poster appeared the names of the first officers chosen for Tucson Cactus Club, 1961: President: Dr.W.G.McGinnies, Vice-President: Mr. Alan Blackburn; Treasurer and Director of Public Relations: Mr. John Haag; Recording Secretary: Mrs. Walter T. Dunlap; Corresponding Secretary: Mrs. Howard Chang.
(Photo-courtesy Lee Fuller, P.S.A.) →



T.C.&B.S. GUESTS OF FRANK AND ARIEL APPLETON AT RESEARCH RANCH.....
Research Ranch, Inc., Elgin, Arizona, was formerly a cattle ranch operated by Frank and Ariel Appleton. It is now being converted into an outdoor laboratory for environmental studies. The Ranch, located 65 miles southeast of Tucson, is dedicated to the conservation of plant and animal life in the Southwest. The land is now being used for a study of the short grass prairie environment, funded by the Atomic Engergy Commission. An outdoor classroom for U. of A. students in range and watershed management, forestry and biological sciences has been provided by the Ranch range. A section of the Ranch has been reserved for teaching fire-fighters how to combat brush fires. Another project is working to reintroduce certain species of animal life, such as the Mexican ponghorn antelope and the black-tailed prairie dog. The Appletons hope to see more areas like this created, both in Arizona and throughout the country--areas of 'open space' zoning, which would insure that the land could be used only for environmental research, educational purposes and wild life refuges." Members of Tucson Cactus & Botanical Society were given the privilege of seeing and exploring a part of Appletons' Research Ranch land. As guests of the Appletons for a picnic there on August 15, we revelled in the lush green and gently rolling hills and valleys with their patches of grasslands. We sincerely thank Frank and Ariel Appleton for their generous hospitality to us.

GIVE PLANT GIFTS TO YOUR CACTUS MEMORIAL GARDEN AT DESERT MUSEUM

You and I as members of Tucson Cactus and Botanical Society can and should, to the extent of our best efforts and dedicated interest, locate and bring in plants suitable for planting in Haag Memorial Garden at Desert Museum. We can give our own plants. We can solicit plants from friends and acquaintances. We can even buy plants to donate. Get the complete information about this from Dr. Paul S. Henshaw, 6050 Camino Esquina, Tucson 85718. Telephone: 299-2093. Donations to the Desert Museum are tax deductible. REMEMBER that you can offer to Paul Henshaw your willingness to do physical work in Haag Memorial Garden.

Cactus Club members are invited to look up Jim and John Robbins when you are in the vicinity of their new home in Sierra Vista, Arizona. Stop in at Modern Pharmacy there, at the corner of Fry and Carmichael Streets and ask for directions to Robbins' home. Their phone number is 458-5548.

HELPFUL HINTS FOR YOUR CACTUS GARDENING

When one cannot get the plants themselves that he wants, collect seeds of such plants. Wash mammillaria seeds in water. If seeds sink, they are good; if floating, they are not usable. SOIL in which cactus is to be planted should be heated to 250 degrees for half an hour. Cacti grow in various kinds of soil. A mix is used for planting them. Bacto Potting Soil may be obtained at Eichenberger Nursery. Use 3 parts sand to 1 part Bacto for your planting mix. Sand that is used in concrete is available from Builders Supply stores. Nurseries sell Vita Bark Potting Soil with shredded redwood which is good to use for cacti that do not like wetness. WATERING. Once per week, water your plants heavily during the entire summer. Taper off watering, beginning in September. Hedgehogs need quite a bit of water. In general, the lighter the soil, the oftener the watering. Put gravel on the surface of potted plants to keep soil particles from floating. FERTILIZING. One may use Marvel Plant Food which is for African Violets but good also for cactus. Hyponex is a good food but weak. Plants should be well fertilized in April, July, September, when tips of plants are showing growth. PESTS. If in greenhouses, sprinkle Chlordane around. Use Malathion for mealy bugs and red spider. Regularly check your plants for pests, whether visible or not.

----------Alan Blackburn

THIS IS YOUR CACTUS CLUB

1. It was organized in 1960 by "Cactus John" Haag, assisted by his good friend, P. G. Nichols. John Haag died in 1962; P. G. and Alta Nichols remain as honorary members.
2. It was awarded a Life Membership in Arizona-Sonora Desert Museum by that institution on May 7, 1965.
3. It created and developed a cactus garden at Desert Museum in memory of John Haag.
4. It has a serious purpose: to function continuously in the study of cacti and native flora; to further the protection of cacti and native flora of Arizona; to sponsor a botanical garden in Pima County near Tucson; to sponsor plantings of cacti and native flora in other suitable places.
5. It is an affiliate of the Cactus & Succulent Society of America, Inc.
6. It maintains contacts with many cactus clubs in U.S.A. and in New Zealand and Australia.
7. It has a little Library offering very helpful information to members.
8. It publishes a quarterly newsletter, CACTUS CAPITAL CHATTER.
9. Its members exhibit at Tucson's Garden Clubs' flower shows and at others also.
10. It presents annually, lately, its own Cactus Shows to the Tucson public.

Louise Coan, one of our very interested and enthusiastic members, has taken over the work of CLUB HISTORIAN. This means filling our scrapbook history full of pertinent and attractive items that tell of our 1971 programs and activities. MEMBERS please mail all items that you are willing to contribute to our History, to: Mrs. Louise Coan, 2762 N. Grannen Rd., Tucson 85705. Send snapshots:of: your gardens, your special plants, cactus exhibits at cactus shows, yourselves at various meetings; newspaper clippings, etc.