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1969 CACTUS CAPITAL CHATTER
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The LIBRARY of Tucson Cactus and Botanical Society is located at 2754 N. Campbell Ave., Nancy Clarke Insurance Agency. Use your library. Learn what it is offering you. The following books have been added to the Library lately: "Cacti and Succulents", Haage; "Succulents for the Amateur"; "Cacti for the Amateur"; "Aloes of Tropical Africa and Madagascar", Reynolds; "The Genus Monadenium", Bally.

IN MEMORIAM: Mr. L. S. Fosdick, a member of Tucson Cactus & Botanical Society, passed away on January 31st. He was a retired professor of chemistry from Northwestern University. Mr. Fosdick was an enthusiastic member of our club and attended meetings as regularly as his chronic illness would allow. We extend our sincere sympathy to his family.

FRIENDSHIP

The greatest business in the world is that of making friends;
And no investment on the street pays larger dividends.
Life is a great investment, and no one lives in vain
Who guards a hundred friendships as a miser guards his gains.
.....contributed by Lura Fuller.

Dr. W. G. McGinnies, professor and director of the U. A. Office of Arid Lands Studies is one of the authors of a recent publication by the University of Arizona. "Deserts of the World" is a 788-page book which appraises research into their physical and biological environments. Dr. McGinnies is the founding president of our Cactus Society and is a member of our Board of Directors for 1969.

REVIEW OF EDWIN WAY TEALE'S FOUR CHOICE NATURE-TRAVEL BOOKS

One of our members who has recently enjoyed Edwin Way Teale's four books about the wonders and mysteries of Nature in our vast country has suggested that they might be brought to our attention. One of our great naturalists, he and his wife had for a decade dreamed and planned to leave New York City behind, some February, head for Florida, and drift NORTH WITH THE SPRING, following its flow as it advances on the average of about 15 miles a day, climbing mountains at perhaps 100 feet a day, racing down the long valleys. Their diaries resulted in their first book, and sparked their urge to follow each of the other three seasons, visiting every corner of the United States.

They planned to begin where spring first begins to stir its forces, down in the Everglades, and keep its pace, zigzagging by car behind its advancing front--17,000 miles, through 23 states they logged, for 130 days. They explored rivers, swamps and scrub, beaches and woods, plant life, diamond-back rattlers, birds and butterflies, turtles and alligators, animals, big and little, along the Gulf into the Louisiana marshes, back to the Okefenokee and up into the Great Smokies. There, an April Friday amazed them with a hundred miles of many species of warblers traveling with mocking-birds and cardinals and other birds on their way north. Anyone who has driven that magic Blue Ridge Parkway reads with a nostalgic twinge. They crossed the Piedmont Plateau for May in Virginia--- the dogwood and apple blossoms--then the lush vegetable farms in New Jersey and into the Jersey pine barrens, a last stronghold of the wildest wastelands and ingrown primitive people yet, in a long-settled region which is within a stone's throw of both Philadelphia and New York City. They explored Roger Tory Peterson's and John Kiernan's unspoiled wild Van Cortlandt Park in the Bronx; then went on up to the dunes and moors and bogs of Cape Cod and into Thoreau's woods and the New England mountain ranges, with their farthest northern point the top of Mt. Washington, on the 21st of June---the end of Spring--more than ever aware that the end is really just a gradual change, one season into another.

AUTUMN ACROSS AMERICA, the second book in the series, takes the two explorers 20,000 miles, several years later, from New England across 26 states into Michigan and Wisconsin and Minnesota, the great flyway of the Mississippi at harvest time in Iowa, on to Wyoming and Montana and the Northwest, and down the Pacific coast as far as Monterey and Yosemite. Always leisurely, they poked into out-of-the-way places in plains and mountains, deserts and the rainforests. The tumbleweeds attracted them to the extent of almost a dozen fascinating pages, intriguing to any victim of their overabundance. Their intermingling of nature and pioneer history and folklore and scientific facts can quickly sharpen the reader's awareness in his own immediate world.

Starting from the same spot in New Hampshire where they had ended their first adventure 10 years before, they began their winding wayfarer's JOURNEY INTO SUMMER. Again it was the 21st of June, the same birdsongs, the same daybreak. They covered over half the states in

the Union, from the backbone of New England, the White Mountains, to the backbone of the continent, the Rockies, all around the Great Lakes, from the northernmost boundaries down to Kansas, the center of the nation, exploring it from one end to the other; then all of Colorado. Middle Westerners will recognize their familiar haunts.

in 1965 WANDERING THROUGH WINTER was published, completing this tour of the natural history of this wide country. These are travel books as well, written with such love and appreciation and depth of experience that they well deserve Roger Peterson's comment that Edwin Teale's skill makes even the most blasé reader almost as interested in the least bug as in the most spectacular wild life. A local reader may feel temporarily miffed that their only attraction in Tucson seems to be their reunion with Mr. and Mrs. Joseph Wood Krutch for a few days. However, Teale has already talked at length about our cactus and succulents and birds and animals in accounts of other parts of the deserts, and his remarks about naturalists we know well, like Dr. Edmund Jaeger and William Gamble, show new sidelights on their work.

Any ruffled feelings on my part were effectively soothed by their adventure as they left Tucson for home. Ten miles east on U. S. 80 they pulled to the shoulder to enjoy the sweep of cholla and the jagged mountain horizon while traffic zipped by. In three minutes, a trailer truck stopped to see what was wrong and they realized that everyone who passed assumed they must be in trouble --the only comprehensible reason to halt. "All at once we were overwhelmed by a distate for super-highways, miracle miles, the thunder of traffic"--though they well knew they couldn't have gone so far so easily without their existence. They sat there praising back roads and remembering the appeal of the ones they'd had to pass up--so they decided to turn down the first good side road they came to, no matter where it led--which turned out to be to Patagonia.

We will all recognize ourselves in every response they make to the ocotillo and the beargrass, the phainopeplas and curve-billed thrashers and the cardinals, and the friendly people they encountered. They spent the night in Nogales, returned for an even more enchanting visit, and found themselves in a hurry to resume their way East.

This winter trip begins on December 21 in the far southwestern corner where California joins Mexico on the Pacific Ocean--the Silver Strand. Here they joined the watchers of the gray whale migration: then, through cities and rangelands and the ponderosas of the high country, down into the deserts, which at first seemed too harsh and forbidding. But they found that a desert is not to be known in a day or a night; one approaches it on its own terms, and then comes the discovery that one wants to know it intimately.

Reading about unfamiliar territory on your own favorite experiences, seeing it through the trained and loving eyes of this naturalist, brings a new sense of appreciation of this wonderful world around us.

.....Reviewed by Evangeline Scott .

 TUCSON KAKTOPHILES EXPLORE HAWAII

Mother and I visited Hawaii the last two weeks of October. Our tour included six islands, and it was surprising to see how dry much of the area is. Although some places in the Islands receive 300-500 inches of rain a year, many parts get only 20 inches. Mesquite trees lined the roads in these drier sections. On the island of Hawaii, we saw numerous prickly pear (*Op. megacantha*) growing in the cattle ranch country. Our bus driver said several types of parasites have been introduced to destroy the cactus, as it is harmful to the cattle. He pointed out clumps of cactus that were blackened from the parasites. Of course, he said, if the parasites are successful in killing all the cactus, then something else will have to be brought in to get rid of the parasites..and so on ad infinitum! Night-blooming cereus (*Hylocereus undatus* & *Selenicereus grandiflorus*) were frequently seen cascading over walls. It must be a glorious sight when in bloom. We visited Moir's Botanical Garden on the Island of Kauai. Some of you may have met the Moirs at the 1965 C & S Convention here, but I wasn't that lucky, nor did we meet them now, for they have retired and turned the Garden over to someone else. It is across the road from the ocean and ablaze with colorful succulents, plumeria trees, and water lilies. The succulents are mainly euphorbias, aloes, echeverias, and stapelias, with one shady spot for bromeliads. While the succulents seem to revel in that climate, there were not many cactus in the Garden..a few large clumps of cereus, one fat melocactus, some astrophytums, and rather unhappy echinopsis and mammillarias. The scant rainfall shouldn't bother the latter, so it may be the lack of winter rest and cold. One of my memories of that lovely Garden is of two toads half hidden under a stapelia flower, waiting expectantly for their dinner of pollinating flies.

.....Nancy Clarke

TWENTY-SECOND ANNUAL CACTUS SHOW

This show was held February 23 through March 2, 1969, in Webster Auditorium at Desert Botanical Garden in Papago Park, Phoenix. 13,000 visitors saw and learned about and enjoyed 732 exhibits presented by 104 exhibitors interested in Succulent Plants, Desert Trees and Shrubs, Arrangements, Photography, Paintings (desert subjects), Desert Woods.

Exhibitors from Tucson Cactus & Botanical Society won numerous awards in the many sections in which they entered plants. They are Rosa Christensen, John Robbins, Nancy Clarke, James Robbins.

Tucson Kaktophiles will be greatly pleased with LIBRARY NEWS from Desert Botanical Garden where a wing has been built on Webster Auditorium to house the generous gift of a fine and most valuable botanical library. This gift comes from Mr. M. C. Richter of Santa Barbara, California who is a book dealer and a collector of rare publications on cacti and the other succulents. Included in his gift collection is the Scott Haselton Library which Mr. Richter

added to his own library. Also, there is the Library Collection of the Editor of the French Cactus Journal. This Library at Desert Botanical Garden will be dedicated in ceremonies at a date during the summer which will be announced later.

Desert Botanical Garden receives some fine notices in journalistic publications. The Arizonian, Scottsdale, Arizona, Feb. 20, 1969, carried a spread of several pages with color photographs about the Garden. On March 9, 1969, the Chicago Tribune will run a full one page story on the garden, including a picture of it.

SEEN at the Cactus Show, March 2nd, from Tucson were: Lena Marvin, Roger and Goldie Dean, Alan and Betty Blackburn, Lois and Nancy Clarke, Rosa and Anne Christensen, Chatter-Box Shelby. The J. F. Bricks reported their visit here on Feb. 27th.

WHY did YOU not attend the fine CACTUS SHOW? WHY did you not EXHIBIT your fine plants?

13TH BIENNIAL CONVENTION OF CACTUS & SUCCULENT SOCIETY OF AMERICA, INC.
PASADENA, CALIFORNIA MAY 5th THRU MAY 9th 1969

Activity Schedule offers sessions on such subjects as: collecting cacti by air; the ocotillo family; the Mammillaria Picta Complex; dehydrated flowers; plant clinic; lithops; cacti of Peru; cactus collecting in Western Mexico; aloes; panel on grafting; peyote; cacti and photography; echeverias; Dudleyas.

Post Convention Tours through the Land of Cacti are possible into: Idria country, Baja California; the high country of northern Baja near the California border; backwoods country of central Sonora, Mexico; a 7 day trip to Guaymas and Alamos, Sonora, Mexico; the Clark Mountain area of California on the Nevada border; Palm Springs and Joshua Tree National Monument.

Reservations are required for convention attendance. Write Cactus & Succulent Society of America, c/o Mrs. Joyce Tate, Box 564, Sunnymede, California, 92388. Locally...phone Rosa Christensen---327-4601---for specific information like reservation forms, hotels, side trips, etc.

NOTES FROM OUR EXCHANGE PUBLICATIONS
"CRADLE OF CACTUS KNOWLEDGE AND CULTURE IN THE U. S. "

The Missouri Botanical (Shaw's) Garden has an outstanding horticulturist. He is Ladislaus Cutak whose work in the field of cacti culture and succulent and tropical plants has won international attention for the Garden. He is the author of several books, including "Cactus Guide" and "Cactus Personified". This Garden's collection was begun more than 100 years ago. As early as 1890 its unusual cactus collection was well known. Under Ladislaus Cutak's leadership, Shaw's Garden has become known as the cradle of cactus knowledge and culture in the U.S. He is recognized as a foremost authority on cactus. He has traveled more than 50,000 miles in southwestern United States and in Mexico searching for new species.

HOW PLANTS ARE NAMED

Part II

by

Harrison G. Yocum

This part of How Plants are Named will deal with the actual meanings of the names which, it is hoped, will give an understanding and appreciation of this interesting subject. It will be seen that the names are not restricted to cacti and succulents, but are applicable to all plant groups. This is quite appropriate since we are a Botanical as well as a Cactus Society.

To recapitulate, since Linnaeus, plants are named according to a system of binomial nomenclature, i.e. they have two names. For example, John Brown is a name which tells that Brown is the family to which John belongs, and John designates which one of the family is considered. In the plant name, the order is reversed. The name which tells the family or genus comes first, and the given name of the species comes last.

In examining the names and their significance, we find many varied origins, which may be divided accordingly:-

1. Names after persons: - notably physicians, naturalists, botanists and other men of science. Such names are readily apparent and will not be considered here.
2. Geographical or Place names: - designate the country or area to which the plant is native. Space does not permit their treatment here. Such names are very easy to understand as seen by such examples as -
 - indica - India
 - arizonica- Arizona
 - brasiliensis-Brazil
 - canariensis-Canary Islands
 - missouriensis-Missouri
3. Prefixes and Suffixes - added to a name to alter its meaning.
4. Descriptive names: - This and the previous group constitute the most important in our consideration. These names are derived on basis of color, shape, habit of growth, type of habitat, luster, size, plant parts, etc.
5. Anagrams: - names made by rearranging the letters of a name.
6. Native names: - adaptations from vernacular common names.
An example would be one of the species names of *Lemaireocereus*, - chichipe.

No attempt is made to include all names: rather those most frequently encountered are presented. It will be recalled from Part I that the endings will agree in number and gender with the entire name, the vowel endings - a, i, o, us - being most frequently substituted. This list is arranged alphabetically for ease of finding the meaning of a particular name. This way, it will serve as a ready reference and at the same time is an excellent way to extend one's vocabulary.

A-

a-	not, without	acuminata-	tapering to a slender point
ab-	from, away	acuta	- sharp
acantha	- spine, thorn	ad	- to, towards
acro-	tip, end	ae-	from
actis	- ray	aequalis	- equal
aculeata-	prickly, with small spines	affinis-	related to (another species), bordering on

A - cont'd

agave - noble, illustrious
 agglomeratus - clustered, heaped up
 aggregata - " "
 alata - winged
 alba - white
 alcis - elk
 alpestris) - alpine
 alpinus)
 alternatus - placed singly, first 1 then
 another, alternate
 alta - tall, high
 alveolata - pitted like a honey-comb
 amabilis - lovely
 amara - bitter
 ambly - blunt
 amethystina - violet or amethyst-colored
 ammophila - sand-loving
 amoenus - pleasing
 amphi - half
 amplexi - clasping
 an - not, without
 ana - implies motion or growth upwards; as
 a Suffix used in forming specific
 names from person or place names
 anceps - 2-edged, 2-headed
 ancistro - thorny
 angularis - angled
 angusti - narrow
 anomala - unlike others, different
 anthus - flower
 anti - against
 antiquorum - of the ancients

bella - beautiful
 bi - 2, twice
 brachiata - with widely spreading
 branches
 brachy - short
 bractata - with bracts

cactus - prickly plant
 caerulescens) - sky-blue
 caeruleus)
 caesius - bluish-gray
 caespitosa - growing in tufts
 calama - reed
 cali)
 calli) - beautiful
 calo)
 calycos - calyx, sepals
 calyptro)
 calypta) - hidden, covered

apici - at the summit or top
 apo - from, away
 applanata - flattened
 apricus - basking in the sun, liking
 sunshine
 arborescens) - tree-like
 arboreus)
 archon - majestic, a ruler
 arenaria - of sand (grows in sand)
 argentata) - silvery
 argentea)
 argo - shining
 aridus - arid, parched
 aristata - awned, with a bristle-
 like appendage
 armata - armed
 aromatica - fragrant
 arthro - jointed
 articulata - jointed
 asterias - star-like
 astro - star
 atro - dark
 augusta - majestic
 aurantiaca - orange color
 aurea - golden
 auriculata - auricled, with ear-
 like appendages
 australis) - southern
 austro)
 azureus - sky blue

B-

brevi - short
 brunneus - brown
 bu - monstrous, huge
 bubalina - of the gazelles or
 antelope

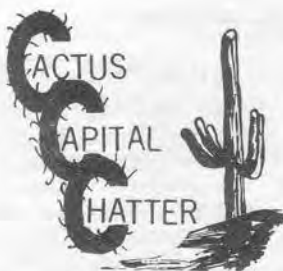
C-

campestris - of the fields
 campto - bent, curved
 candelabra - like a candle-stick
 with many branches
 candescens)
 candicans) - whitish
 candida - white
 canescens) - gray or hoary
 canus)
 calcareo - chalky white
 capitata - with heads, head-shaped
 capri - goat

C- continued

- caput - head
 cardio - heart
 carpus - fruit
 caryo - nut
 cata - down, downward
 caudata - tailed
 caules } - stem
 caulis }
- centi-hundred
 centri-center, in the middle
 cephalus } - head
 ceps }
- cerato - horn
 ceratus - covered with wax
 cereus - wax candle
 ceri - wax
 cervi - related to deer
 chamae - low, dwarf, on the ground
 chilio - thousand
 chino }
 chiono } snowy
 chloro (us) - pale green, greenish-yellow
- chroma - color
 chrysa - golden
 ciliaris - with hair-like eyelashes, fringed
 ciliata - fringed with hairs
 cineria - ashy-gray
 cinque (i) - five
 circum - around, about
 cirri - tendrils
 clada - branch, stem
 clandestina - hidden, concealed
 clava - club
 clavata - club-shaped
 clavo - bright
 clino - slant, lean or incline
 cleisto - closed
 coccinea - scarlet
 coerulescens - sky-blue
 cocco - seed
 columnaris - tall and cylindrical
 coma }
 comosa } - hair
- con- with, together
 concinnus - neat, elegant
 concolor - of the same color
 contortus - twisted, intricate
 cor- with, together
 cordata - heart-shaped
 coriacea - leathery
 cornus - horn
- coronaria - crowned, like a wreath
 corrugata - wrinkled
 coryne - club
 coryphe - top, crown, summit
 costata - ribbed
 cotini - a shrub furnishing a purple color
 crassa - thick, dense
 cruci - cross
 crinita - hairy
 crispa - curly
 cristata - crested
 croceus - saffron colored, yellow
 cryo - cold, frost
 cten - comb
 cucullatus - hooded
 cucumis - cucumber
 cuneata - wedge-shaped, with narrow end at point of attachment.
- cupreata - coppery
 curvata - curved
 cuspidata - tipped with a sharp rigid point
- cyclo - circle
 cylindracea }
 cylindrica } - cylindrical in form
- cymbi - boat, hollow as a boat, vessel, bowl, etc.
 cypho - hump
 cyrto - curved





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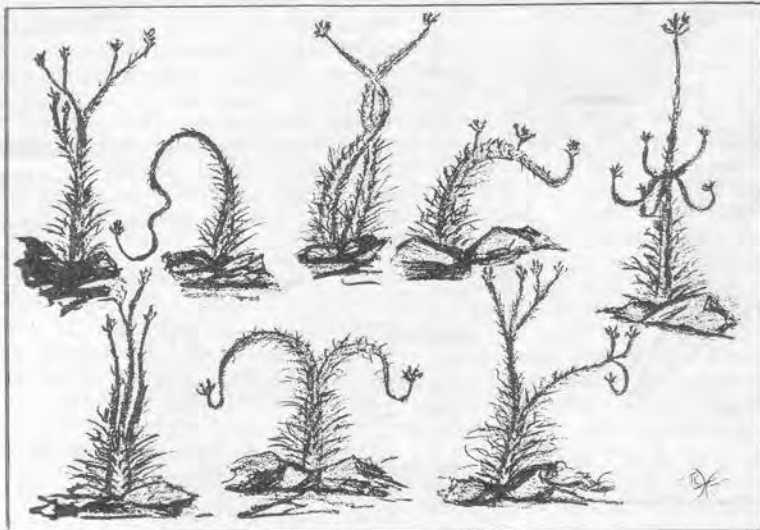
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TYPICAL BOOJUMS

NEAR SAUZALITO, BAJA CALIFORNIA

Fig. 2



THAT CRAZY BOOJUM!

Sketches by
Roberta Humphrey,
wife of the author

Fig. 3

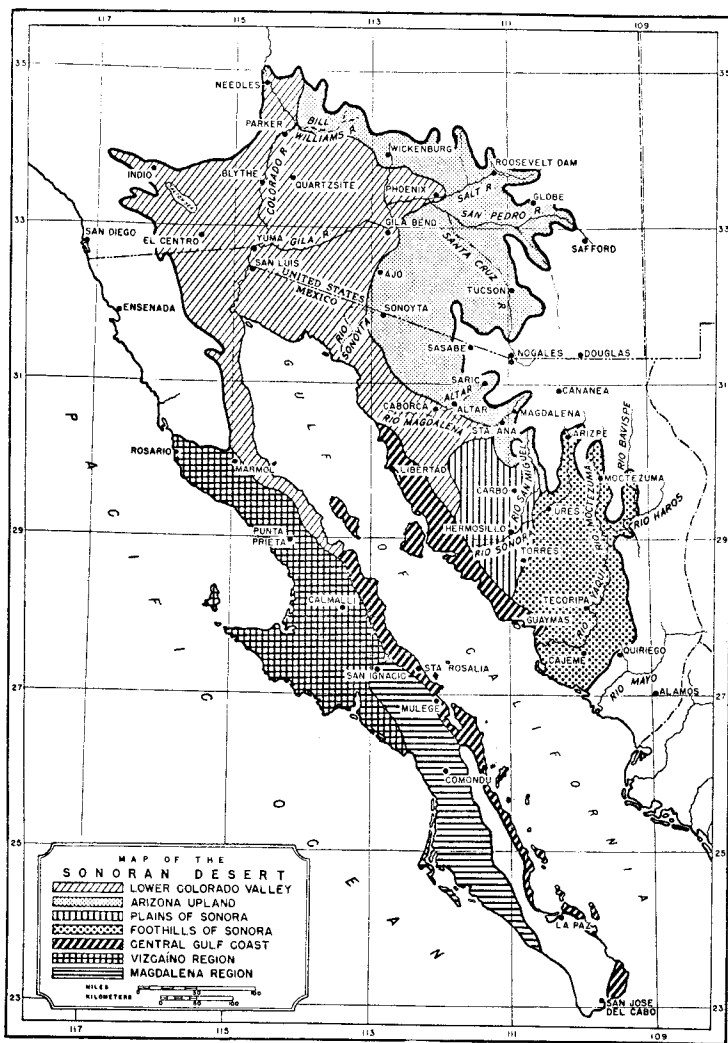
Dr. R. R. Humphrey, Professor of Biological Sciences, the University of Arizona, spent a good part of 1968 in the wilderness of the Vizcaino Desert of Baja California. He was studying *Idria columnaris*, under an \$18,900 National Science Foundation grant. He did his first formal study on it around 1930 when he wrote his doctoral dissertation on its anatomy, at the University of Minnesota. Last year in Baja California, Dr. Humphrey searched for seedlings; studied how *Idria* pollinates; how it sends its roots into the cracks of bedrock; what kind of soil, climate, and humidity it likes.

Tucson Cactus & Botanical Society indeed is indebted to Dr. Humphrey for his generous contribution of this professional report on one of our favorite areas.

*PLANTS OF THE VIZCAINO DESERT OF BAJA CALIFORNIA

Robert R. Humphrey

THE VIZCAINO DESERT



The Sonoran Desert and its vegetational subdivisions

From Shreve, Forrest. Vegetation of the Sonoran Desert.
Fig. 1

Vizcaino Desert. Although it contains many plants of intermediate or smaller size, the larger tree-like forms are the ones principally that make it unique. Five of these are particularly outstanding: the cirio or boojum tree (*Idria columnaris*); datilillo (*Yucca valida*), which is strikingly similar to our

That dean of Southwestern ecologists, Forrest Shreve, in his publication on the vegetation of the Sonoran Desert, designates as one of its Baja California subdivisions the Vizcaino Region. This is one of the larger subdivisions of the Sonoran Desert and lies wholly in Baja California, extending from a little north of the 30th parallel south almost to the 26th parallel, for a little more than 100 miles. The Vizcaino Region borders on the Pacific Ocean along its entire western edge but is separated from the Gulf of California by two other, rather narrow subdivisions of the Sonoran Desert (Fig. 1).

The low-lying coastal plain portion of this region has been designated by Shreve as the Vizcaino Desert, constituting a part of his more extensive Vizcaino Region. This distinction seems to be a more or less arbitrary one since the entire region is extremely desert-like and even its least arid portions have a mean-annual precipitation of between 4 and 5 inches or about half that of Tucson.

I am going to diverge a bit from Shreve's usage and refer to the coastal-plain portion of the Vizcaino Region as the Lower Vizcaino Desert, as contrasted with the higher lying Upper Vizcaino Desert. The upper portion is much more interesting botanically than the lower areas and is probably what most of those familiar with central Baja California think of as the Vizcaino Desert.

From a botanical point of view there is no desert area in North America or perhaps the world, that is more striking or absorbingly interesting than this Upper Vizcaino Desert. The upper portion is much more interesting botanically than the lower areas and is probably what most of those familiar with central Baja California think of as the Vizcaino Desert.

own Joshua tree; the torote or elephant tree (Pachycormus discolor); the large and strikingly beautiful when in flower, century plant or mescal (Agave shawii); and last, but certainly not the least striking, the cardon or sahuasa cactus, larger and even more massive than the sahuaro.

THE CIRIO, ALIAS BOOJUM

The cirio is a close relation (although not resembling) of our own ocotillo (Fouquieria splendens). Where the ocotillo has many stems radiating from a common base, the cirio most typically has a single stem that tends to grow erect. And, where the ocotillo rarely exceeds a height of 10 to 15 feet, the cirio has been measured at more than 75 feet. No one knows how long an ocotillo may live but the evidence we do have indicates that it has a rather short life span, I would estimate of no more than 100 years. In contrast, the cirio apparently may live for as much as 700 to 800 years.

The cirio typically grows straight upward and gradually tapers toward the top which ends in a spreading inflorescence of yellow flowers. Hence the name "cirio" which signifies a ceremonial church candle or taper (Fig. 2). Often, however, it branches and assumes a variety of shapes as indicated in the sketches. As someone so aptly remarked "How crazy can the boojum get?" (Fig. 3).

One of the better scientific descriptions of the boojum was written by Forrest Shreve in his VEGETATION OF THE SONORAN DESERT.

Idria ranks without rival as the most bizarre plant of the Sonoran Desert....In fact it is one of the most striking woody plants in the flora of North America.... In mature trees the basal diameter of the trunk is 50 to 60 cm. or, exceptionally, as much as 75 cm. In many individuals the trunk tapers gradually from the base; in others it increases in diameter to a height of about one to two meters and then tapers gradually. The extreme top of the tree, from 6 or 8 meters to the tip, maintains a more uniform diameter of 6 to 12 cm. The trunk is brownish gray and covered by a smooth series of epidermal layers which are heavily permeated with mechanical tissue. The trunk is usually single to the top but is sometimes branched. A wholly distinct type of short, slender branch is also borne on the lower part of the trunk. This type has a horizontal position, is repeatedly branched and bears leaves but never flowers. The branches of the latter type arise from the trunk at regularly spaced intervals on great spirals, as if conforming to a very precise form of phyllotaxy.

And as described by Joseph Wood Krutch in his book THE FORGOTTEN PENINSULA;
A NATURALIST IN BAJA CALIFORNIA:

What then, is this astonishing tree like? The right answer is "like nothing on earth" though the commonest description is "like an upside down carrot, improbably provided with slender, spiny, and usually leafless branches which seem to be stuck helter-skelter into the tapering, caroty body"... But fully grown specimens can reach a height of forty or fifty feet, tapering to a point from a base only a foot or 18 inches in diameter - which is far too slender for a respectable carrot. Moreover, they often branch in an absent-minded manner toward the upper end, and sometimes, as though embarrassed by their inordinate length, curve downward until the tip touches the

4.

earth and thus becomes what is perhaps the only tree which makes a twenty-foot-high arch like a gateway into a wizard's garden.

One of the more interesting aspects of our study of the boojum tree has been a gradual unfolding of its seasonal development. Although we have been making close observations for only two years, it is probable that the season-to-season changes we have seen will prove to be rather typical.

The boojum is a deciduous tree in that it normally sheds its leaves every year. It does this in the spring of the year, at the onset of the spring drought rather than in the fall. Thus the leaves assume a bright yellow coloration in April and May before they fall. After they are shed the trees are largely bare until the next period of good rains. This may be in July, August or September or it may not be until the winter rains of December, January or February. These new leaves will then be retained until the following spring.

Although the side branches may grow following either the summer or winter rains, the main stem grows only after the winter rains. At the same time an abundance of lateral branches develops from this new terminal growth. The amount of this growth varies greatly from year to year and seems to depend on the amount and character of the rains that fell during the winter.

Blossoming occurs from about June through August, usually reaching a peak in July. The pale yellow flowers are intensely fragrant, perfuming the entire area in a grove of the trees. The flowers are visited and apparently pollinated by a wide variety of bees, wasps, flies and hummingbirds. Few plants display their flowers to better advantage for pollination than the cirio since they usually develop only on the tops of the trees and spread out in a series of radiating branches as a kind of radiant crown overtopping everything else in the desert.

Just as the blossoming period is rather long drawn out, so too is seed ripening. It usually hits a peak however, in October; at least it did during 1967 and 1968. The seeds, which are spread by the wind, may be carried some distance from the parent tree though most of them do fall nearby.

The boojum has three strikingly different color aspects: yellow, just before the leaves fall in the spring; dead gray to almost black when the trees are leafless, and a bright cheerful green when they are in full leaf. Whatever their aspect they are absorbingly interesting to one who, through living with them, gets to know them intimately. All the aspects of their life, from germination and the first struggle for survival in a hostile world, through successful establishment for the very few who make it, and eventual maturity, become a very personal thing. One develops a feeling of empathy for these hardy souls who can brave and persist in an environment in which only the strong survive. And that they are strong is attested by the ability of individual trees to survive and endure in one spot for hundreds of years. They seem essentially fragile and highly specialized, yet through heat and cold, extreme drought, and, occasionally, excessive rainfall as well as hurricanes and the high winds that accompany these, they persist and have persisted, down through no one knows how many centuries. They ask no quarter and they receive none. They may remain tall and straight through the years or they may be so bent, gnarled and contorted by the years of battle that they are hardly recognizable; yet through it all, there they stay, "doing their thing".

(to be continued)

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IN MEMORIAM: Mr. Lester M. Plym, a member of Tucson Cactus & Botanical Society, passed on, last month. He was retired from Illinois Bell Telephone Company, and had made his home in Arizona for eleven years. He is survived by his wife, Velda, to whom we extend our sincere sympathy.

HILDEGARDE NASE'S CACTUS SHOW IN GERMANY

7.

At this time of the year in 1968, I was preparing for my trip of three months to my native land, Germany. Since I am also a member of the German Cactus Society, (Deutsche Kakteen Gesellschaft e. V. Founded in 1892) I was asked to give a slide-lecture on Arizona-Sonora Cacti in Bremen, Germany. So, when I boarded the airliner on June 19, 1968, I had in my suitcase over 100 slides showing our desert environment, plants, and wildlife, at their best. The Alan Blackburns contributed greatly to my collection of slides to show in Germany. They allowed me to select over 40 of their best slides. Mrs. Alice Christensen of our Cactus Club added another dozen very good pictures of Cactus John Haag's Garden. To all of this I added the best of my own slides.

The question arises: "Why is there such a great interest in cactus-growing in Germany?" Well--the grass is always greener on the other side of the fence, as every adventure-loving person knows. Since cacti are not native to Europe, they take on the strange mystery of the exotic. Dreams of far away places may come to the beholders' eyes in front of their cactus-loaded window sills, or, for the more fortunate, in his secluded greenhouse in the back yard.

Many botanical gardens in the larger cities of Germany feature a desert area plant exhibition. The most beautiful one that I saw is in Stuttgart. The cactus plants are housed in a climate-controlled greenhouse. All plants were in excellent condition and perfect to the last spine. While I was showing off a little, with my modest knowledge, explaining and pointing out peculiarities to my friends, a group of other visitors gathered around. When a question from the audience made it clear that I was mistaken for a guide, I had to confront them with the fact that I was also only a visitor. All of us had a very good laugh.

During my stay in Stuttgart, the neighboring town of Pforzheim experienced a very destructive tornado during the night of July 10th. This was the first tornado ever recorded in Germany's history. We drove there two days later and found that five Cactus Club members had lost about all their plant collections when their greenhouses were destroyed. Splintering glass had cut the plants to pieces. Heavy rains poured down for days and damaged remaining plants, with rot setting in fast. In spite of all their love for their cactus hobby, their homes had to be repaired first. Finally when there was time for their cacti, not many plants could be saved. Much help and encouragement from more fortunate club members helped them to start their cactus gardening all over again.

The month of August I spent in Bremen, my very own home town. There I met for the first time, my cactus pen pal, Herr Guenter Klaus. I had sent to him on several occasions some Arizona cacti and also some seeds I had collected from my plants. I was happy to see how well the plants were doing. I was surprised at the very success that Herr Klaus was having in growing plants from those seeds that I had mailed to him in the fall of 1967. He had planted the seeds on March 3, 1968.

8.

Following are the results:

KIND OF SEEDS	NUMBER OF SEEDS PLANTED	NUMBER SPROUTED	PERCENT SUCCESS
Echinocereus pectinatus			
rigidissimus	1000	1000	100%
Echinomastus intertextus	20	2	10%
Mammillaria Wrightii	20	1	5%
Echinocereus triglochidiatus	70	7	10%
Ferocactus acanthodes	100	30	30%
Ferocactus Wislizenii, orange red			
1st germination after 84 hours	100	100	100%
Ferocactus Wislizenii, yellow	80	48	60%
Echinocereus Fendleri	not stated	1	

If I did become a bit nervous when the big day arrived for me to give the slide-lecture, I hope it was not evident. Club members in Bremen had set up the screen and the projector. I was introduced by the President, Herr Helmut Cetken. I delivered to them greetings from the members of Tucson Cactus & Botanical Society. The warm welcome that I received made me relax, and everything went well. To see cacti and southwestern desert wildlife in their native natural habitats was of great value to the group as well as a new experience. This was expressed in many ways to me after the lecture. The questions asked showed their genuine interest.

They requested me to take warm greetings back to Tucson to the unknown friends who share a common love for a great hobby,

-----by Hildegard Nase.

PLANT COMPOUNDS BATTLE CANCER

University of Arizona X-ray studies on desert plant compounds that dramatically reduce cancerous tumors won a \$21,643 grant from the National Cancer Institute of the Department of Health, Education and Welfare yesterday.

U. S. Sen. Paul Fannin released word of the grant from Washington, D.C. Dr. Robert B. Bates, UA associate professor of chemistry and principal investigator in the research project, said he and a team of 12 researchers at the university are working out with the use of X-ray, the detailed chemical structures of compounds isolated from local desert flora. The compounds are active against cancer, he explained, and some of them, if fed to an animal with a tumor, will reduce a growth quickly by 90 per cent.

"These compounds are borderline for human use and it's still not known if we'll ever be able to apply them to cancer patients, but they're being investigated now," Bates commented.

More than 3,000 desert plants including cacti, were surveyed by UA pharmacists before certain plants were selected for the experiments. The pharmacists did the compound isolation work, and Bates and his team use the chemicals they extract.

Bates, who has been active in the compound research for five years, said the new HEW grant will cover the first of two additional years of research.

(from Ariz. Daily Star 2/15/69)



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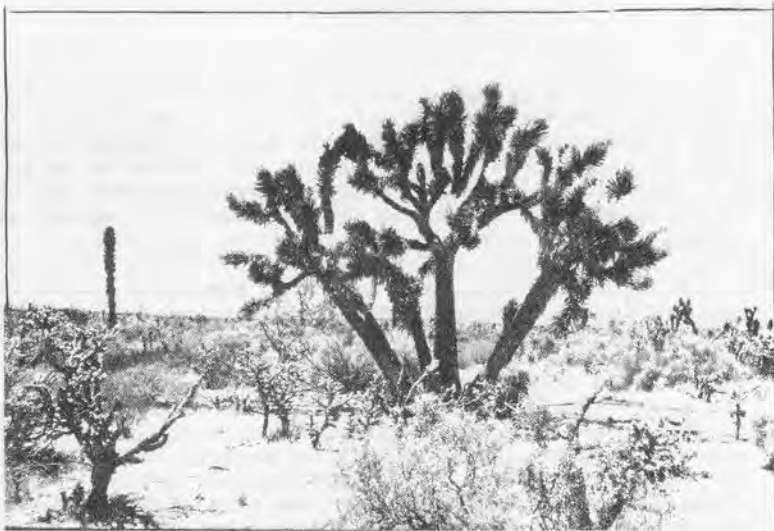


FIGURE 4
 PLANTS OF THE VIZCAINO DESERT OF BAJA CALIFORNIA*

by
 ROBERT R. HUMPHREY
 Part II Continued
 DATILILLO (YUCCA VALIDA)

The datilillo is only slightly less striking in appearance as a member of the Vizcaino Desert community than the cirio. This tall (20 to 25 feet) yucca resembles the Joshua tree of Arizona and California both in size and general appearance. Both are many branched, both have the stems clothed with a dense covering of living, or dead, spine-tipped leaves and both bear clusters of attractive waxy white flowers on the ends of the branches (Fig.4).

The principal readily observed difference in the two is in the manner of branching and the consequent general shape of the tree. The datilillo is more likely to have two or more, rather than one, main stems from near the ground. The branches also tend to come off at a more acute angle and to grow more nearly vertical than those of the Joshua tree. As a result of these branching habits the general form of the datilillo is less rounded than the Joshua tree. It also is usually not as tall though this can hardly be ascribed to the method of branching.

Note that the name signifies a little date (datil + illo) and from a distance a grove of datilillos looks much like a palm grove. On close examination the trees bear little resemblance to date palms but their size, dark green color and abundant leaves do give them a surprisingly palm-like appearance when seen from afar.

The woody stems or trunks of the datilillo may grow to as much as two feet in diameter and many of them are up to a foot thick. Trunks of considerable thickness may be from 5 to 10 feet long and make rather acceptable logs. Because the region produces a dearth of woody material suitable for construction, these trunks, although rather soft and not very durable, are used in building corrals, as roof supports in ramadas and small houses, as walls for privies and in a variety of other ways.

*Research carried out under National Science Foundation Grant GB6697, Ecology of Idria and sketches by Mrs. Roberta Humphrey.

From a botanical and an artistic point of view, however, their real value lies in their beauty and form and the character they give the landscape. The region simply wouldn't be the same without its datilillo any more than it would without the cirio or the torote or any of its other striking vegetation forms.

The various plants of the Vizcaino Desert all have their own particular likes and dislikes as to soil, slope, exposure, temperature etc. The cirio, for example, likes a well-drained, medium to coarse-textured soil. The dtailillo, by contrast, shows a preference for fine-textured or sandy soils of a sort often found in wide valleys or gentle slopes leading out from the mountains. Thus, one learns to anticipate a relatively smooth, sandy (or dusty) stretch of road when he sees a stand of datilillo in the distance. The boojum, by contrast, is much more likely to portend a rough, rocky stretch that may be hilly. Whatever may lie ahead, whether roads, vegetation, topography, or even climate, the traveller in Baja California can be assured of one thing; his trip may be interesting, or exciting, or even worrisome at times, but it will never be monotonous.

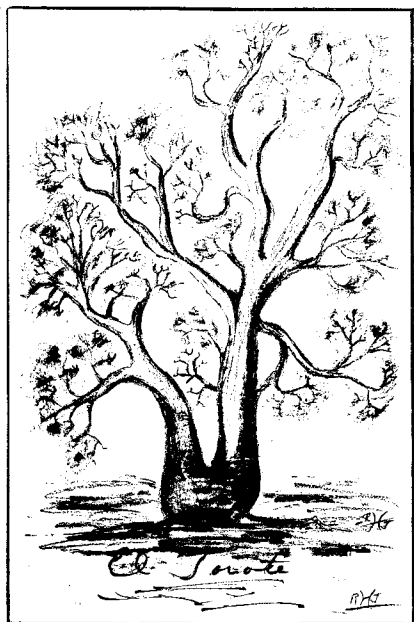


Figure 5

ELEPHANT TREE (TOROTE) (*PACHYCORMUS DISCOLOR*)

Certainly not as bizarre as the boojum, but by most standards more beautiful, and as interesting, the torote or elephant tree gives a uniqueness to the Vizcaino Desert that is not exceeded by any other plant. Its branches more like an orthodox tree than any of the other four species we are talking about here, but in spite of this manages to have a most unorthodox appearance.

The torote, which may have more than one stem from near the ground, branches in the apparently haphazard manner of many trees, to form a rather rounded crown generally from 15 to 30 feet tall. The trunk at ground level may be as much as 3 feet in diameter and almost throughout appears swollen and turgid to the point of being grotesque. As the stems branch they rapidly diminish in size which further adds to their heavy, fat appearance (Fig.5).

The bark is smooth, even on the large trees and tends to peel off in thin yellow-white sheets rather like the exfoliating bark of some birch trees. As they are leafless much of the year, the light-colored trunk and branches are usually not hidden by leaves and give a clean, striking appearance especially when seen in the light of early morning or late afternoon.

The name "torote" apparently means "big bull" and refers to its heavy, supposedly bull-like appearance. "Elephant tree" was obviously similarly inspired as was the generic name *Pachycormus*, "pachy" from the Greek meaning thick or stout and "cormus" also a Greek derivative meaning stump or log. Thus, we have a thick trunk or stem. The specific name "discolor" is derived from the plant's tendency to have two rather distinct colors of flowers; one almost

----- cont'd next page

white but with a slight touch of pale pink, the other a definite pink or light rose. The flowers on individual trees are largely either one color or the other giving the offhand appearance of two different species.

In addition to having a contorted, sometimes grotesquely elephantine appearance, the tree is strikingly handsome at all seasons. It presents markedly different seasonal aspects at different times of the year. These range from an autumnal aspect in April and May when the leaves are turning yellow and dropping, through the fragrant, pink glory of its blossoming in June, July and August; its white, bare-branched nakedness in times of drought or when clothed with an abundance of new light-green leaves after the rainy season.

The torote is amazingly adaptable, both in its ability to grow under widely differing climatic conditions and in its consequent appearance. Although typically a resident of the hot, dry interior, it will grow, as it sometimes does on the Pacific coast, where cool winds from off the ocean blow almost constantly and where high night-time, and sometimes day-time, humidity and fogs are commonplace. If appearance is any indication, it endures this kind of climate and adjusts to it, although not very happily.

In the interior the name "torote" aptly fits it. On the coast it resembles, and could much more correctly be called "la foca", the seal. Here it often lies prostrate on the ground as a response to the constant, salt-spray-bearing winds, little resembling the typical stalwart inland form.

The overall attractiveness of the elephant tree is enhanced by the settings where it often makes its home. Although by no means restricted to sites with a coarse, well-drained soil, some of the best specimens do grow in such habitats. I have in mind particularly areas such as that between San Agustín and Cataviña on the road southwest from El Rosario. Here is a region of enormous granite boulders eroded in the most amazing shapes and interspersed with a rich combination of Vizcaino Desert plants. This should be a desert artist's paradise, combining, as it does, an infinite variety of granite monolithic boulders and some of the tallest and best boojums in Baja California. For the scientist it represents a truly unspoiled virgin desert, rich in its variety of species.

NANCY CLARKE ATTENDS 1969 CONVENTION OF CACTUS & SUCCULENT SOCIETY OF AMERICA

The thirteenth biennial convention of the Cactus & Succulent Society of America was held May 5-9, 1969, at Pasadena, California. President Ed Gay presided, and more than 350 persons attended. I attended with Rosa and Anne Christensen. Monday, we visited two lovely private gardens belonging to Bill Lockwood and Walt Fader. In California, the succulents are particularly stunning and are used in landscaping as well as for potted plants. They were well represented in their collections, and such a variety of colors! I especially liked a blue one (*Crassula repens*) in a blue hanging basket. We visited the Los Angeles County Arboretum. Begonias and orchids were thriving in greenhouses, but the prettiest area was the Sunset Demonstration Gardens, very splashy with potted plants in flower. One garden used bluish pebbles to simulate a pool of water; another used blue sedum for the same result.

Tuesday, we visited Huntington Gardens. This was the best display of cactus that I've ever seen, and too beautiful for words. They had the largest

cont'd. next page

Golden Barrels I've seen. We saw the Rose Garden which was in full bloom, and the Japanese Garden.

Wednesday was an all-day bus trip to Tegeleberg Nursery. We saw the California yuccas in bloom, smaller than our Arizona ones, and extremely pretty. Also, we saw some Joshua Trees. Generally, growth on the Mojave Desert is low and sparse, with a windswept look. I saw a "Red Cap" gymno in bloom-pink flowers against the orange plant! We had an Easter egg hunt for cactus. One thousand cacti had been "planted" in a section of desert, and we combed it for whatever we could find. Such a lot of work had been done for our enjoyment.

Thursday....another all-day bus trip sponsored by the clubs and commercial growers in the Fallbrook-Vista area. The bus went south on an inland route, so we saw a peaceful pastoral part of California. First stop was Fallbrook Botanical Gardens where we were allowed to buy plants, and everyone "flipped" over the marvelous specimens and low prices. This commercial nursery ships 10,000 plants a day!

We visited two more wholesale nurseries, Reeves and Glover. Cacti were growing in rows in the fields. In addition to cacti, the area is splattered with nurseries growing poinsettias, mums, and many other flowers. I saw two red glasshouses where they are experimenting with the effects of red light on growth.

Friday was a quiet day...delegates' meeting, where, I heard rumors, it was undecided whether to hold the next convention at Las Vegas or El Paso. Luau Friday night had a spectacular show featuring two dancing Hawaiian girls and a man tossing lighted torches and swords around. Beautiful Hawaiian music.

That officially ended the Convention, but we stayed on Saturday (with three busloads more!) to go to Mme. Walska's Lotusland in Santa Barbara. Mme. Walska met us at the gate and led us in a sort of "follow-the-leader" line, accompanied by background music, around her numerous gardens. Everyone wanted to stop to take pictures, and Mme. Walska and her assistants had to keep shepherding us along. Her gardens seem to grow a bit of everything. I remember a clumping of *Astrophytum*s in bloom; another bed of mature *Melocactus* with their cephaliums; a bed of all gray and blue succulents; dozens of orchid cacti hanging in baskets in the trees; huge palms and cycads; bonsai planters in a patio; several pools decorated by giant shells; splashing fountains....one could not grasp everything. After our conducted tour, we were served champagne punch and caviar canapes, and then had nearly an hour to wander at leisure. Her gardens cover fifty-five acres, (my feet said 155), and I heard she hired twenty-two men for three weeks to put them in order for our visit.

The display of cactus in the patio at the hotel looked like the cream collected from all over the world! The work done by the various California club members to make the convention a success impressed me.

Additional members for 1969:

Kawchack, Mr. & Mrs. John, Route 6, Box 325 F, Tucson 85704 297-1318
Ratkevich, Mr. & Mrs. Pete, 1202 N. Dodge Blvd. Tucson
Spring, Mr. & Mrs. David, 6840 N. Casas Adobes Dr., Tucson 85709 297-2414
Benton, Earl & Mabel, 1231 N. Rosemont Blvd., Tucson 85716 327-2021
Kasten, Miss Anna, Box 664, 401-D, Aspero Dr., Green Valley, Az. 85614
Plym, Mrs. Velda 6100 N. Oracle Rd., Apt.22, Tucson 85704 325-4147

"DICOT ACTIVITY"

- I. Introduction:
 - A. Binomial System of Nomenclature.
Genus, species, and family concept.
 - B. Class Angiosperms as flowering plants relative to primitive tree forms.
Subclass: Dicots in relation to monocots. These selected families very useful.
- II. Magnolia Family: Primitive Flower evolved a hundred million years ago.
Magnolia grandiflora, landscape use, tree form.
- III. Citrus Family: Aiding Man's Health. Tree fruit. Origin and worldwide adaptability in semi-tropics. The most rapidly expanding fruit industry in U.S.A. and Arizona.
Citrus sinensis; sweet orange; clones.
Citrus aurantium; sour orange; rootstock and landscape.
Citrus paradisi; grapefruit; American; recent.
Citrus reticulata; tangerine; clones and hybrids.
Citrus mitis; calamondin; very cold, hardy, landscape tree with ripe fruit on tree year round.
Citrus limon; lemon expansion, Yuma, Mesa.
- IV. Rose Family: Man's Selectivity of Fruits and Flowers. Specialized forms adapted to man's use. Rose gardens popular, world over. Fruit development.
Recent Strawberry Developments throughout North America. Fresh and Frozen.
- V. Cactus Family in the Desert. Most of the fruits are edible.
- VI. Legume Family: Trees, Shrubs, and Herbs aiding man, especially for protein.
Cercidium floridum. Blue Palo Verde.
Acacia trees, mimosa, mesquites.
Parkinsonia aculeata; Mexican Palo Verde.
Poinciana gilles, Bird of Paradise Bush.
Sophora secundiflora; Mescal Bean Shrub.
Arachis hypogea, underground peanut annual.
Glycine max; soybean most important world source of edible oil and protein.
Pisum sativum; Mendel's Garden; leading frozen vegetable.
Lupine species of the desert.
- VII. Composite Family: Herbs of natural worldwide distribution successfully adapted through great diversity and superior evolutionary advancement.
Lactuca sativa, leading salad item lettuce.
Safflower and sunflower grown for edible oils.
Chrysanthemum spp, highly successful floral use.
Garden annuals: Aster, Calendula, Cosmos, Dahlia, Zinnia.
Ragweeds and other aeropollen groups cause pollinosis.
Taraxacum officinale, common dandelion widely distributed through world from Europe where used as leaf salad and root coffee substitute.
Desert Composite Annuals--very short life span from germination to seeds.
....By Leland Burkhart, Ph.D., The University of Arizona
=====

NEW REFRESHMENTS CHAIRMAN: Mrs. Helen Ratkevich has replaced Mrs. A. D. Chipman on this committee. Mrs. Chipman served long and faithfully and her services are truly appreciated by the entire membership of the Cactus Club.

MYSTERY MALADY ATTACKS PIMA ORGAN PIPE CACTUS

Possible Cause is Air Pollution

Many of Pima County's organ pipe cacti are dying along the roadsides. They are exhibiting symptoms that trouble internationally known naturalist, Joseph Wood Krutch, and other scientists. The cacti in the immediate proximity of the roads seem bad, but scientists do not know why -- whether due to the disasterously dry season we have had; or to some of the smog from the copper smelter that drifts down through Ajo Valley running through Organ Pipe Cactus National Monument; or to sometimes heavy auto traffic bound to and from Puerto Penasco, Sonora, Mexico. There are a number of thriving organ pipe stands inside the preserve. Among the possible reasons for the natural and man-created problems that several varieties of cactus are having are: air pollution, drought, disease, overgrazing of livestock, human vandalism and abuse, and extreme variations or imbalances in the temperature.

.....quoted from the Arizona Daily Star, May 4, 1969

HOW PLANTS ARE NAMED

PART II CONT'D.

BY
HARRISON G. YOCUM

D-

dasy-thick, dense
dealbatus-whitened, covered with
 opaque white powder
delibi-weak
deca-ten
decepta-mistaken
deceptrix- "
decipiens-deceiving
decumbens-reclining on the ground
 but with ascending apex
dejecta-hanging down
delo(s) - visible
deltoidea-triangular
dendron-tree
denium-gland
dens-tooth
densi-dense, close-set
dentatus-dentate, with sharp mar-
 ginal teeth pointing outwards
denudata-naked
depressa-lying flat, prostrate
derma-skin
deserti-of the desert
di- 2, twice
dia-through or between
diademata-crowned
dicho-in 2
dictyo-netted

didyma-growing in pairs, twinned
digitata-finger-like
dioica-dioecious, 2-household plant
dis=apart, the opposite of
discata-flat and rounded
discolor-of a different color,
 variegated
distans, separate, remote
divaricata-widely diverging, spread-
 ing in different directions
diversi-different
dolabri-hatchet
dolicha-long
dory-spear
doxa-glory
dubia-doubtful, fluctuating

NOTICE

Corrected Address of
Mr. and Mrs. Alan Blackburn
is: Route 9, Box 964M

E-

e-from, out of
 ec-out of
 eccremo-hanging
 echidnis-snake-like
 echino-hedge-hog, sea-urchin
 edulis-edible
 effulgus-shining, splendid
 elatior-lofty
 elata-lofty, exalted
 electra-amber
 elegans-elegant, tasteful
 elephantidens-elephant-footed
 elliptica-oblong with regularly rounded ends
 elongata-lengthened
 emarginata-with a shallow notch in margin at apex
 endo - within
 enne- nine
 enoplus - armed
 enormis - immense, abnormal
 ensi - sword
 -ensis-Suffix used in forming species names from place names.
 eos, east, dawn
 epi - upon
 equi - equal
 erecta - upright, elevated
 eria (o) - woolly
 erica - heather, heath
 erinacia - hedge-hog
 erosa - having the margin irregularly notched
 erubescens - growing red, blushing
 eruca - a caterpillar
 erythrina - red
 erythros - red
 -escens-Suffix that means "becoming" or "approaching"
 esculenta-full of good, edible
 eu - well, good
 eury-broad, wide, spacious
 evanescens-short-lived
 evansi-
 ex- from, out of
 exaltata- elevated
 exiguis - scanty, small
 eximia - select, choice
 extrorsa-turned outwards or away from the axis of growth

F-

falcata-sickle-shaped
 falci-sickle or scythe
 farinosa-with whitish mealy powder
 fasciata-crested, fasciated
 fasciculata-arranged in fascicles
 fastigata-sloping to a point, steep
 fastigiata-erect and parallel
 fauces-throat, jaws

F- continued

favosa-like a honey-comb, alveolate
 fenestra-window
 fero - wild or fierce
 ferox-bold, fierce
 ferrugini-rusty, like iron rust
 fertilis-fruitful
 ferus-wild
 -ifera(us)-Suffix, bearing
 fici-fig
 filamentosa-with abundant filaments
 fili-thread
 fimbriata-fringed
 fissi-divided, cleft, split
 fissuratus-split, fissured
 fissus-cleft
 fistulosa-hollow, like a pipe or reed
 flabellata-fan shaped
 flaccida-soft and limp, flabby
 flagelli)
 flagri) whip, flagellum
 flammeus-fiery, flame-colored
 flavescens-becoming yellow, yellowish
 flavi-yellow
 flavus-golden yellow
 flexi-bent, curved
 flexibilis-pliant, flexible
 flexuosa-wavy, bending gently in opposite directions
 flocci)
 floccosa)-tufts of soft hair, woolly
 flor-flower
 fluminensis-by a river
 foetens) -ill-scented
 foetida)
 folia-leaf
 foliosa-dense leaves
 fons-a spring, fountain, source
 fontinalis - from a spring
 formi- form, figure, shape
 formosa-finely formed, beautiful
 fossula)
 fossulata) -grooved
 foveolata-with small pits or depressions
 fragilis-easily broken
 fragrans-frAGRANT, sweet-smelling
 frondosa-leafy
 frutescens-shrubby
 fulgens)
 fulgida)-glittering, shining
 fulvi-tawny, deep yellow, reddish-yellow
 fumalis-smoky
 furcatus-forked
 furfuracea-covered with bran-like scales

F-continued

fuscata) dusky, made dark
fusca)
fusi-spindle, tapering at each end

G-

gamo-united
gemini-paired, twins
geniculata-bent abruptly as a knee
geometrizaans-growing geometrically
gibbi-humped or swollen on 1 side
gigantea-very large, gigantic
gigas-giant
galvi-pale yellow
glaber)-smooth, bald, without hair
glabra)
glandulosa-with glands
glauca-bluish-gray or bluish-green,
covered with a whitish bloom
globoso-shaped like a globe
globuli-spherical, globose
glomerata-gathered together in a
compact cluster
gloriosa-glorious
glotti-tongue
glutinosa-sticky, adhesive
gompho-a bolt, peg or nail
gonia-corner, angle
gracilis-slender
gramineus-grassy, of grass
grandi(s) - large, grand
granulata-roughened by granules or
small elevations
grapto-painted
graveolens-strong-smelling
gregaria-growing in colonies or
clusters
griseus)
grisius) - gray, grizzly
gummosa-gummy, sticky
gymno-naked
gyne-woman
H-
hadro-thick, stout
haemato-blood-red
halo-salt
hamata-hook, hooked
hamuligera-with small hooks
hapalo-soft (to the touch)
hastata-spear-shaped, basal lobes much
broader than blade
helico-spiralled, winding
helio - sun
hemi- half
hepatica- liver
hepta-seven
hesper-western, of the west
hetero-unlike, different
hexa-six

H-continued

himanto-strap-like
hirsuta-pubescent with rather coarse,
stiff hairs
hirta-rough, hairy, shaggy
hispida-rough with bristles, stiff
hairs or minute spines
holo-entirely, one
homalo-level, even, smooth
horizontalis-with level disk, horizontal
horrida- bristly, prickly, rough
humilis-low, small
hyala-transparent
hydro-water
hylo-forst, woods
hymeno-membrane
hyo-hog
hyper-above, more
hypo-below, less
hyptia-bent back, reversed
hystrix-porcupine

I-

-iana-Suffix used in species names
from personal or place names
ianthis-violet-blue, violet flower
-ica-Suffix used in forming species
names from place names
icosa-twenty
-icum) same as -ica
-icus)
-ifer(a)-Suffix meaning - to bear,
bearing
igneo-fiery, burning
-ii - ending used to form species
names from masculine personal names
il) - in, not
im)
imbricata-overlapping, like shingles
-imus-Suffix meaning-very, most
in - in, not
-ina, Suffix meaning, pertaining to
incisa-incised, cut; having margins
cut into deep, sharp and irregular
teeth
inermis-unarmed, defenseless
infra-below
infundibula-funnel, cone
ingens-huge
insignis-distinguished, notable
insularis-of an island, isolated
inter-between, among
intertextus-interwoven
intortus-twined or twisted in and out
intra-within
intricata-entangled
intro-into, inward



Season's Greetings



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CACTI REFORESTATION PROJECT

Tucson Cactus & Botanical Society has done it again. When this organization completed John Haag Memorial Garden in the internationally known Arizona-Sonora Desert Museum in 1965, it was its first major project. This Garden attracts tourist visitors in the study of cacti of the Sonoran Desert. In the Club meeting of July 13, 1969, the Cacti Reforestation Project was born: an innovation, a new concept, a "national first". Its objective is to raise Arizona native cacti from seed. When the cacti plants are mature enough to withstand the outdoor environment, they will be planted in Federal-owned and State-owned land, by our club members. Hundreds of these seedlings are now growing in members' improvised "greenhouses", and are well on the way to becoming a part of this project.

We are hopeful that other cactus clubs in this country will organize Cacti Reforestation Projects in their areas, in an effort to stop the cacti's rapid pace of vanishing from the face of the earth. This is happening to many flora today as it has in the past. At this time, we are planning to do our first outdoor planting in May or June, 1970. We shall give the Carnegie gigantea (saguaro) the King (or is it Queen?) of cacti in the State of Arizona and also the State Flower, the honor of our first planting, in this worthy project.

This is a new concept of what members of cactus clubs can accomplish in specific and constructive ways. We have received many favorable comments and much encouragement from such notables as Governor Jack Williams, Congressman Morris Udall, several educators in this area, and officials of the U. S. Department of Interior. This is an innovation in cactus club activities as we know nothing of such projects on record. We realize that the success of this project depends largely upon the enthusiasm of members of our Club. It is really a "national first" in this field of conservation. We find ourselves not only committed but dedicated to its success.

Chairman: J. F. Brick. Committee: Alan Blackburn
Roger Dean, Nancy Clarke, Alan McIlison



Fig. 6 Agave Shawii-Mescal.
(Sketch by Roberta Humphrey,
wife of the author)



Fig. 7 Cardon Cactus.
(Drawing by Roberta Humphrey)

PLANTS OF THE VICCAINO DESERT OF
BAJA CALIFORNIA*

BY ROBERT R. HUMPHREY

MESCAL (AGAVE SHAWII)

As all of the Agave group are commonly referred to as mescal or century plant it would seem appropriate to call *Agave shawii* Shaw's mescal. And so we shall think of it here, though we may speak of it sometimes simply as mescal.

Although this (and other) species of mescal frequently associate with the cirio, the two are almost as different as day and night. Both store water against the day, or better, the season or year when it may not rain. Cirio, however, stores its supply in the stem while mescal finds its leaves a better reservoir.

Shaw's mescal, like all of the century plants, grows for several years, perhaps 10 or 20 or 30, but certainly not 100 despite the name, before it blooms. It then gives its all for what is literally a dying effort, blossoms, sets seed and dies. The cirio, by way of contrast may wait 30 or 50 or more years before blooming for the first time. After that, it continues to flower and set seed year after year for several hundred years. Both methods work for there are large numbers of both species of all ages in the Viccaino Desert. As might be expected though, one sees large numbers of dead mescal plants but very few skeletons, even though these few may remain standing for many years before succumbing to termites, wind and decay.

There are several species of mescal in the Sonoran Desert and that portion of it that is the Viccaino Desert. All are interesting in their own way but none is quite as eye-catching as the one named for Mr. Shaw (Fig. 6). Several features make it outstanding, most of them related to its size. Towering above the other mescal in the area, the flowering stalk of this one shoots up to a height of about 15 feet. The elongating stalk more nearly resembles a giant stalk of asparagus than anything else that comes to mind. The heavy stalk, which may be 3 to 4 inches in diameter, has no true leaves though it does bear widely

*Research carried out under National Science Foundation Grant GB 6697, Ecology of Idria.

spaced leaf scales that hug the stem. As the stem shoots up, the flower-bearing branches develop in the axils of about the upper half of these scales. These branches elongate rapidly as the main stalk reaches its full height, finally ending in a dense cluster of greenish yellow to orange flowers held up to the sky for the bees and hummingbirds.

Although the flower stalk is the most spectacular feature of the plant, the rosette of large basal leaves in which the stalk is centered is a thing of beauty in itself. The numerous heavy, bright-green leaves range up to about 5 inches wide and 20 inches long. They are well protected by a strong sharp spine at the tip and by vicious looking spines along their margins. These spines are all made for business and one does not tangle with them. Where most cactus spines can puncture and be uncomfortable, these can tear and rip like the claws of a cat.

In a land where there are few trees and little to use as building materials the large, straight stalks of Shaw's mescal find ready acceptance as a sort of substitute for logs. They are neither very large nor durable but are easy to collect and serve as a foundation for mud-plastered walls, as corral reinforcing and to make short stretches of fence around homes and garden plots. When green and in the bud or early flower stage the stalks are cut and used as feed for livestock. This always seems such a waste of the years of growth that each stalk represents, but man and his hungry animals have no sympathy for the wasted reproductive effort of one century plant.

CARDON (SAHUARO) (*PACHYCEREUS PRINGLEI*)

Probably the best way to describe the cardon cactus to those familiar with Arizona is to say that it resembles an enormously heavy sahuaro (Fig. 7). Particularly when young, before it develops large side branches, there is a close similarity to the sahuaro. With maturity and increasing age, however, the two become increasingly dissimilar.

The name "cardon", by which this cactus is almost universally known in Baja California, is also applied to other large cacti of the region, the sahuaro (*Carnegiea gigantea*), and (*Pachycereus pecten-aboriginum*). Here I shall refer to "cardon" only with reference to *Pachycereus pringlei*, in part because this is the only one of the three that occurs in the Vizcaino desert.

The distribution of the cardon and sahuaro is interesting in that both find conditions over a considerable portion of the coastal area of Sonora to their liking and where their ranges overlap for a distance of almost 200 miles. Although the cardon is abundant in the Vizcaino Desert, there is no sahuaro there, or indeed, anywhere in Baja California. What has kept it from somehow becoming established on this peninsula during the millenia that it must have been flourishing a short distance to the east across and near the head of the Gulf of California? Or, by the same token, why has the *boojum* tree remained restricted to its limited range for perhaps an equal length of time? Seeds of the sahuaro are carried by birds, doves, in particular, and it would seem that they must have been dropped many times on fertile ground across the Gulf. The *boojum*, whose seeds are windborne, has managed to establish one outpost in the Sierra Bacha Mountains, south of Puerto Libertad, in Sonora, 75 miles from the nearest Baja California stand on Angel de la Guarda Island.

One would not have to be aware of the cardon's generic name (*Pachycereus*) to see a strong resemblance between the basal portion of its trunk and the leg of an elephant. Although the cardon trunk is larger, it has

the same solidity and spreads out a little as it enters the ground, much like the toes of an elephant. Both are thick, fairly smooth and gray.

Forrest Shreve in his Vegetation of the Sonoran Desert says the cardon may reach heights of 50 to 60 feet. Although we have not made a consistent search for abnormally tall individuals in Baja California, we have measured occasional plants that appeared unusually tall. Thus far none has been found that was taller than 43 feet. This is about as tall as the sahuaro, which may reach a height of 50 feet.

The cardon has its greatest thickness near the ground in contrast with the sahuaro which usually reaches its maximum diameter more than halfway to the top. And, where the sahuaro tapers to a relatively slender basal diameter of 5 to 8 inches, the cardon stands solidly with a massive 20 to 24-inch spread. The massive trunk and the heavy branches, many of which originate near the ground, give the cardon an impression of durability, great weight and an age greater than that of the sahuaro. Which of the two has the longer life span no one knows-but I would hazard a guess that it is probably the cardon.

It would seem plausible to expect that the cardon and sahuaro, since they look much alike and are sufficiently closely related to be both put in the same genus by some taxonomists, would bear similar fruit. For whatever reason, however, the fruits are very dissimilar. Those of the cardon resemble a large chestnutburr with a dry inedible interior. The sahuaro, as most of us so well know, is fleshy and splits open at maturity to expose a bright red, juicy and very tasty, fleshy mass that surrounds the seeds. The sahuaro fruits are highly edible and have long been sought after not only by the Indians and later settlers of the Southwest, but by birds, ants, coyotes and other animals. The dry cardon fruits may have some food value but except for the small seeds which might be most eaten by birds and ants, would seem to be so unattractively packaged as to repel rather than attract most potential foragers.

POSTSCRIPT

The boojum, datilillo, torote, mescal and cardon are only 5 from a large number of plants that grow as dominants in the Vizcaino Desert. Others are equally interesting, and some are much more abundant. And some, in their own way, are just as striking. The golden-orange coddar, that often literally envelopes the torote in a parasitic shroud of gold; the gray festoons of lichen that drape the boojum where the moist Pacific winds sweep inland; the heavy clumps of Spanish moss that cling to the sides of the cardon or that look like some strange kind of bird nest attached to the ocotillo and other shrubs; or even the yellow clumps of lichen that sprout like some other-world form of life from every rock and bush in some areas; these and many others give this down-under land a unique fascination that draws one back again and again and again. It is a harsh and a rough land. It has little water and can be unbearably hot. The dust in the roads can be unbelievably deep and hills steep and paved with boulders that can wrack and wrench any car to the breaking point and beyond. Even the mud in the rainy seasons can seem to have no bottom. We have been through all this and much, much more, yet we still keep going back. In part the lure is the unfinished boojum story; in part it is the challenge that is Baja but in large part it is the complex, unexplainable fascination of this Alice-In-Wonderland Vizcaino Desert.

This concludes Dr. Robert R. Humphrey's fascinating article on "Plants of the Vizcaino Desert of Baja California". Cactus Capital Chatter editor and all members of Tucson Cactus & Botanical Society remain greatly in-

debted to you, Dr. Humphrey, and to your wife for your generosity in presenting this to us. You are, indeed, the Guides Ideal in having taken us on this colorful and most interesting trip through Vizcaïno Desert of Baja California. We do trust that you will again favor us with reports of other safaris in that fabulous land.

CACTUS SHOW PRESENTED BY TUCSON CACTUS & BOTANICAL SOCIETY

The Men's Garden Club of Tucson invited the Tucson Cactus & Botanical Society for the second time to present an exhibit for their Ninth Annual Flower Show. We are proud to report that again we received their Award of Appreciation ribbon for an excellent display which attracted enthusiastic viewers.

Cactus Show Chairman, Craig Bolton, was ably assisted by Anthony Steinmetz, Hildegarde Naege, Jim Robbins, Alan Blackburn and Nancy Clarke. Jim Robbins was responsible for most of the succulents on exhibit. Hildegarde Naege added her collection of Rebutias. Carl and Wanda Horst showed several specimen plants. Anthony Steinmetz contributed some of his favorites. Nancy Clarke's plants were plentiful as were those of Alan Blackburn. AND -- all these fine members worked hard to perfect this Cactus Show. All have our vote of appreciation for the time, thought and physical stamina involved in their planning and carrying out such an excellent exhibit.

Members of TCBS who entered plants to be judged in this Show were: The Carl Horsts, the Alan Blackburns, Nancy Clarke. These are awards which they received: 1st Place--Alan Blackburn; 2nd Place--Carl Horst; 3rd Place--Nancy Clarke; 4th Place--Alan Blackburn. About 200 species were represented in the show, including one of Alan Blackburn's 150 Golden Barrels which he raised from seeds which he planted in 1955; also his *Notocactus lehinghausii*, one of its six arms crowned by five perfect blooms. A number of others in flower included *Lithops*, *M. rhodantha*, *Gynnes Friederickii* and *denudatum*, *Paredia querispina*, and *Rebutias*, their colors ranging from white and yellow through lavenders, pinks and purple to maroon. An educational exhibit of stages in cactus development from the seedling sprout to maturity was arranged by Alan Blackburn and Nancy Clarke.

Staffing the display and kept busy answering questions were: Betty and Alan Blackburn, Helen Bolton, Craig Bolton, Nancy Clarke, Carl and Wanda Horst, Lena Marvin, Dorothy Levering, Jim and John Robbins, and Josephine Shelby.

PRESIDENT HORST'S FAREWELL MESSAGE.....

In any organization there are at least three different levels of activity. First, there is a nucleus of keenly interested, active members. These are normally officers, in, ex or future, and are leaders of activities in the various fields of interest to the organization. Unfortunately, they constitute not more than perhaps fifteen percent of the membership. They do, however, keep the organization together as long as they do not violently disagree among themselves. In our organization we are fortunate in this matter because the nucleus has no more disagreement than necessary to keep discussion alive and interesting. Complete agreement would result in lethargy.

The second group consists of members probably no less interested than the first, but naturally reticent or desirous of not becoming too involved. Often, these members are actually as competent or more so than the leaders.

It takes a little encouragement to enlist their services. They constitute, also, a small percentage of the total organization, perhaps five or ten in a hundred. We have them too, and they contribute a necessary sustaining influence. Without them there is a gulf between the first and the third groups, and the organization is jeopardized by the gap.

Then, there is the third group. These are members who want to be entertained or are looking for a way to spend time in an activity which interests them at least more than watching television or twiddling thumbs. These may be capable persons but will not extend themselves into the real spirit of the activities. It is very regrettable that probably four-fifths of any organization are of this type. It is also regrettable that our organization is typical in this matter.

It is the desire of leaders and near leaders of any organization that this group be reduced in size, not by loss of numbers, but by gains in groups one and two. Again, our organization has this characteristic. Each group of officers institutes small changes which they hope will accomplish this result. Each has a measure of success and a measure of frustration. Each hopes for a continuation of changes insofar as they remain beneficial. We have this same desire. It is hoped that the officers of 1969 have been able to stir up a little enthusiasm and increased interest, especially in the last group so that the first and second groups (and the organization) can benefit. Time alone will tell.

Now is the time to thank the organization as a whole, the committees and the officers for their help and sustaining efforts during 1969, especially those who were slighted, even though there were no intentional actions in this respect. The concentration of keeping things going sometimes causes these lapses. Apologies are extended. The work of the Secretary, the Treasurer, and the Committees for publicity, Cactus Capital Chatter, library, reception, door prizes and field trips were especially helpful even though there were no field trips. We hope that the 1970 officers experience support of the same quality.

.....Carl O. Horst
Retiring President, 1969.

IN MEMORIAM...Mr. Charles Trimble, our 1968 Vice-President, passed on last month. Retiring several years ago after 30 years with Western Electric in the East, his fascination with the desert growth in the Southwest became an absorbing interest. The Tucson Cactus & Botanical Society will miss him and extends its sympathy to his wife.



We are happy to report the excellent recovery of ROSA CHRISTENSEN after major surgery recently. She is already driving her car again and was a welcome visitor to our display at the Men's Garden Club Ninth Annual Fall Flower Show.

We extend to MRS. F. J. NICHOLS our best wishes for a similar speedy recovery from major surgery scheduled for December 3. Her cheerful confidence will do more than a dozen bottles of medicine to restore her to good health. Mr. and Mrs. Nichols are our first and valued lifetime Honorary Members.

1970 OFFICERS ELECTED

Tucson Cactus & Botanical Society, at its November meeting elected the following officers for 1970: PRESIDENT -- Nancy Clarke; VICE-PRESIDENT -- Hildegarda Nasse; SECRETARY -- Mrs. K. B. Brown; TREASURER--J.F. Brick. The entire roster of officers and directors will be announced soon.

TUCSON BOTANICAL GARDEN SHOWING

The first Public Showing of Tucson Botanical Garden, Inc. officially opened it to the Tucson public on November 23rd. Your Roving Reporter saw the following TCBS Floraphiles there: Carl and Wanda Horst, Dorothy Levering, the J. V. Merrills, Lena Marvin, Chester and Evangeline Scott, Mrs. C. H. Trimble, Anna and Rose Christensen, The J. P. Bricks, Mrs. K. B. Brown, Mrs. Raymond Pagel, Alan and Betty Blackburn, Nancy Clarke, Mr. and Mrs. Harry Yocum.

CHRISTMAS PARTY CLOSES CLUB'S YEAR 1969

Tucson Cactus & Botanical Society closed its 9th successful year of existence with its traditional Christmas dinner party and gift exchange. This was held on December 14th at Randolph Park Recreation Hall.

LENA MARVIN Cactus Capital Chatter staff member, reports having enjoyed greatly, her recent trip to northern Baja California. Other Tucson Kaktophiles who visited Baja recently are Edna Wills, Kay Brown, and William Pleumer.

1970 CACTUS CAPITAL CHATTER SUBSCRIPTIONS DUE

A T O N C E ! ! !

BE PROMPT

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\$1.50 per year to addresses in foreign countries

Copies of back issues of CACTUS CAPITAL CHATTER, 1965 through 1968, are always available

20¢ per single copy.

75¢ per set of 1 year's copies.

Please make your checks payable to --Tucson Cactus & Botanical Society

EDITORIALLY SPEAKING

Do YOU believe that, for all the benefits that you as a member receive from Cactus Club programs, you thereby OWE something of yourself in return? This is needed ~~in order~~ to further our purpose: "The purpose of this Corporation shall be to function continuously in the study of cacti and native flora. Also, to further the protection of cacti and native flora of Arizona. Also, to sponsor a botanical garden in Pima County near Tucson, Arizona, and for plantings of cacti and native flora in other suitable areas". ---By-Laws of Tucson Cactus & Botanical Society, Inc., Article I, Section 2. WE believe this--and -- YOU should too!

Do YOU cheerfully and willingly and constructively accept assignments of responsibility in our Club's programs when you are asked to do so by our officers and our committee chairman? YOU should!

Do YOU take the initiative in greeting strangers who visit our meetings? Do YOU become acquainted with them to build a friendly club? YOU should!

Do YOU become acquainted with all members of your Cactus Club? YOU should! YOU can learn much from them about our favorite plants and how to grow them. Also, YOU can thus make many fine friends.

Do YOU visit YOUR LIBRARY located at the Nancy Clarke Insurance Agency Office at 2754 North Campbell Avenue? YOU should. It is filled with excellent information for Kaktophiles such as YOU wish to become if you are not now such. Hours: 9 a.m. - 5 p.m. Mondays through Fridays.

.....

"Arizona's natural beauty is a fragile, God-given thing. Those who are capable of obtaining inspiration and pleasure from it have a right to its preservation. It is a right that should not be violated by those esthetically illiterate persons who can be satisfied with ugliness and disorder in their environment."

...Phil Stitt, Editor, Arizona Architect.

*May the coming year bring Good Health, Happiness,
and Prosperity to you and your loved ones.*

1970			
JANUARY	FEBRUARY	MARCH	APRIL
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
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