

SAGUAROUND

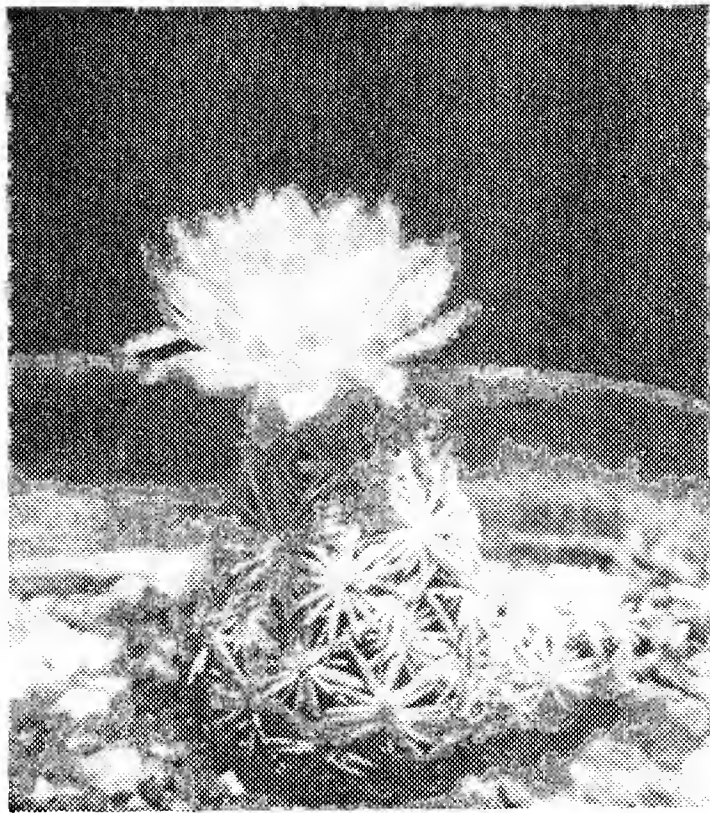
BULLETIN

DESERT BOTANICAL GARDEN OF ARIZONA

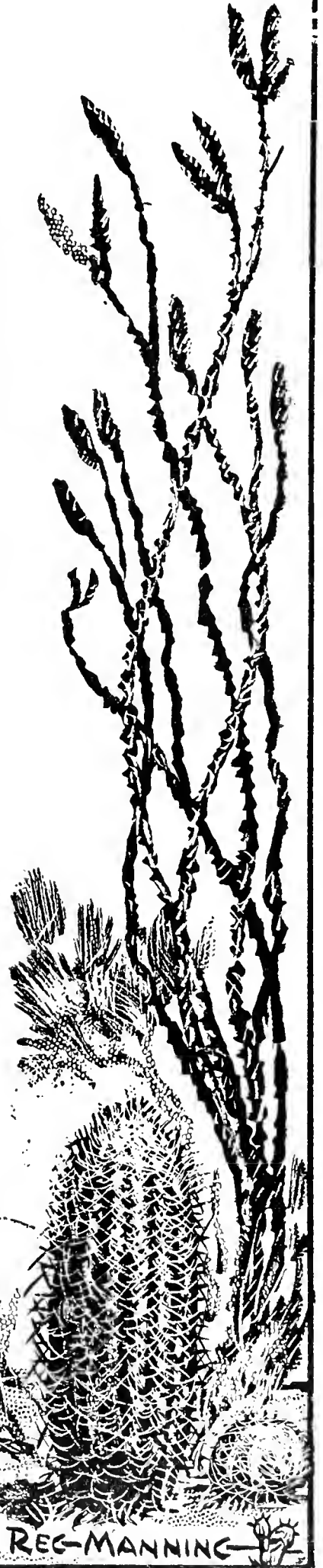
Vol. XVI

January, 1962

No. 1



Coryphantha hesteri, Wright. A diminutive plant, 1"-1½" tall with light purple flowers from Alpine, Texas



REG-MANNING

SAGUAROLAND BULLETIN

Published and owned by the Arizona Cactus and Native Flora Society, sponsors of the Desert Botanical Garden of Arizona, P.O. Box 547, Tempe. *Saguaroland Bulletin* attempts to promote the Garden and to provide information on the desert plants and their culture. Subscription \$5.00 per year, the subscription including active membership in the Society and the Desert Botanical Garden. Issued 10 times a year.

W. HUBERT EARLE, Editor

Volume XVI

JANUARY, 1962

No. 1

Arizona Cactus and Native Flora Society

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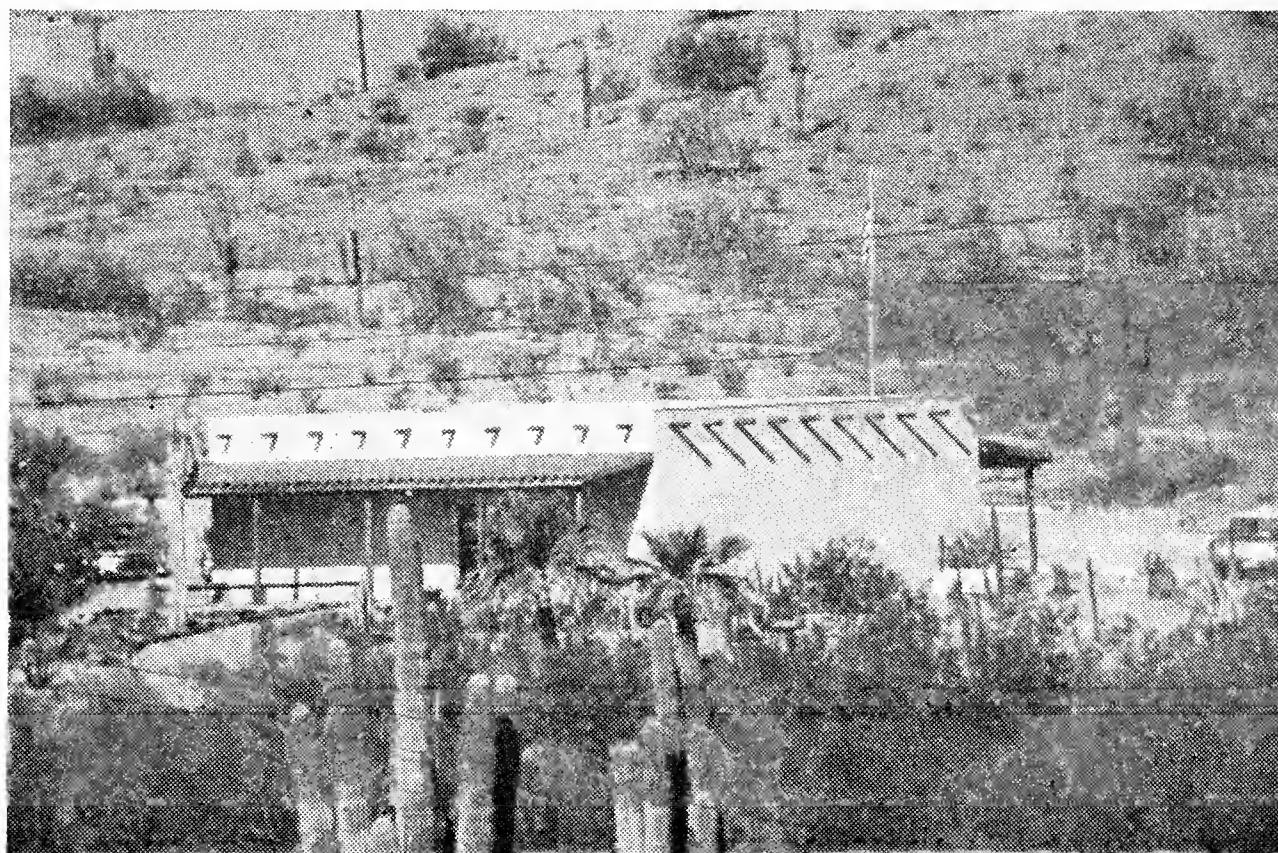
GARDEN OPEN DAILY 9 A.M.—5 P.M.
Including Week-ends and Holidays

NOTES FROM THE CORNER OF THE EDITOR'S DESK

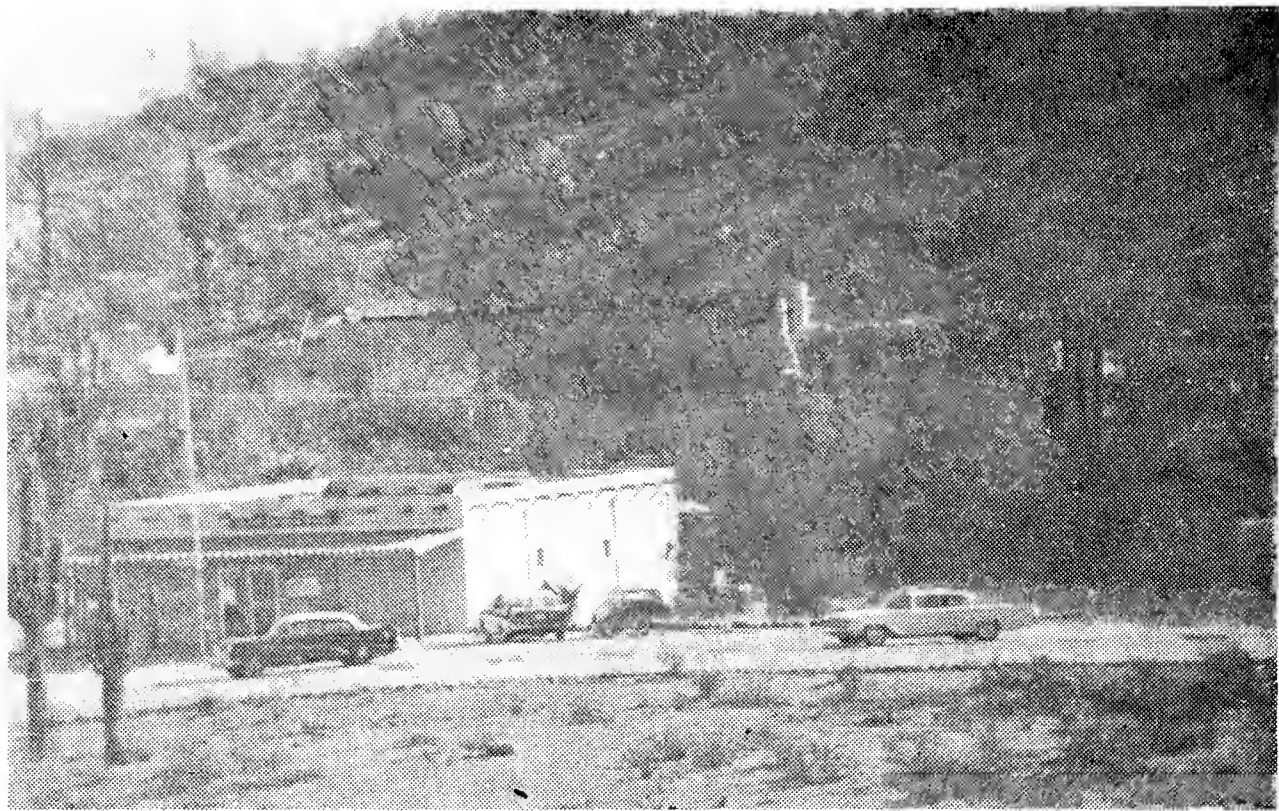
The **Saguaroland Bulletin** format for 1962 will be as follows: Colored cards of trees and shrubs of Arizona will feature the Plant of the Month page. More interesting articles on desert shrubs will be written by our horticulturist, John H. Weber. Several new species of cacti and succulents will be described in the early summer issues. Some recently discovered and described Arizona cacti will be reviewed with photos. Travel and collecting stories are forecoming from some of our members. If your editor can remember to clean his camera lens, he'll have more photos of the Garden, plants, people, etc.

The **15th Annual Cactus Show** classification list is carried in this issue, which is a month earlier than usual. This is due to the many requests by the Garden Clubs who need these lists for their January meetings. Copies have already been issued to the Garden Clubs. The February Bulletin will again have the list 'inserted' for your use in making your entries.

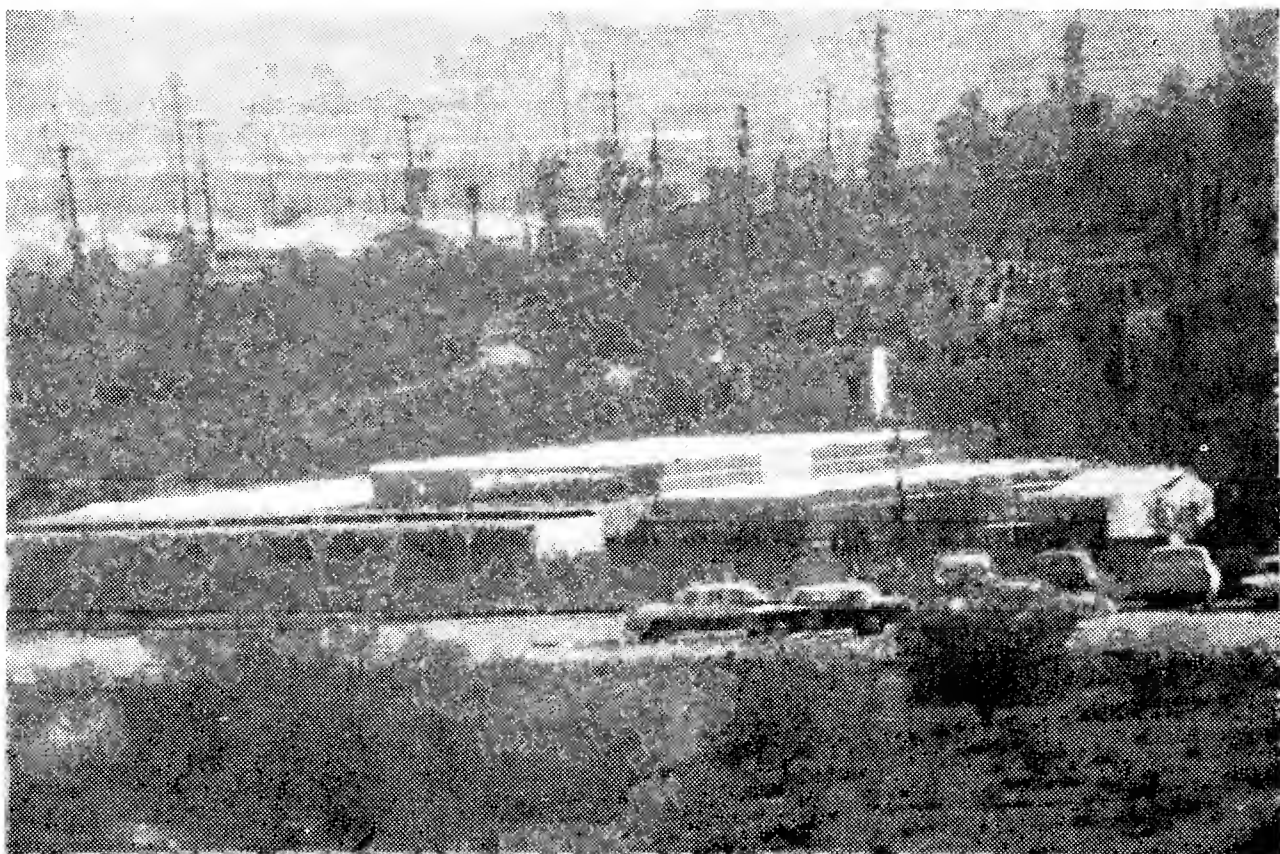
Volunteers. We often wish there was a thirty hour day so that we could get all our office work completed. Several of our members have been giving of their time so that we can 'catch-up.' We wish to thank Mrs. Lillian Armer, Tempe, for her weekly half-day in keeping up our files on newly published species and assembling the lecture slides. Also thanks to Mrs. Thelma MacDougal, Mesa, for her excellent typing of letters and copy. We can always depend upon Mr. and Mrs. Hiram Pratt when we get crowded at our Bookstore; their geniality eases any situation. If you can give us a few hours each week, it would be more than appreciated. The Garden is suffering from growing pains and your aid will help us.



400 MM photo of Visitor's Building showing the garden entrance side of building. Note the new growth of trees and shrubs in one year.



400 MM photo of Visitors' Building, parking lot entrance side. In the background can be seen the Webster Auditorium.



400 MM photo of Lath-house and part of parking lot. In the distance can be seen subdivisions that have come up to the Garden's boundary. Three miles away can be seen the new Ocotillo power plant located in Tempe.

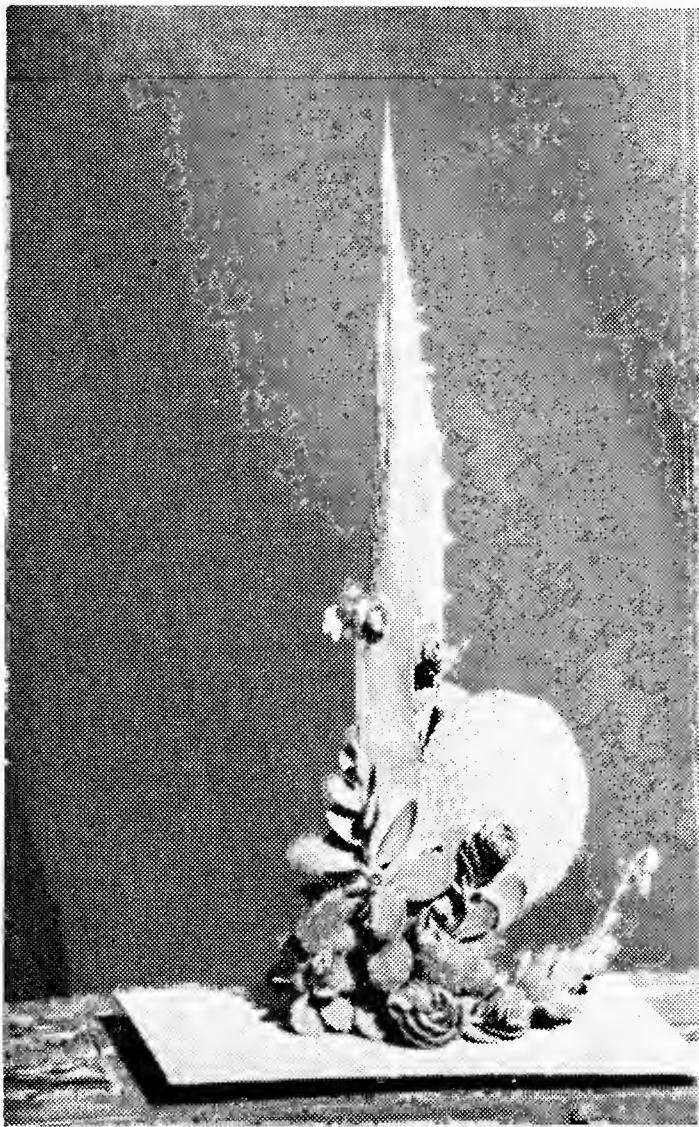
FIFTEENTH ANNUAL
CACTUS SHOW

February 18 to February 25, 1962

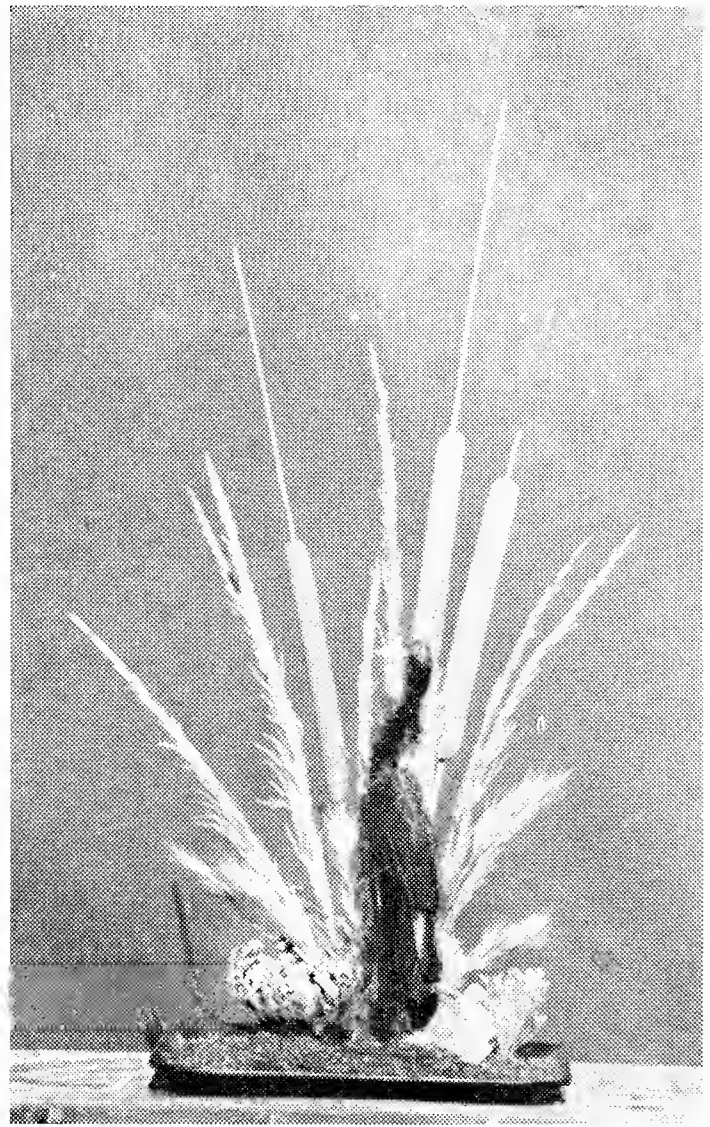
Sponsored by the Phoenix Gazette and the
Desert Botanical Garden

Webster Auditorium
Papago Park,
Phoenix, Arizona

SHOW OPEN DAILY 9 A.M. TO 5 P.M. — ADMISSION FREE



Cacti and other succulents.
Arrangements against the wall.
—Mrs. R. I. Turner, 1961.



Natural Dried Material.
Arrangement against the wall.
—Mrs. Monnie Speck, 1961

SECTION I CACTI

Class A. **POTTED PLANTS**

- Div. 1. OPUNTIA
- 2. CEREUS
- 3. ECHINOCEREUS
- 4. REBUTIA
- 5. CHAMAECEREUS
- 6. LOBIVIA
- 7. ECHINOPSIS
- 8. ARIOCARPUS
- 9. STENOCACTUS
- 10. FEROCACTUS
- 11. ECHINOCACTUS
- 12. GYMNOCALYCIUM
- 13. ASTROPHYTUM
- 14. THELOCACTUS
- 15. ECHINOMASTUS
- 16. CORYPHANTHA
- 17. MAMMILLARIA
- 18. EPIPHYLLUM
- *19. ANY OTHER SPECIES
- 20. SEEDLINGS

Class B. **CRESTED PLANTS**

- Div. 1 Crested Cacti — own root
- 2. Crested Cacti — grafted

Class C. **GRAFTED PLANTS**

Class D. **COLLECTIONS — 5 species of a genus**

SECTION II SUCCULENTS OTHER THAN CACTI

Class A. **POTTED PLANTS**

- Div. 1. AEONIUM
- 2. AGAVE
- 3. ALOE
- 4. BRYOPHYLLUM
- 5. CRASSULA
- 6. DUDLEYA

- 7. ECHEVERIA
- 8. EUPHORBIA
- 9. GASTERIA
- 10. HAWORTHIA
- 11. KALANCHOE
- 12. LITHOPS
- 13. MESEMBRYANTHEMUM
- 14. PLEIOSPILOS
- 15. SEDUM
- 16. STAPELIA
- 17. YUCCA
- *18. ANY OTHER SPECIES

Class B. **COLLECTIONS** — 5 species of a genus

SECTION III DESERT TREES & SHRUBS

- Div. 1. TREES
- 2. SHRUBS
- 3. DESERT BONSAI
- 4. ANY OTHER DESERT PLANTS

SECTION IV ARRANGEMENTS

Class A. **DISH GARDENS** (Planted) Accessories permitted

- Div. 1. CACTI
- 2. OTHER SUCCULENTS
- 3. CACTI & OTHER SUCCULENTS

Class B. **CENTERPIECES** — Accessories permitted

- Div. 1. CACTI
- 2. OTHER SUCCULENTS
- 3. CACTI & OTHER SUCCULENTS
- 4. NATURAL, DRIED DESERT MATERIAL
- 5. MEXICAN INFLUENCE
- 6. AMERICAN INDIAN INFLUENCE
- 7. ANY OTHER CENTERPIECE

Class C. **ARRANGEMENTS ON/or AGAINST THE WALL** —
Accessories Permitted

- Div. 1. CACTI
- 2. OTHER SUCCULENTS

3. CACTI & OTHER SUCCULENTS
4. NATURAL, DRIED DESERT MATERIAL
5. MEXICAN INFLUENCE
6. AMERICAN INDIAN INFLUENCE
7. ANY OTHER ARRANGEMENT

Class D. CORSAGES

- Div. 1. SUCCULENTS
2. DRIED DESERT MATERIALS

Class E. BUTTON GARDENS

Class F. MINIATURE ARRANGEMENTS

- Div. 1. UNDER 5"
2. 5" TO 8"

Class G. STRAWBERRY JARS—Cacti and/or other succulents

SECTION V ARTS — DESERT SUBJECTS

- Class A. BLACK & WHITE PHOTOGRAPHS
- Class B. OIL PAINTINGS
- Class C. WATER COLOR PAINTINGS
- Class D. ANY OTHER MEDIUM
- Class E. DESERT WOODS

SECTION VI EDUCATIONAL EXHIBITS

SECTION VII OPEN: NON-COMPETITIVE

*Additional divisions will be set up when 3 or more species of a genus are entered.

The 15th Annual Cactus Show is open to all persons interested in desert plants and who would like to exhibit plants in the various classifications. No entry fee is charged.

Awards of large trophies will be made to those accumulating the most points in the largest sections. Smaller trophies will be given for outstanding exhibits in the various classifications. Ribbons will be awarded for Special (purple) 1st (blue) 2nd (red) 3rd (white) in each division.

Entries can be placed in the Auditorium from 9 A.M. Friday Feb. 16th until 6 P.M. Sat., Feb. 17th.

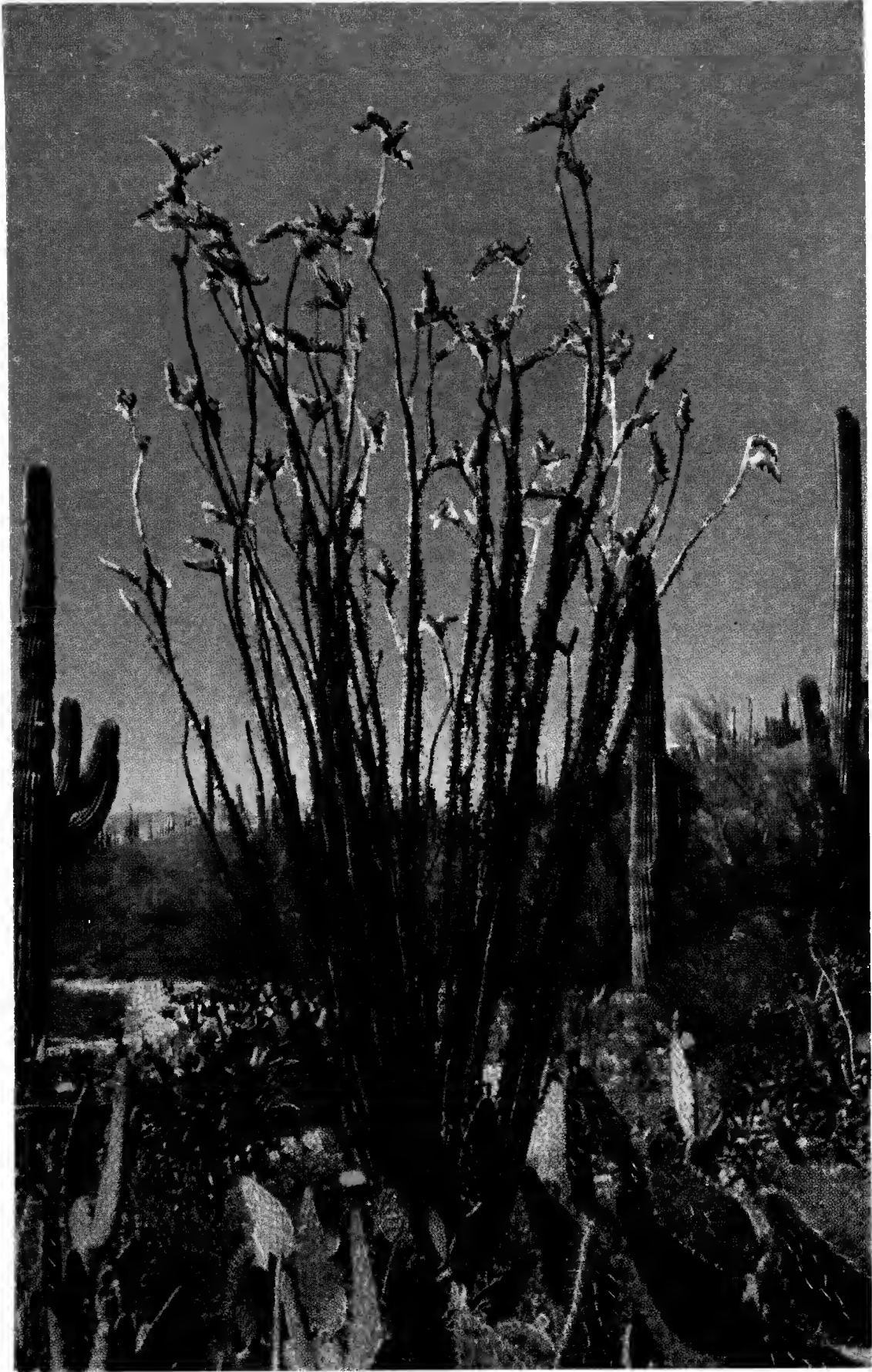
Judging will be held Saturday, February 17th from 7 to 9 P.M.

The Show will be open to the public Sunday, February 18th at 9 A.M. At that time all awards will be in place.

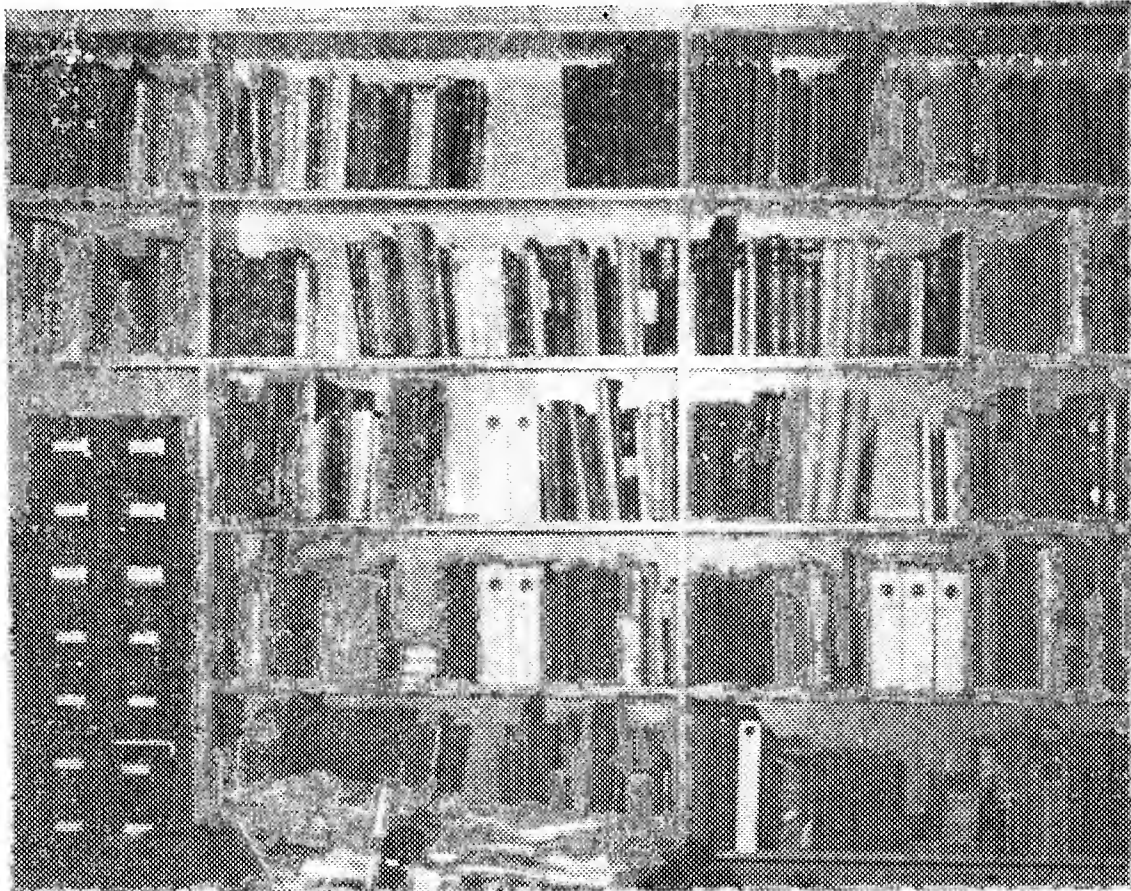
Entries can be removed from the Show after 5 P.M. Sunday, February 25th or the following Monday.

For additional information please phone the Desert Botanical Garden, BR 5-5592.

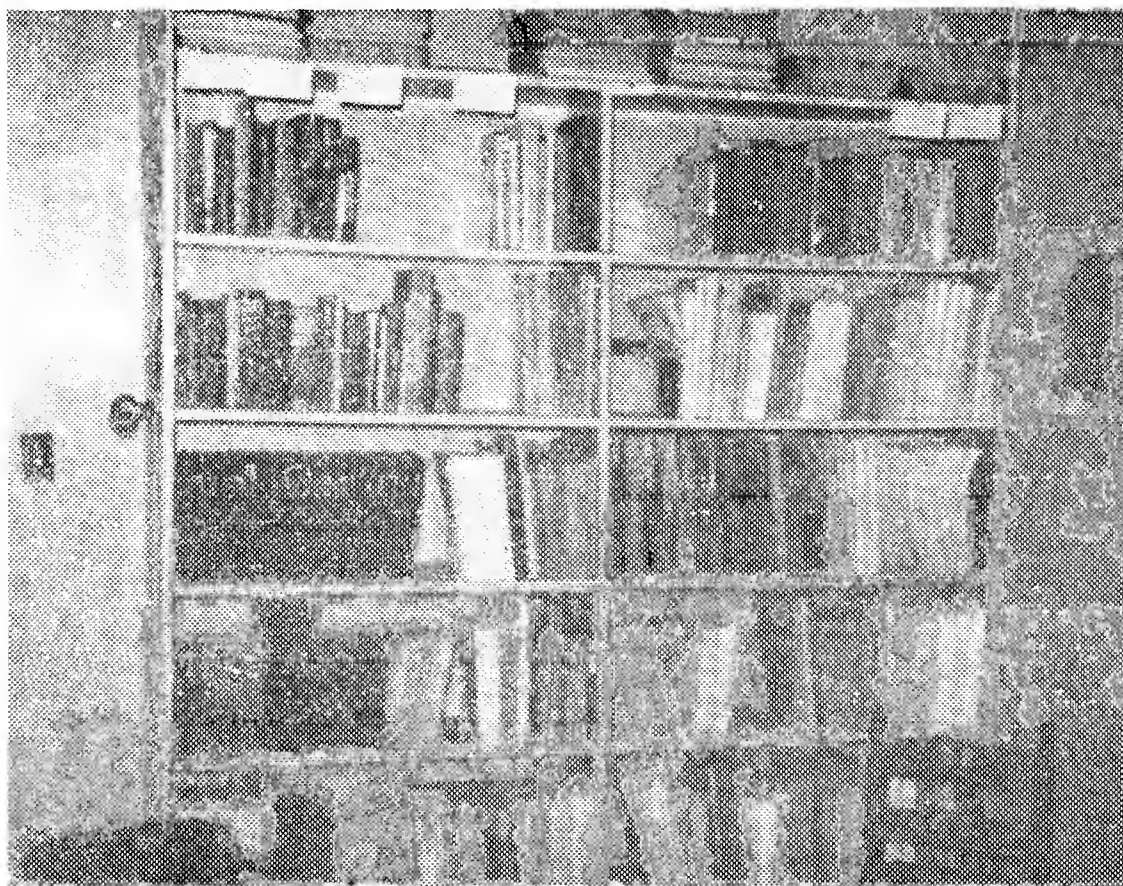
PLANT OF THE MONTH



Fouquieria splendens (Ocotillo) (Coachman's Whip). A shrub of the southwest that spreads its scarlet-red blossoms through the early and late spring.



A view of a small portion of our Reference Library. Last month, Wm. Hendrix built new shelves so that we could group more of our books around the walls of the office.



Periodicals are now assembled together for quick reference. Separata is located in large letter files. We hope to soon build a separate building for our present books and future acquisitions.

In addition to the above books, etc., we have 62' of shelves filled with valuable research and reference books in the Auditorium display cases.

LEMITA

THREE LEAF SUMAC

SKUNK BUSH

FRAGRANT SUMAC

SQUAW BERRY

SQUAW BUSH

LEMONADE BERRY

SPICE BUSH

CASHEW FAMILY

Rhus trilobata Nutt.

Anacardiaceae

The lemita is a cousin of poison ivy and poison oak, and sometimes is confused with the latter, although this is entirely unnecessary. To be sure, both plants attain a similar height and are found growing in similar regions, and both have three leaves at the ends of their branches, but there the resemblance ceases. The poison oak produces white berries and the lemita grows bright red berries having a pleasantly acid taste, which are coated with a hairy stickiness. The leaves of the lemita do not possess the shiny glossiness of the poison oak's, are somewhat smaller, and release a pungent scent when bruised.

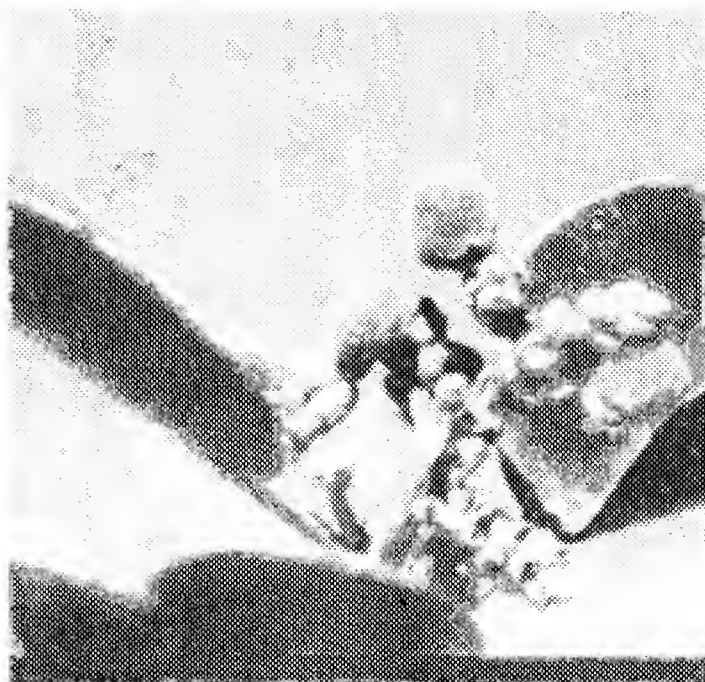
With the possible exception of the various willows, squaw bush is the most widely used shrub in the making of Indian baskets. The warp is formed from the peeled branches, and for a weft and sewing material in the weaving of coiled baskets, the branch usually is split into three pieces, the bark and brittle tissue next to the pith are removed, leaving a flat, tough strand. It has been employed in this manner by the Apache, Panamint, Paiute, Navajo, Hopi, and Coahuilla Indians. The latter, who lived in San Diego County, California, gave a deep black color to the strands of the three-leaf sumac by soaking them for about a week in an infusion of the berry stems of elder (*flor de sauz*). Among the Zuni Indians, the stems with the bark removed are used in making the fine

"Apache" and other baskets, and the bark-covered stems are employed to form the patterns in the weave.

In my early youth at Fort Whipple, Arizona, I saw Apache squaws make bread out of the ground lemita berries, and at present the Tewa Indians eat its fruit whole or ground. Since the duty of collecting its stems for basket-making, and its fruit for food, nearly al-



Rhus trilobata stem. Notice the hairy leaves and stem.



Fuzzy, red fruits of *Rhus ovata* are similar to those of *R. trilobata*.

ways fell to the squaws, doubtless this accounts for its popular name of squaw bush.

The Spanish-Americans of New Mexico have found that the plant may be beneficial to them. To make the hair grow, after shampooing, they rinse it

with a decoction of the roots. The people of Ciruela grind the dry bark into a powder and rub it on a sore mouth. Moreover, they say that the gum from the bush is good to chew.

Many travelers in this region have found relief from thirst by sucking its acid-tasting berries which stimulate the flow of saliva, and many inhabitants make a refreshing beverage from its fruit, particularly welcome during the heat of summer days.

According to Paul Standley, the Navajo made a black dye from a decoction of its leaves and berries when combined with the calcinated gum of the pinon, whereas the Spanish-Americans employed the twigs and leaves for the same purpose.

Ethnobotanical excerpt from 'Healing Herbs of the Upper Rio Grande'.—L.S.M. Curtin, Laboratory of Anthropology, Santa Fe, N. M.

ACTIVITIES FOR JANUARY

Jan. 3—Class — Deserts & Their Plants.....	3 P.M.
Jan. 4—Illustrated Lecture — Arizona Trees & Shrubs in Bloom.....	3 P.M.
Jan. 9—Cactomaniacs — Webster Auditorium.....	8 P.M.
Jan. 10—Class — Culture of Desert Plants.....	3 P.M.
Jan. 11—Illustrated Lecture — Arizona Birds & Animals.....	3 P.M.
Jan. 17—Class — Desert Succulent Plants.....	3 P.M.
Jan. 18—Illustrated Lecture — Arizona Scenics.....	3 P.M.
Jan. 24—Class — Identification of Desert Plants.....	3 P.M.
Jan. 25—Illustrated Lecture — Succulent Plants.....	3 P.M.
Jan. 31—Class — Desert Survival Plants.....	3 P.M.

FEBRUARY

Feb. 1—Illustrated Lecture — Collecting Plants in Mexico.....	3 P.M.
Feb. 1—Arizona Horticultural Society.....	8 P.M.
Feb. 6—Cactomaniacs—Slides — C. L. Niedermeyer — "We Flew to Cuba" — Webster Auditorium.....	9 P.M.
Feb. 7—Class — Field Trip.....	9:30 A.M.
Feb. 8—Illustrated lecture — Arizona Cacti in Bloom.....	3 P.M.
Feb. 18 to 25th—15 Annual Cactus Show Admission Free.....	9 A.M. to 5 P.M.

Illustrated Lectures last ½ hour — Admission Free

Classes last 1 hour — Enrollment is free

Lectures and Classes are held in the Webster Auditorium

SAGUARO LAND

BULLETIN

DESERT BOTANICAL GARDEN OF ARIZONA

Vol. XVI

February, 1962

No. 2



Flowering cluster of *ALLIUM GOODDINII*. See p.17



REG-MANNING

15th ANNUAL CACTUS SHOW

THE 15th ANNUAL CACTUS SHOW will be held the 18th to the 25th of this month in the Webster Auditorium at the Garden. It will again be co-sponsored by the Phoenix-Gazette Newspaper and the Garden. Hours will be 9 A.M. to 5 P.M., and as usual, there will be no admission charge.

SHOW COMMITTEE of Mrs. Arthur Holt, John Hales, Warner Dodd and Rod McGill met and made several changes and additions to the classification list. The list was published last month but is inserted in this issue to aid in making your entries.

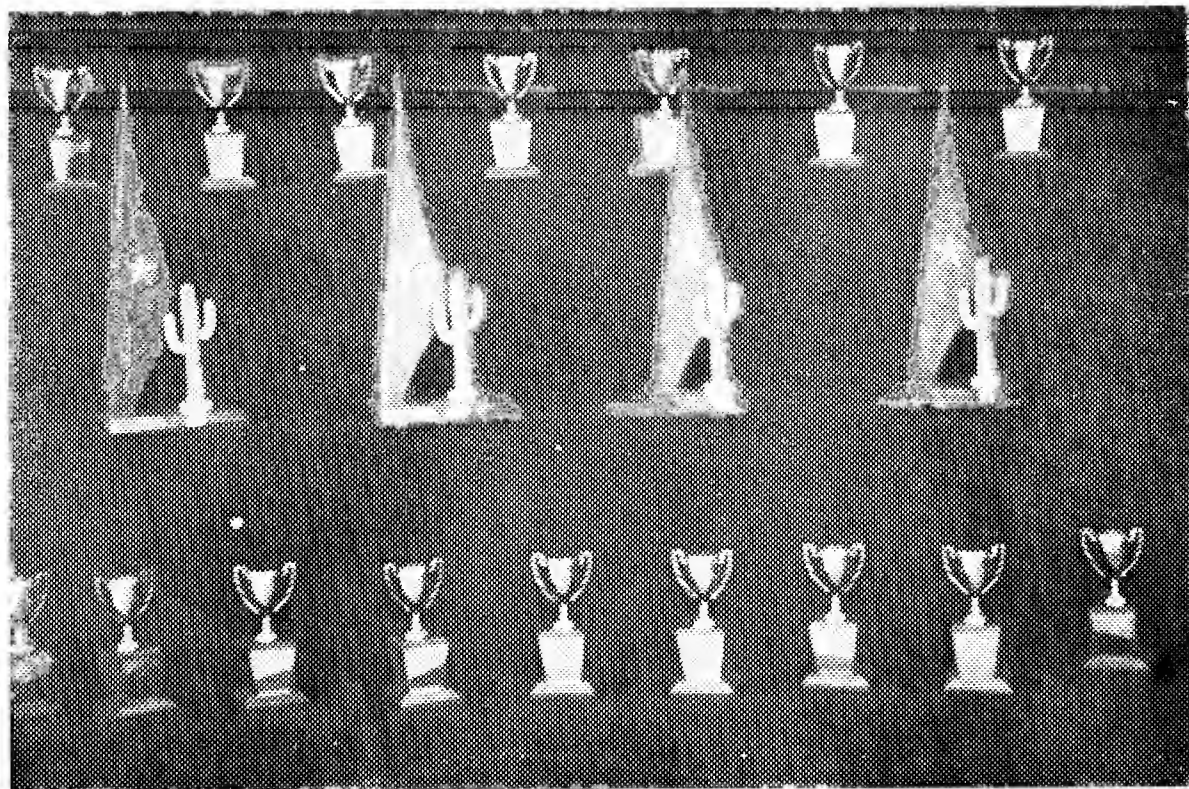
JUDGES are Mrs. C. Fuhrer, Mesa, chairman of judges; — for Dish Gardens Charles Conley, Tempe—Black and White photographs; Mr. Calvator Marci, Phoenix Charles Conley, Tempe — Black and White photographs; Mr. Salvatore Marci, Phoenix — paintings of desert subjects.

POINTS usually considered for potted plants are; — condition 20, nomenclature 20, rarity 15, educational value 15, maturity of plant 15, staging and soil 15. All dead leaves and twigs should be removed before exhibiting. Use a pot of a neutral tone so that it does not distract from your plant. Top the soil with a clean sand, gravel or granite to emphasize your plant. All plants should have been grown by the exhibitor several months prior to the Show.

Arrangements and Dish Gardens should be of a high grade. Accessories should not be dominate. Dried desert material must be natural, i.e. not colored, etc.

AWARDS. Four section sweepstake trophies and sixteen individual trophies, as shown below, will be the major awards. Ribbon awards of 1st (Blue), 2nd (red), 3rd (yellow) and 4th (white) will be made in all classifications.

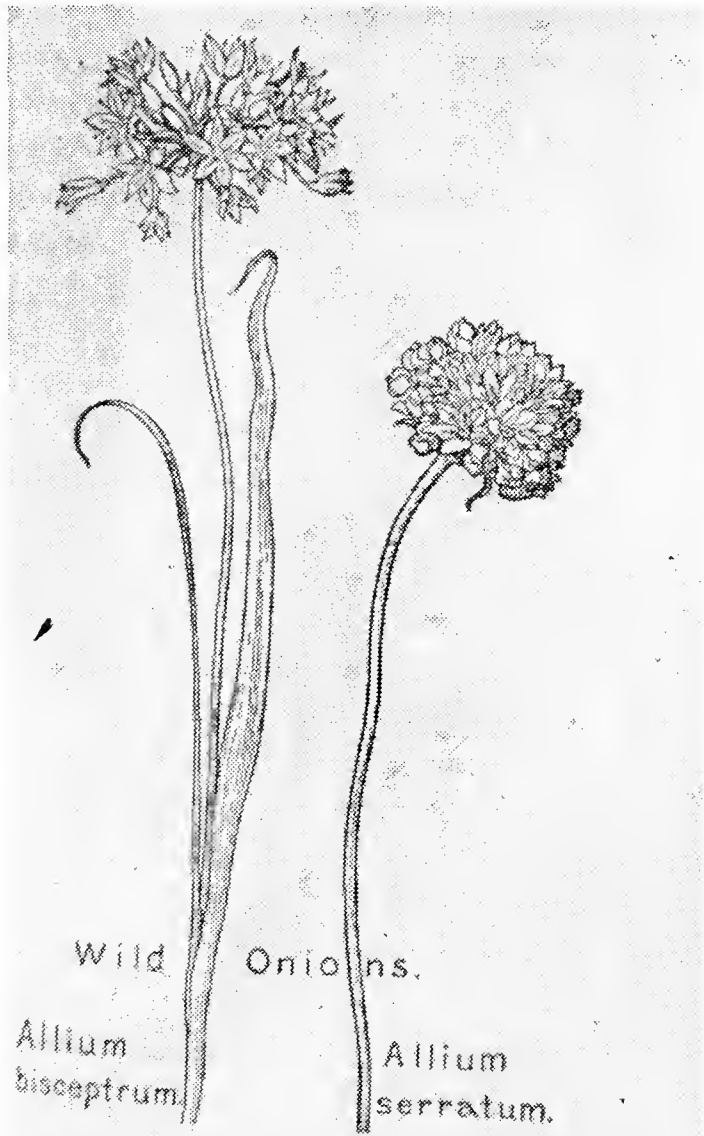
GET YOUR EXHIBITS READY NOW! HELP MAKE THIS ANOTHER EXCELLENT SHOW.



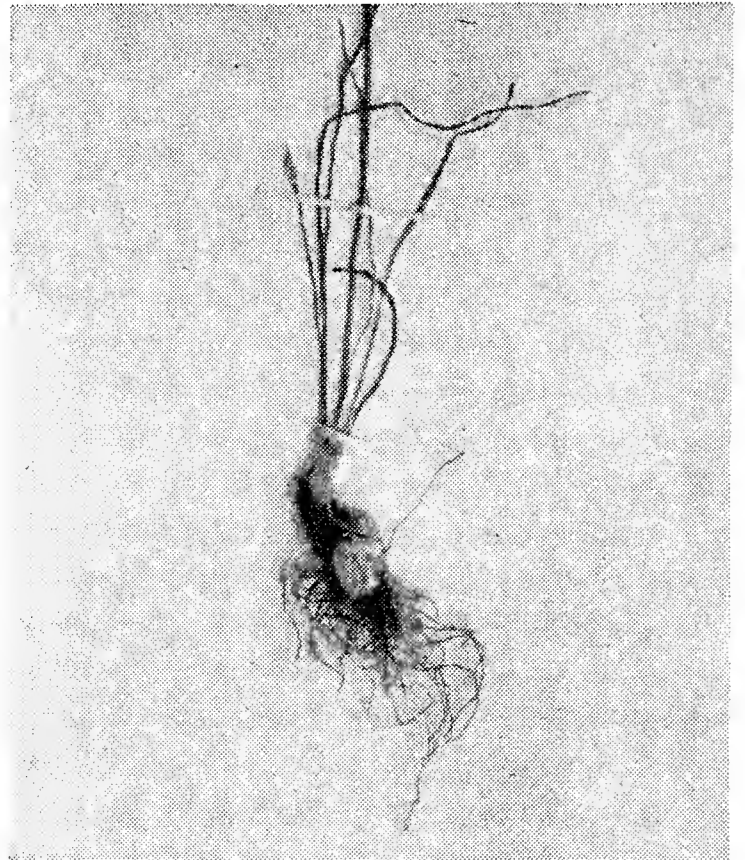
AJO GARLIC ONION FAMILY

One of the old Spanish proverbs, *suspirar por los ajos y cebollas de Egipto*—"to sigh for the garlic and onions of Egypt," i.e., to desire a return to the wicked life that has passed—may have some connection with the fact that garlic formed part of the food of the Israelites in Egypt, and of the laborers who built the great pyramid of Cheops.

Garlic is described by John Minsheu, who published at London, in 1627, "The Guide into the Tongues": "It is of most especial use among sea-faring men, and a most excellent preservative against all infection proceeding from the nastie savour of the pompe and stinke in a ship, and of tainted and corrupt meats, which Mariners are faine to eat for fault of better . . . The Spaniard there-



Allium sativum L. LILIACEAE



Allium Palmeri showing the small onion: 1/3x

fore, as it seems, having colder stomachs than other countries, doth well brooke the smell hereof, when everie day before he goeth out of his Inne, as he journieth, he causeth garlick to be stamped, crums of bread and oile to be fried together in the manner of a hastie pudding, and so eateth thereof; and the commonsort doe live by it, so that it is the poor man's Physicke and Food".

And another saying reflects this belief: *ajo puro y vino crudo, passan el puerto seguro*, "pure garlic and wine help one to traverse safely the high mountain passes." In Spain, such passes were called dry spots, and wine and garlic were a good defense for travelers.

The garlic is of old English origin, *garleac* (*gar* meaning spear; *leac*, leek or lance) is one of its early forms.

Since its introduction by the Spanish, it has had many different uses in the vicinity of Santa Fe.

When a horse is *malo* (suffering from a swollen neck), garlic is crushed with the twigs of *Sabino macho* (mule pine), and hot water is added. This is allowed to cool and is then administered.

As a preventive against diphtheria, garlic is strung on a string and worn around the neck by people who are in contact with the disease.

An informant in Galisteo told me she knew of a remedy that gave immediate relief for pain in the bowels on the left side. Two garlic buttons are baked soft, then crushed; a little cold water is added, and the mixture drunk.

One crushed button, pressed against the gum, lessens toothache.

When a dog is suspected of having rabies, garlic should be mixed with its food immediately. This also serves as a vermifuge and is a very common ministration in New Mexico.

Besides numerous dishes that are flavored with garlic, it is also believed that it counteracts stomach trouble and



Allium gooddingii: 1/5x

flatulency. It is roasted while on coals, cleaned, thoroughly chewed, and swallowed with cold water. The gas then disappears, and other discomforts are alleviated.

Moreover, garlic is used in one of the many treatments for snakebite. A fresh poultice, made from the mashed plant, should be applied thrice daily. Even as far afield as North Africa, the same remedy is given for hornet and scorpion stings, and garlic is eaten there with honey and rancid butter for the kidneys and bladder.

It is not surprising that, in rural New Mexico, charms should play so important a part in the lives of its inhabitants. So when a young girl wishes to rid herself of an undesirable suitor, she must choose a spot where two roads "make a cross" and there, on the ground, she must place two crossed pins and a piece of garlic. When this has been done, the girl must then find some means of making the despised young man walk over the charm, quite unaware of its presence. If she be successful she will be freed from his attentions ever after, so the old people say.

Not long ago, I received the following letter, with its amusing Spanish, from a Santa Clara Indian, testifying to the curative properties of garlic for earache: "*Yo estube alle pregunte las muge del remedio y me dise el ajo y sal puesto lana de noreygo y a que tomo la pluma en mi mano con el mas grande gusto y placeres para Saludarles a V. V. paro decirle que nosotros estamos buenos.*" Briefly, his note states, "I was over there and asked the woman about a remedy for my ear, and she says garlic and salt packed on lamb's wool and put in the ear. We are all well and hope you are likewise."

Ethnobotanical excerpt from
'Healing Herbs of the Upper Rio Grande' — L. S. M. Curtin.

PLANT OF THE MONTH



Joshua tree, *YUCCA BREVIFOLIA*, is an interesting and grotesque plant of the Lily Family found growing in the Mohave and Upper Sonoran deserts at 2600'-3800' elevations. It bears tight-clustered, greenish-white blossoms from late February to late April depending upon the elevation. The fleshy fruits are eaten by browsing animals.

CERCIDIUM

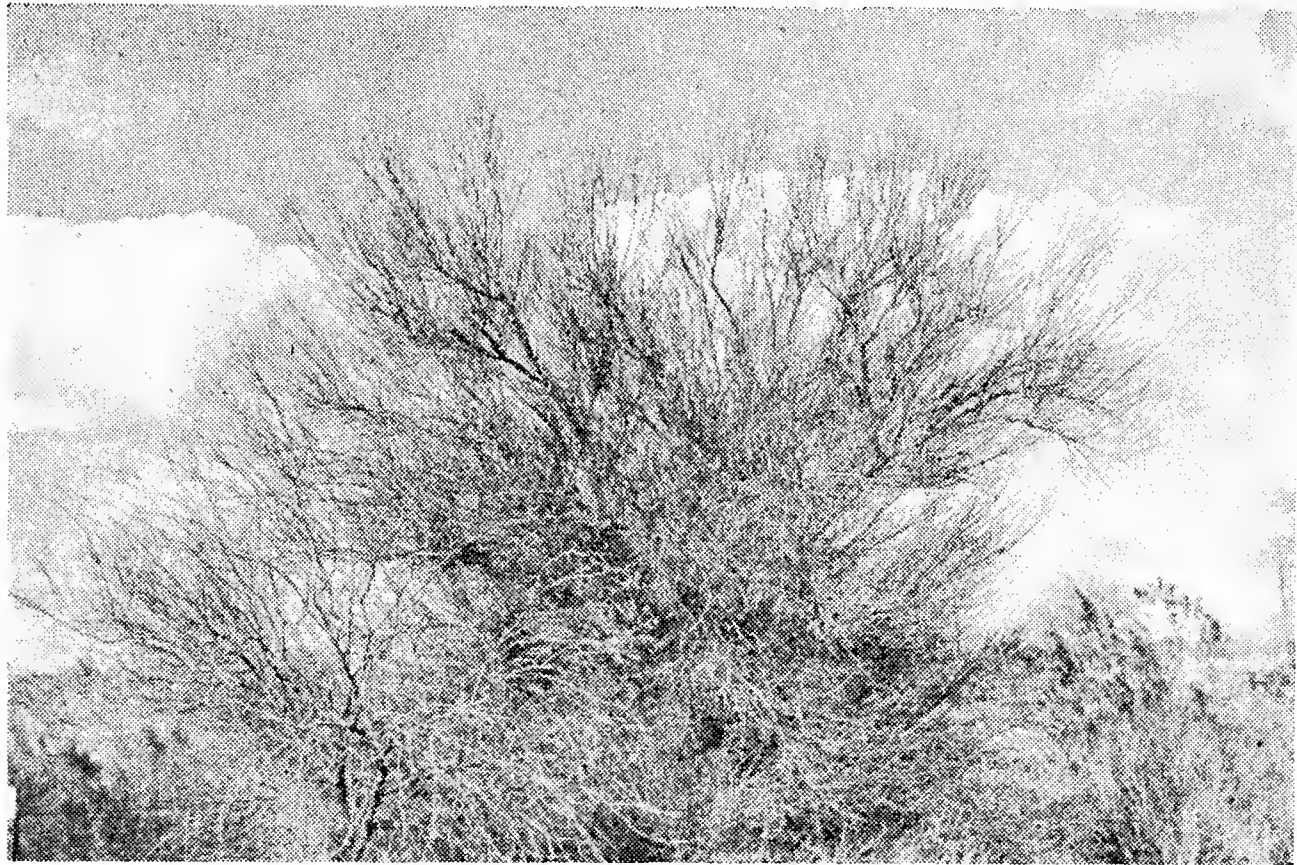
FLORIDUM

LEGUMINOSAE

Pea Family

BLUE PALO-VERDE

by John H. Weber



Defoliated *CERCIDIUM FLORIDUM* tree 15' high and 25' wide.

DESCRIPTION:

CERCIDIUM FLORIDUM is one of two species representing the genus *CERCIDIUM* in Arizona; the other being *CERCIDIUM MICROPHYLLUM*. The Blue Palo-Verde is a medium sized tree attaining a height from 23 to 33 feet. A wide-spreading rounded crown is generally supported by a number of ascending stems branching from a single, short, basal trunk. Many of the lateral branches are nearly horizontal. The leaves, branches, and upper stems are blue-green; the lower trunk has light gray bark. The bipinnate leaves have one to three pair of narrowly-obovate secondary leaflets. These leaflets are from $\frac{3}{16}$ to $\frac{5}{16}$ of an inch in length and to $\frac{1}{8}$ of an inch in breadth. Flowering of the Blue Palo-Verde commences in March prior to that of *CERCIDIUM MICROPHYLLUM* and continues until May. The deep-yellow flowers are $\frac{1}{2}$ to $\frac{3}{4}$ of an inch in length and $\frac{5}{8}$ to $\frac{3}{4}$ of an inch in diameter. Seed is con-

tained in a flattened pod $1\frac{1}{2}$ to $3\frac{1}{4}$ inches long and $\frac{3}{8}$ to $\frac{5}{8}$ of an inch broad. A short angular beak terminates the pod which encloses from one to four seeds.

DISTRIBUTION:

Blue Palo-Verde grows at elevations ranging from sea level to four thousand feet; being quite scrubby in habit at the upper limits. It grows on the better soils of washes and flood plains. It is found on dry lower slopes, alluvial plains, and in or near the beds of streams; but sparingly on sandy plains.

From southwestern Texas the habitat extends west to southern California and south into Baja, California, Sonora and Sinaloa, Mexico. In Arizona this species ranges from Graham and Greenlee counties west into Pima, Pinal, Gila, Maricopa, Yuma counties; and north into Yavapai and Mohave counties. It is found throughout the Colorado Desert of California.



CERCIDIUM FLORIDUM
cluster of flowers.

UTILIZATION:

As a screening tree, Blue Palo-Verde is very effective used either by itself or in conjunction with other desert area trees such as Mesquite, Acacia, and Ironwood. In addition to screening private areas and objectionable features; a partial shading can be established for succulent plantings that normally will not tolerate full sun. *CERCIDIUM FLORIDUM* is, perhaps, more often planted for its value as a flowering tree than for any other purpose. The blaze of deep yellow color, coming as it does in early spring, is most welcome after a barren winter.

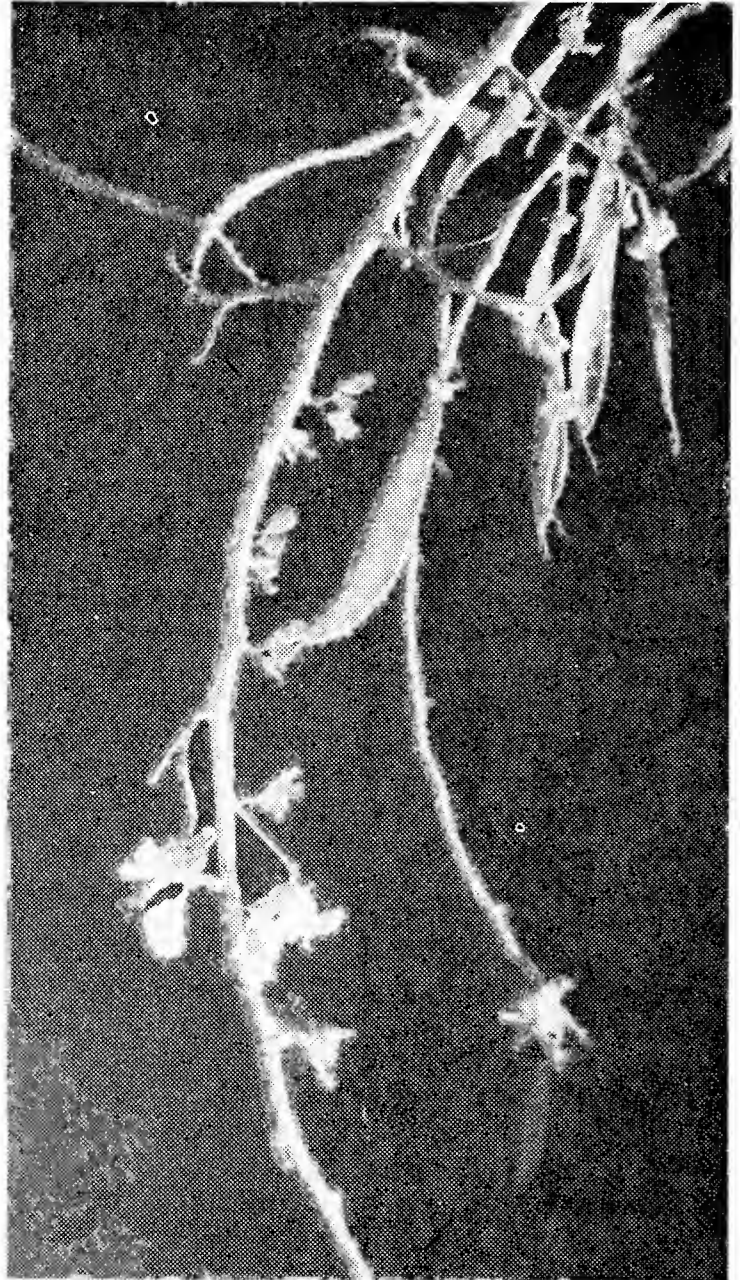
CULTURE:

The Blue Palo-Verde has a wide range of temperature tolerance; having the ability to withstand a low of below

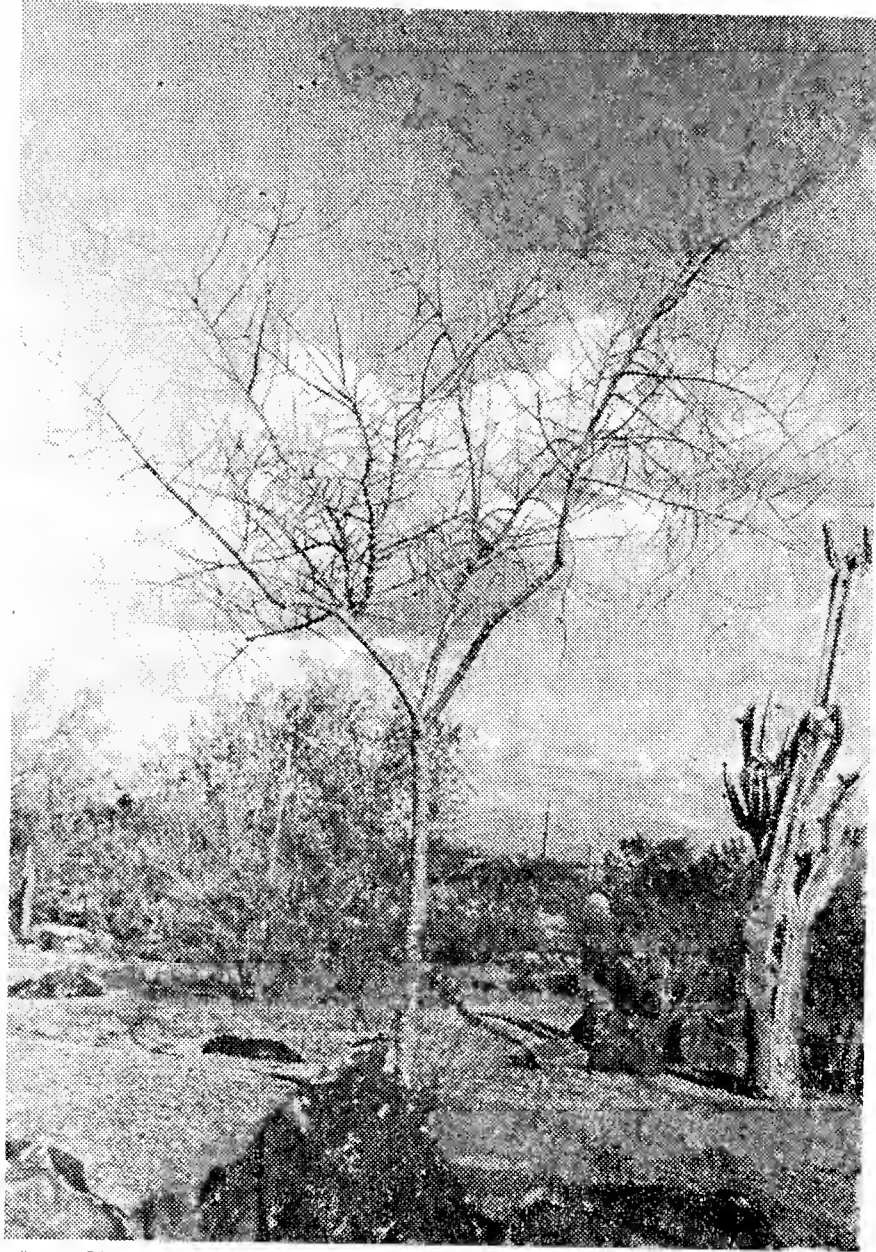
freezing, 17°F., to a high above 115°F. Deep well-drained soils are preferred, with frequent deep irrigation during dry seasons until the plant is well established. Young trees respond to top mulching with manure during the hot summer months. At maturity, Palo-Verdes require considerable space for their widespreading crowns; a factor not often considered in their placement adjacent to houses.

PROPAGATION:

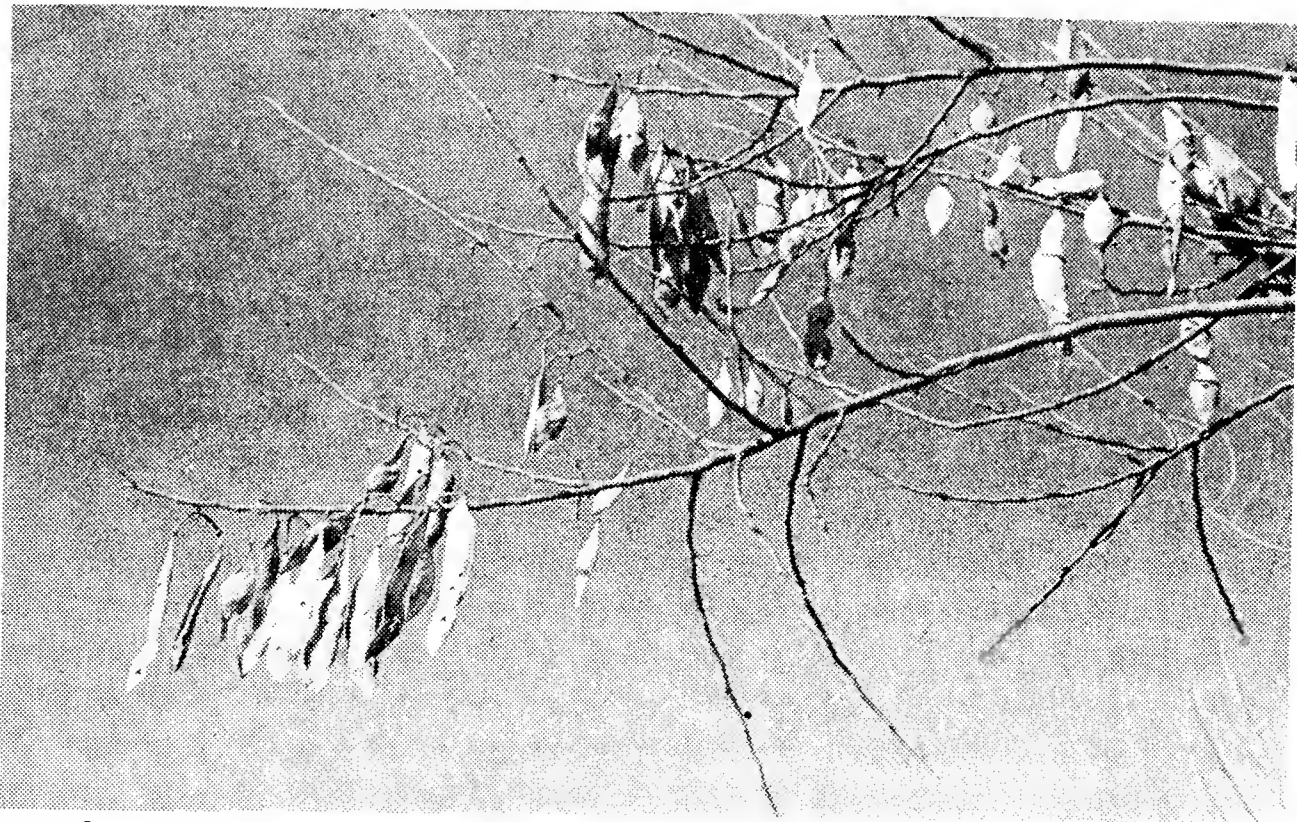
Seed of the Palo-Verde has an impermeable seed coat and scarification is necessary to allow penetration of water. Impermeability may also be overcome by soaking the seed overnight in water that has been brought to the boiling point. Germination is rapid, but the



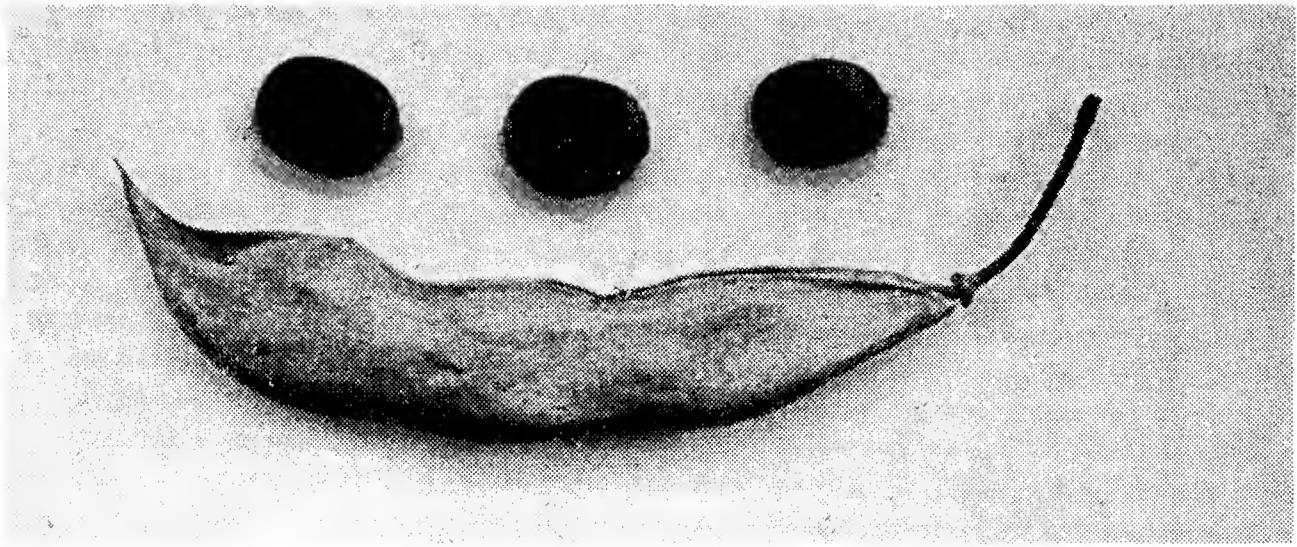
Branch of *CERCIDIUM FLORIDUM* showing flowers, young fruit, leaves and the short spines.



A young 3 year old *CERCIDIUM FLORIDUM* tree that has been pruned for height — about 9' tall.



Creamy-white seed pods of *CERCIDIUM FLORIDUM*. Notice the holes in the pods caused by the exit of bean weevils.



Pods and seeds of *CERCIDIUM FLORIDUM*: 1¼x.

growth rate is moderate at best. In those areas where bean weevils are a problem, it is necessary to collect the seed when mature, but before the testa has fully hardened. If planted immediately, germination will occur prior to the hatching of the insect egg within the seed and no loss is incurred. Fumigation is necessary if seed is to be stored for even a short period.

AVAILABILITY:

CERCIDIUM FLORIDUM is in common use in the desert areas of California and Arizona and is a stock item in many nurseries of this region.

REMARKS:

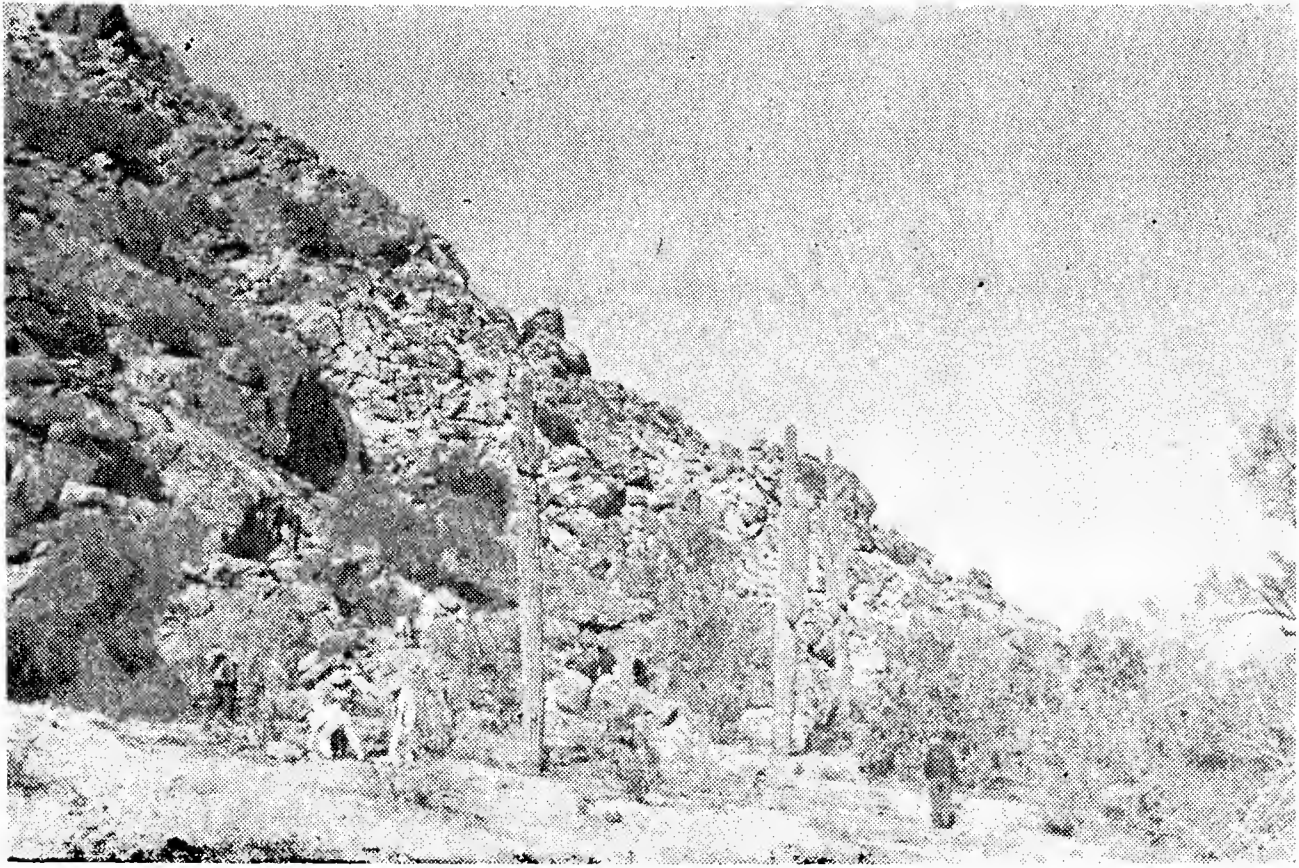
Deer, Cattle, and Bighorn Sheep browse on the tender new growth of the Palo-Verde in the spring and fall months. The wood is seldom used, as it is not durable and is of low quality for fuel purposes. The green seed is edible and high in sugar content; yet today it is seldom utilized.

REFERENCES:

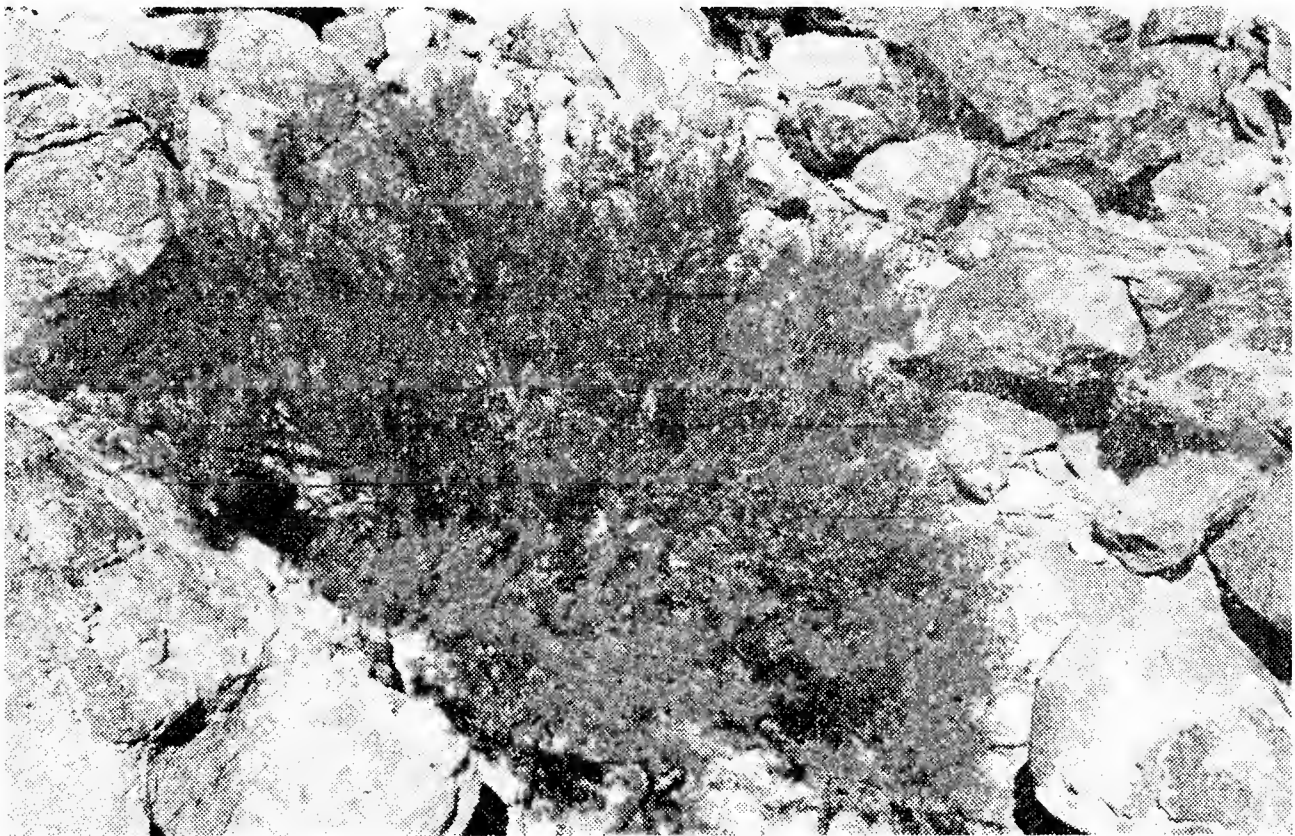
- Benson and Darrow—The Trees and Shrubs of the Southwestern Deserts.
- Dayton, William A.—Important Western Browse Plants.
- Kearny and Peebles—Arizona Flora.
- Shreve, Forrest—Vegetation of the Sonoran Desert.



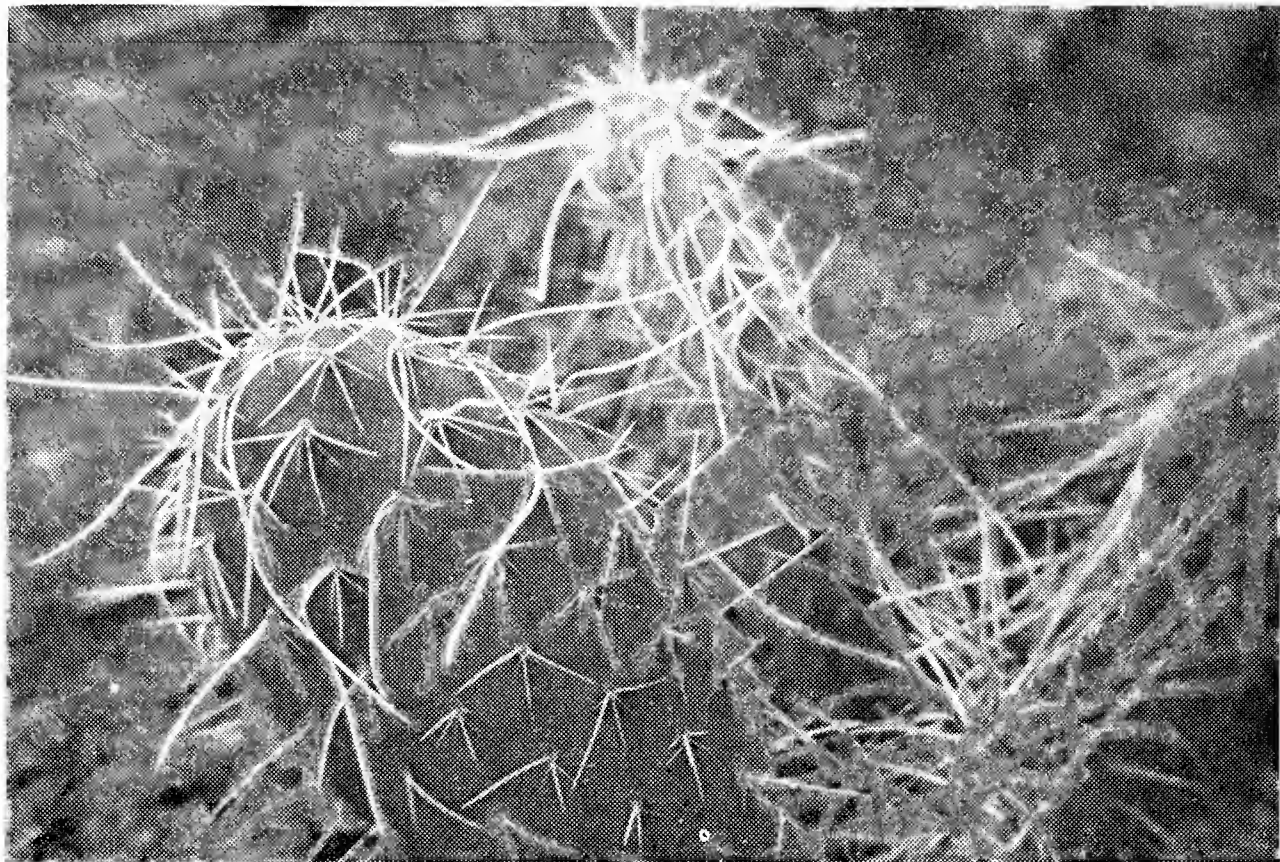
Fall Class on field trip. The large boulders in the background are covered with ancient pictographs.



East end of the Sierra Estrella mountains, Gila River Indian Reservation, S/W of Phoenix. This is a location of many interesting plants. Amongst the boulders to the upper left of the left Saguaro can be seen an Elephant Tree — close-up shown below.



An 8' high and 18' wide *BURSERA MICROPHYLLA* (Elephant Tree). Periodical frosting of these trees cause the trunks to become quite swollen — resembling the leg of an elephant.



OPUNTIA NICHOLII Benson is a low-growing prickly pear with long, twisted spines. It forms large clumps and is found at the edge of the Colorado River near the Navajo Bridge in northern Arizona.

GARDEN ACTIVITIES FOR FEBRUARY

Feb. 1	Illustrated Lecture — Collecting Plants in Mexico	3 P.M.
Feb. 1	Arizona Horticultural Society	8 P.M.
Feb. 6	Cactomaniacs	8 P.M.
Feb. 7	Class — All-Day Desert Field Trip	9:30 A.M.
Feb. 8	Illust. Lecture — Arizona Cacti in Bloom	3 P.M.
Feb. 18-25	15th Annual Cactus Show	9 A.M. - 5 P.M.

MARCH

Mar. 1	Illust. Lecture — Arizona Wildflowers	3 P.M.
Mar. 6	Cactomaniacs	8 P.M.
Mar. 7	Class — Deserts and their Plants	3 P.M.
Mar. 8	Illust. Lecture — Arizona Trees and Shrubs	3 P.M.
Mar. 14	Class — Culture of Desert Plants	3 P.M.
Mar. 15	Illust. Lecture — Arizona Birds and Animals	3 P.M.
Mar. 21	Class — Succulent Plants	3 P.M.
Mar. 22	Illust. Lecture — Arizona Scenics	3 P.M.
Mar. 28	Class — Identification of trees and shrubs	3 P.M.
Mar. 29	Illust. Lecture — Succulents other than Cacti	3 P.M.

SAGUAROWLAND

BULLETIN

DESERT BOTANICAL GARDEN OF ARIZONA

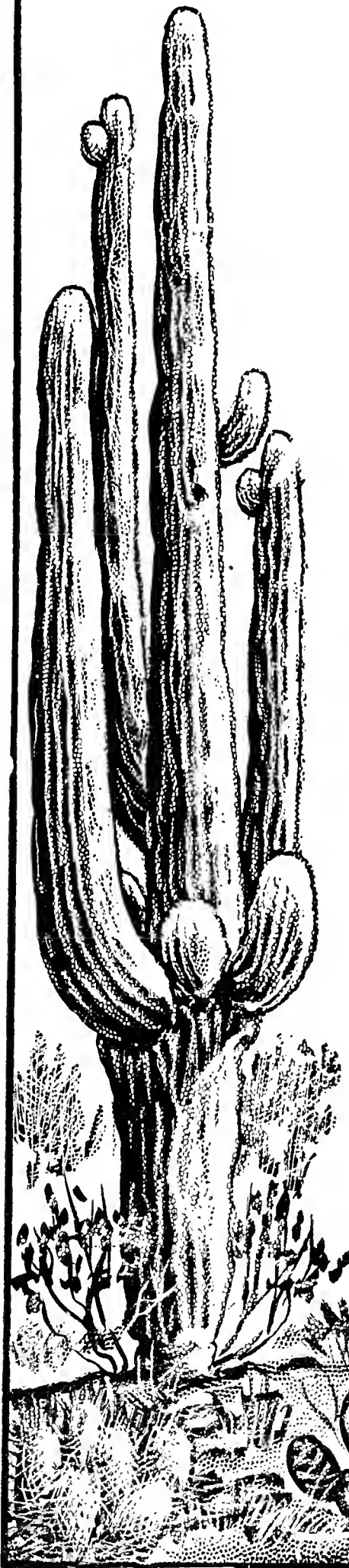
Vol. XVI

March, 1962

No. 3



Arrangement against the wall with other Succulents—Mrs. R. I. Turner



REG-MANNING

SAGUAROLAND BULLETIN

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W. HUBERT EARLE, Editor

Volume XVI

March, 1962

No. 3

Arizona Cactus and Native Flora Society

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Desert Botanical Garden of Arizona

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GARDEN OPEN DAILY 9 A.M.—5 P.M.
Including Week-ends and Holidays

REPORT OF THE 15th ANNUAL CACTUS SHOW

Attendance was 11,465, which was 148 less than last year despite the three days of rain plus the remarkable thrice around the world flight of Astronaut Lt. Col. John H. Glenn, Jr.

Publicity was excellent by co-sponsor Phoenix-Gazette with a full page of Show pictures, plus daily stories and a columnist's column. An editorial in the Tempe News; a story in the Feb. issue of National Parks Magazine by our members, Mr. and Mrs. Moulton Smith; a strip in Famous Gardens of the Better Homes & Gardens Garden Ideas for 1962; a story in the February 26th Life Magazine, and news releases in newspapers over the country all added impetus to our Show and to the Garden.

Exhibitors, 57 of them, entered 663 exhibits to make the Show the largest to date. Exhibits were of a wide range and of high calibre and thoroughly enjoyed by the thousands of visitors.

Show Committee is the group that works behind the scenes beginning months before the Show. Mrs. Arthur Holt, John Hales, Rod McGill, Warner Dodd and typists June McGill and Erma Bird had everything in order for the Saturday 7 P.M. judging.

Judges were Ted Gay, Sepulvada, Calif.—Potted Cacti and other Succulents; Mrs. C. Fuhrer, Mesa; Mrs. A. F. Browne, Phoenix, and Miss Betty Schimek, Phoenix, accredited National Garden club judges—Dish Gardens and Arrangements; Charles Conley, Tempe—Black and White Photographs; Salvatore Macri, Phoenix—Paintings of desert subjects. We certainly appreciate these judges' undisputed awards for they had an Auditorium full of entries as can be seen in photos on pages 29 and 30.

Volunteers are those persons who give of their time to aid our small staff to put on these large shows and to welcome the vast number of visitors. As in the past Mr. and Mrs. Hiram Pratt were on hand every day. Their loyalty is appreciated by all. The following helped a half to several days by acting as hostesses, hosts, guards, information dispensors, sales and parking lot attendants: Mr. and Mrs. Weston G. Cook, Mrs. C. A. Miller, Jean Seaton, Mr. and Mrs. Bert Jinneman, Mr. and Mrs. Paul Willemsen, Mr. and Mrs. Warner Dodd, Mrs. Denver Hensen, L. Mae Taylor, Mrs. Ray Ashley, Mr. and Mrs. Rod McGill, Mrs. Helen Friedericks, Mrs. Felix McWhirter, Mrs. L. W. Laizure, Mrs. Marion Matson, Peter Olson, L. S. Wakefield, Mrs. C. E. Mieg, Mrs. J. G. Mills, Mrs. D. I. Raymond, Mr. and Mrs. Paul Neuman, C. J. Fuhrer, C. C. Pidgeon, Mrs. Arthur G. Herr, Mr. and Mrs. Clifford Schroeder, E. G. Stocks, John Hales, Mrs. Ruth Garland, Mrs. Arthur Holt, Mr. and Mrs. Ed. Speck, Mr. and Mrs. Moulton B. Smith, Faith Carl, Paul R. Hofmann, Lillian Armer, Mrs. R. I. Turner, Lyle and Bruce McGill, Mrs. Salvator Macri, Mr. and Mrs. Dugan Lewis, Mr. and Mrs. H. G. Campbell, Mrs. Nola Belford, Mr. and Mrs. George Lamb, Mrs. Audrey Baldwin, Don Bauer, Mrs. Francis Weldy, Mr. and Mrs. Nathan Crane, Miles Zoller, Jr., Bernard Lewin, Mrs. J. C. McDougall, Miss Trudy Muller, Mrs. Camille Kimse and Mrs. Tom Gribble. Quite an impressive group and all amiable and hard workers and a credit to our membership.

Sweepstakes winners in the Fifteenth Annual Cactus Show at the Desert Botanical Garden were: Sweepstakes in Cactus Section: Rodrick McGill, Rt. 1, Box 844, Glendale; Sweepstakes Winners in Succulent Division, Mrs. Arthur Holt, 4648 E. Palm Lane, Phoenix, and Rodrick McGill, Glendale; Sweepstakes Winner in Arrangement Section, Mrs. E. S. Tanner, 2250 N. 17th Ave., Phoenix.

Trophies went to Mrs. Blanche Ross, Phoenix, for best plant in Cactus Section; to Paul R. Hofmann, Scottsdale, for best Mammillaria; to Mrs. Arthur Holt, Phoenix, for best plant in Succulent Division; to Rodrick McGill, Glendale, for best Haworthia. To Mrs. Helen Fredericks, Wondervu, Colo., for best Dish Garden; to Mrs. R. I. Turner, Phoenix, for best Centerpiece; to Mrs. Ed Speck, Phoenix, for Arrangements On/or Against the Wall; Mrs. E. S. Tanner, Phoenix, for Miniature Arrangements; to Mrs. S. R. Stevens, Phoenix, for Strawberry Jar; to Howard Soule, Phoenix, for best black and white photograph; to Mr. R. McDaniel, Phoenix, for best oil painting; Brooks Darlington, Scottsdale, for Desert Woods; and a trophy to the Tucson Cactus Club for their interesting non-competitive cactus display.

Ribbon awards were as follows:

CACTI

Opuntia division: Clifford M. Schroeder, 1st; Rodrick McGill, 2nd, 3rd and 4th.

Cereus division: John B. Hales, 1st; Brooks Darlington, 2nd and 4th; Mrs. Laura Nixon, 3rd.

Echinocereus division: Rodrick McGill, 1st, 2nd and 3rd; Paul R. Hofmann, 4th.

Rebutia: Rodrick McGill, 3rd.

Chamaecereus: Rodrick McGill, 2nd; Mrs. Arthur Holt, 3rd.

Lobivia: Rodrick McGill, 1st and 4th; Mrs. Arthur Holt, 3rd.

Echinopsis: Mrs. Kay Taylor, 1st; Lloydene Dodd, 2nd; John B. Hales, 3rd; Mrs. Laura Nixon, 4th.



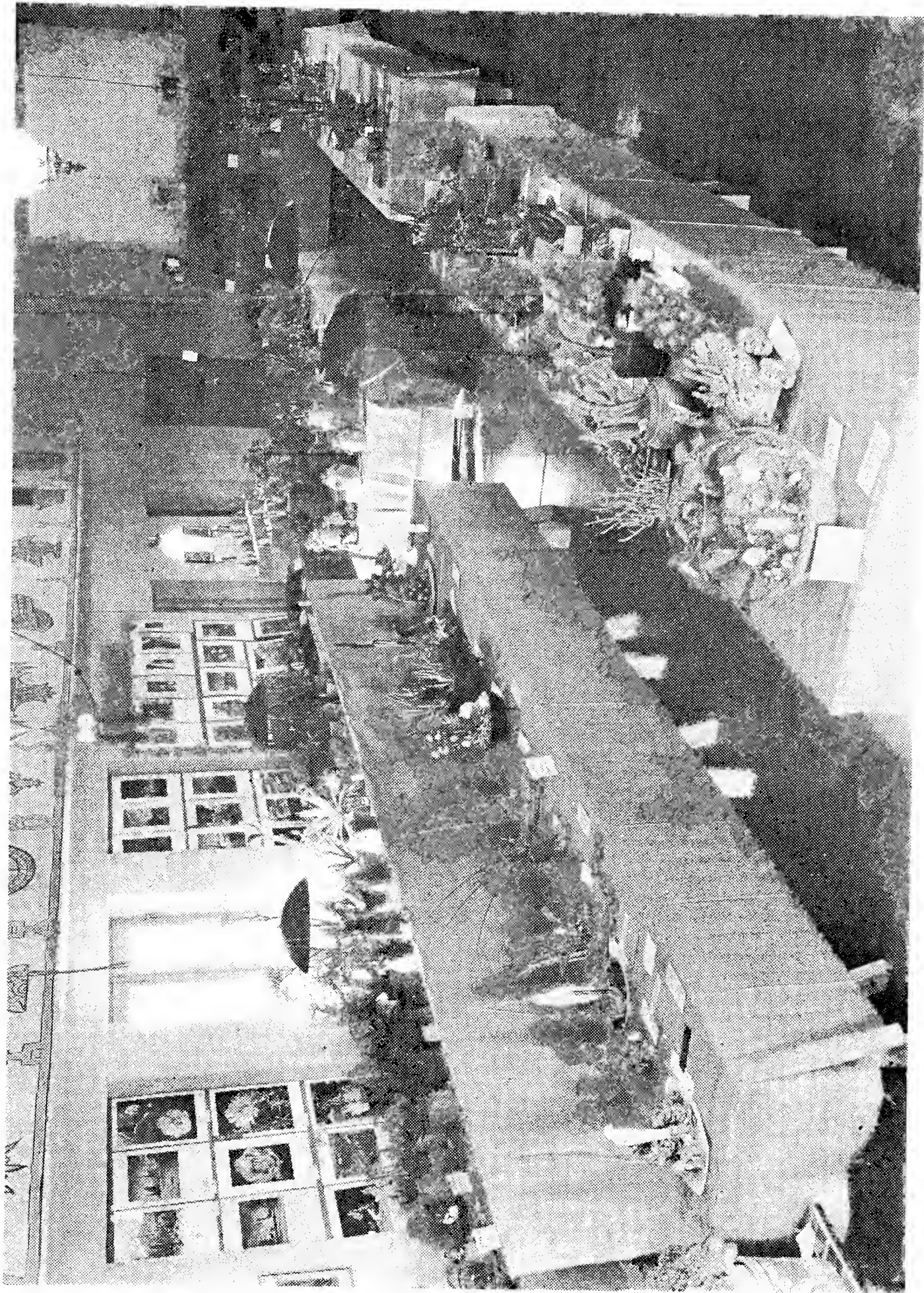
Arrangement against the wall with succulents—Mrs. Ed Speck



Dish Garden of other Succulents—Mrs. Richard F. Williams



View of the Show showing Centerpieces in foreground, potted Cacti and Succulents in the background, and some of the Desert Paintings on the walls.
Photo by Bernard Lewin



View showing the Dish Gardens in the foreground. Arrangements Against the Wall, in center of photo, Agaves in the background, and the many Black and White photos on the wall. Photo by Bernard Lewin

PLANT OF THE MONTH



Blue Palo Verde (blue-stemmed) *Cercidium floridum* and the Yellow Palo Verde (yellow-stemmed) *Cercidium microphyllum* begin to bloom in early April and continue until late May with showers of yellow blossoms. These blossoms are followed with 2" - 3" beans that are eaten by cattle and rodents. The Spanish name, Palo Verde, means green stick.

Ariocarpus: Rodrick McGill, 1st, 2nd, 3rd and 4th.

Stenocactus: Rodrick McGill, 1st and 3rd; John B. Hales, 2nd.

Ferocactus: John B. Hales, 1st; Lloydene Dodd, 2nd; Rodrick McGill, 3rd.

Echinocactus: C. A. Arthur, 1st; Rodrick McGill, 2nd, 3rd and 4th.

Gymnocalycium: John B. Hales, 1st; Rodrick McGill, 2nd, 3rd and 4th.

Astrophytum: Rodrick McGill, 1st, 3rd and 4th; Bill Thornton, of Tucson, 2nd.

Thelocactus: Rodrick McGill, 1st, 2nd and 4th; John B. Hales, 3rd.

Echinomastus: Rodrick McGill, 1st, 2nd and 3rd; Mrs. Laura Dixon, 4th.

Coryphantha: Rodrick McGill, 1st, 2nd, 3rd and 4th.

Mammillaria: Paul R. Hofmann, 1st; John B. Hales, 2nd; Rodrick McGill, 3rd; and Brooks Darlington, 4th.

Epiphyllum: Mrs. Blanche Ross, 1st.

Seedlings: Lloydene Dodd, 1st; Bill Thornton, 2nd and 3rd; Mrs. Kay Taylor, 4th.

Notocactus: R. McGill, 1st, 2nd and 3rd.

Neolloydia: McGill, 1st, 2nd, 3rd and 4th.

Hamatocactus: McGill, 1st, 2nd and 3rd.

Any Other Species: John B. Hales, 1st; Rod McGill, 2nd; Mrs. Arthur Holt, 3rd; Lloydene Dodd, 4th.

Ancistrocactus: McGill, 1st, 2nd and 3rd.

CRESTED CACTUS:

Rodrick McGill, 1st; John B. Hales, 2nd; Mrs. Ruth Garland, 3rd; Mrs. Laura Nixon, 4th.

GRAFTED PLANTS:

Rodrick McGill, 1st and 3rd; John B. Hales, 2nd and 3rd.

MONSTROSE PLANTS:

Lloydene Dodd, 1st and 3rd; Faith Carl, 2nd.

RIBBONS AWARDED IN SUCCULENT DIVISIONS:

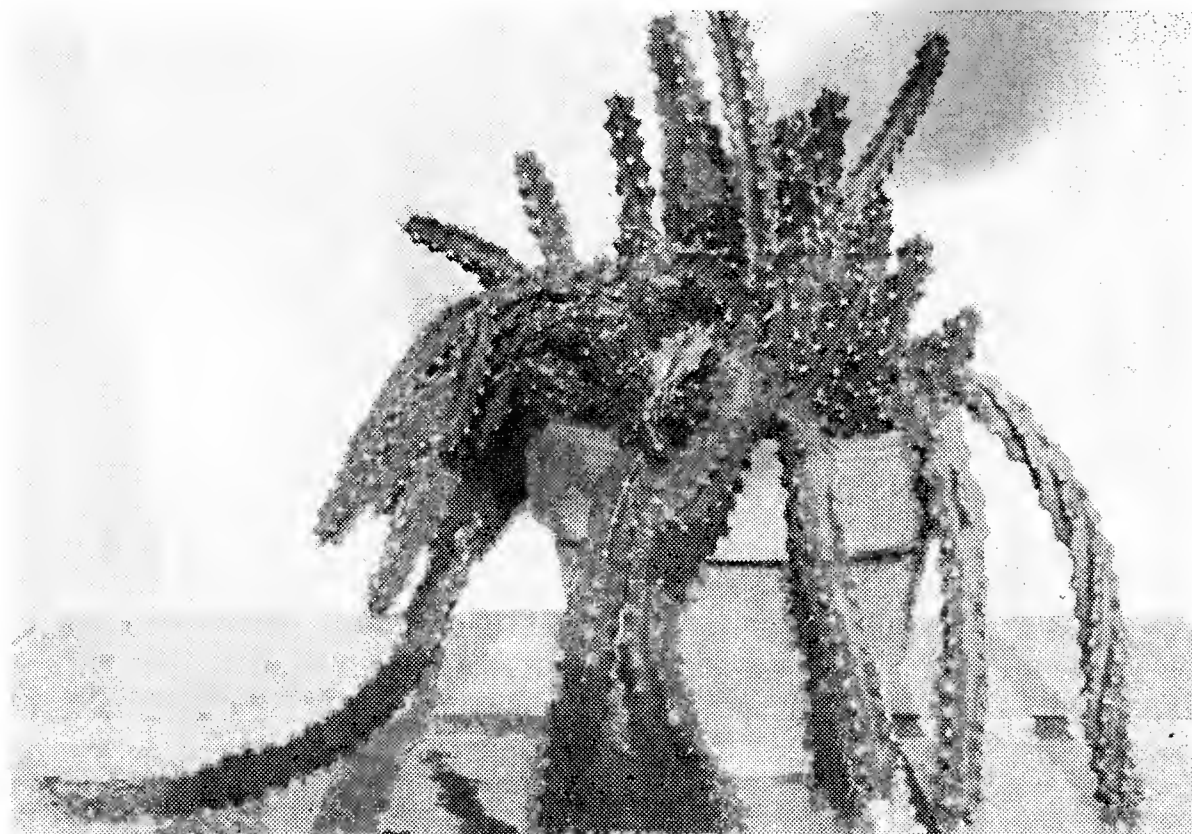
Aenoium: Mrs. N. M. Blomquist, 1st and 2nd; Lloydene Dodd, 3rd.

Agave: R. McGill, 1st, 2nd and 4th; Mrs. Arthur Holt, 3rd.

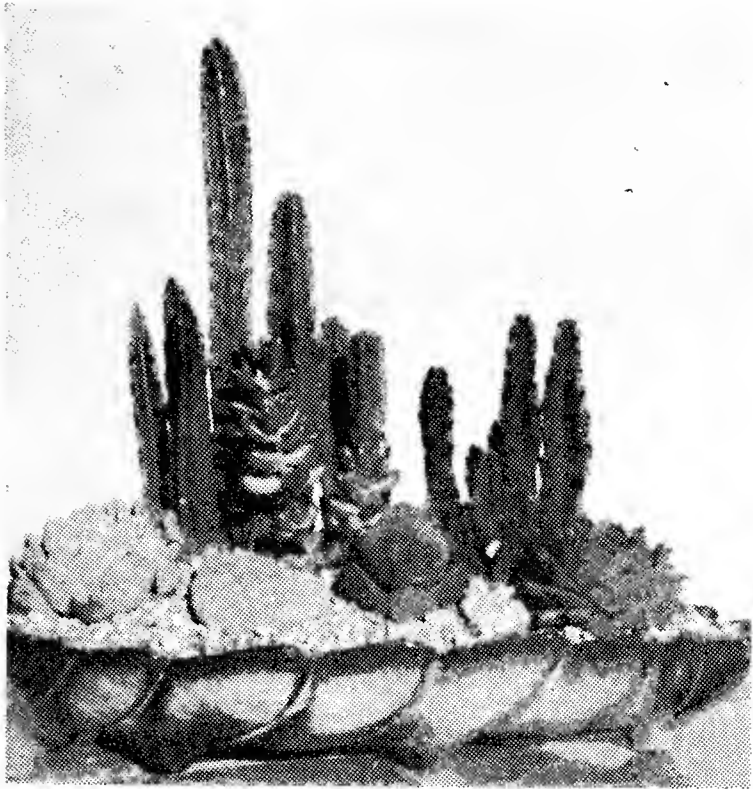
Aloe: Ed Stocks, 1st and 3rd; Mrs. T. H. Ockrassa, 2nd, and Rodrick McGill, 4th.

Bryophyllum: E. G. Stocks, 1st.

Crassula: Mrs. Arthur Holt, 1st and 3rd; Mrs. S. R. Stevens, 2nd.



Echinocereus berlanderi—Rod McGill



Dish Garden of Other Succulents—
Mrs. Otto Friedrichs

Dudleya: McGill, 1st and 3rd; Mrs. Arthur Holt, 2nd; John B. Hales, 4th.

Echeveria: Mrs. Arthur Holt, 1st, 3rd and 4th; McGill, 2nd.

Euphorbia: Mrs. N. M. Blomquist, 1st.

Gasteria: R. McGill, 1st.

Haworthia: McGill, 1st and 2nd; John Hales, 3rd; Bill Rand, 4th.

Kalanchoe: Mrs. N. M. Blomquist, 1st.

Stapelia: Mrs. Blomquist, 1st; Mrs. Holt, 2nd; E. G. Stokes, 3rd.

Stylophyllum: Mrs. Holt, 1st, 2nd and 4th; McGill, 3rd.

Sanseveria: Mrs. Ruth Garland, 3rd.

Collections: Bill Rand, 1st.

Any Other Species: Mrs. Blomquist, 1st; Mrs. Holt, 2nd; Mrs. Laura Nixon, 3rd; Mrs. Holt, 4th.

DESERT TREES AND SHRUBS SECTION:

Rodrick McGill, 1st and 2nd.

RIBBONS AWARDED IN ARRANGEMENTS, SECTION IV:

Dish Gardens, Cacti: Clifford M. Schroeder, 1st; Mrs. Richard F. Williams, 2nd; Michael Dankoski, 3rd; Mrs. Ruth Garland, 4th.

Dish Gardens, Succulents: Helen Friedrichs, 1st and 3rd; Mrs. Richard F. Williams, 2nd; Mrs. Arthur Holt, 4th.

Dish Gardens, Cactus and Succulents: Mrs. Richard Williams, 1st; Mrs. Ruth Garland, 2nd; Mrs. Arthur Holt, 4th.

Centerpieces, cacti: Mrs. Richard Williams, 1st; Mrs. R. I. Turner, 2nd.

Centerpieces, succulents: Mrs. Arthur Holt, 1st; Mrs. R. I. Turner, 2nd; and Mrs. Richard Williams, 4th.

Centerpieces, cacti and other succulents: Mrs. R. I. Turner, 1st; Mrs. Richard Williams, 2nd; Mrs. T. H. Ockrassa, 3rd.

Centerpieces, Natural, Dried Desert Material: Mrs. S. R. Stevens, 1st; Mrs. Ed Speck, 2nd; Mrs. Paul Willemsen, 4th.

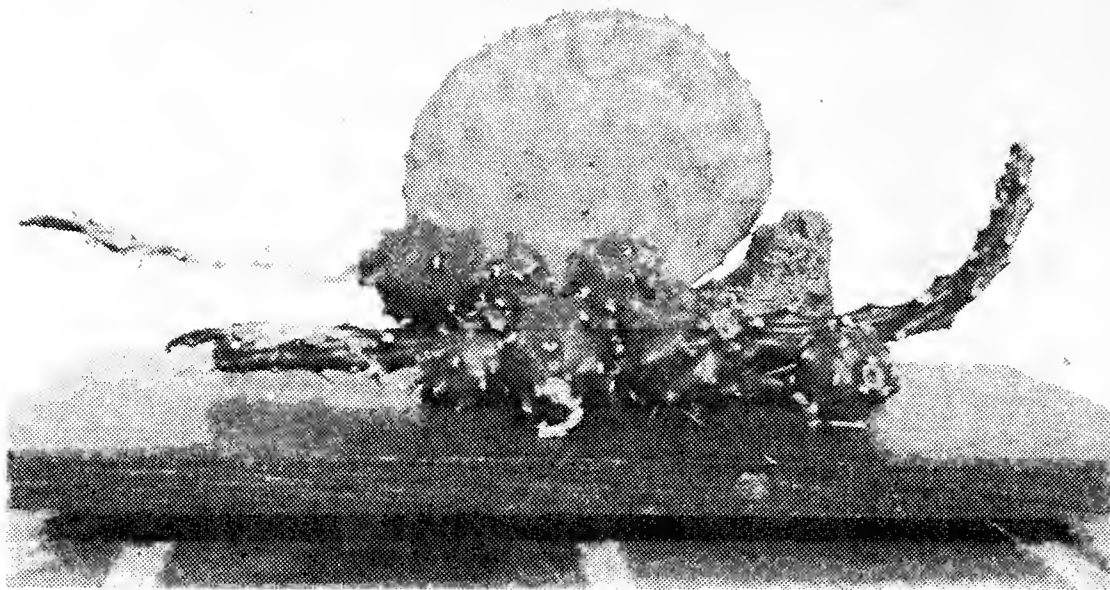
Centerpieces, Mexican influence: Mrs. Arthur Holt, 1st.

Centerpieces, American-Indian influence: Mrs. Ed Speck, 1st and 3rd. Mrs. T. H. Ockrassa, 2nd, and Mrs. Arthur Holt, 4th.

Any Other Centerpiece: Major Robert M. Small, 1st, 2nd, 3rd and 4th.



Arrangement against the wall with
other Succulents—
Mrs. S. R. Stevens



Centerpiece of Cacti—Mrs. R. I. Turner

Arrangements On/or Against the Wall with Cacti: Mrs. R. I. Turner, 1st; Mrs. Richard Williams, 2nd.

Arrangements On/or Against the Wall with other succulents: Mrs. R. I. Turner, 1st; Mrs. E. S. Tanner, 2nd; Mrs. Glenn Hodson, 3rd; Mrs. Ed Speck and Mrs. S. R. Stevens, 4th place tie.

Arrangements On/or Against the Wall with cacti and succulents: Mrs. R. I. Turner, 1st; Mrs. E. S. Tanner, 2nd and 3rd.

Arrangements On/or Against the Wall—Desert dried material: Mrs. Ed Speck, 1st; Mrs. Arthur Holt, 2nd and 3rd; Mrs. E. S. Tanner, 4th.

Arrangements On/or Against the Wall—Mexican Influence: Mrs. Ed Speck, 1st.

Arrangements On/or Against the Wall—American Indian Influence: Clifford M. Schroeder, 1st.

ANY OTHER ARRANGEMENT:

Mrs. S. R. Stevens, 1st; Mrs. Arthur Holt, 2nd; Mrs. R. I. Turner, 4th.

Special division: Major Robert M. Small, 1st.

Corsages, cacti: Mrs. Glenn Hodson, 1st.

Corsages, dried desert material: Mrs. Glenn Hodson, 1st.

Button Gardena: Mrs. E. S. Tanner, 1st 2nd, 3rd and 4th.



Arrangement against the wall with Dried Material—Mrs. E. S. Tanner

Miniature arrangements under 5": Mrs. E. S. Tanner, 1st, 2nd, 3rd and 4th.

Miniature arrangements 5" to 8": Mrs. E. S. Tanner, 1st, 2nd, 3rd and 4th.

Strawberry Jars: Mrs. S. R. Stevens, 1st; Mrs. N. M. Blomquist, 2nd; Mrs. Arthur Holt, 3rd.

Black and White Photographs: Howard W. Soule, 1st; Agnes M. Holst, 2nd; Hobart Prinbenow, 3rd and 4th.

Oil Paintings (Flowers): R. McDaniels, 1st and 2nd; Edward Marshall, 3rd and 4th.

Oil Paintings (Desert Landscapes): Wm. D. O'Leary, 1st and 3rd; Edward Marshall, 2nd.

Water Colors: Lillian Armer, 3rd.

Any other medium: Clifford Schroeder, 1st; Mrs. Ed Speck, 2nd.

Desert Woods: Brooks Darlington, 1st; John J. Fry, 2nd; Fred Stell, 3rd; Maj. Robert M. Small, 4th.

Educational Exhibits: Rod McGill, 1st; Agnes M. Holst, 2nd; Hiram Pratt, 3rd; Charles Garland, 4th.

Open, non-competitive: Tucson Cactus Club; Mac Schweitzer.



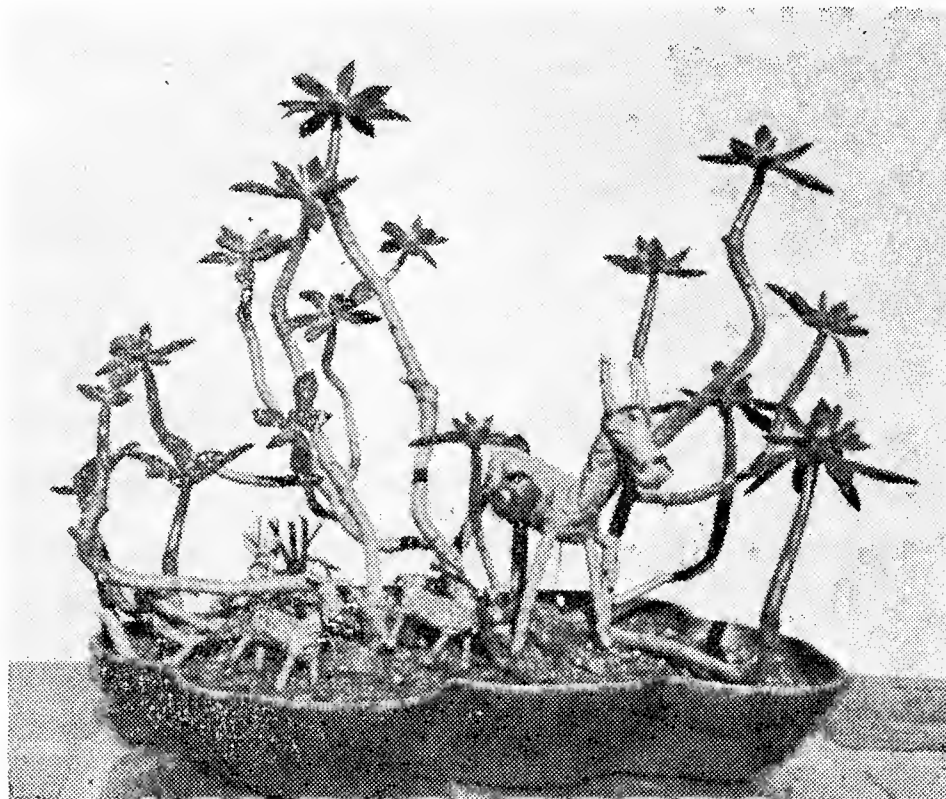
Centerpiece of American Indian Influence—Mrs. Arthur Holt



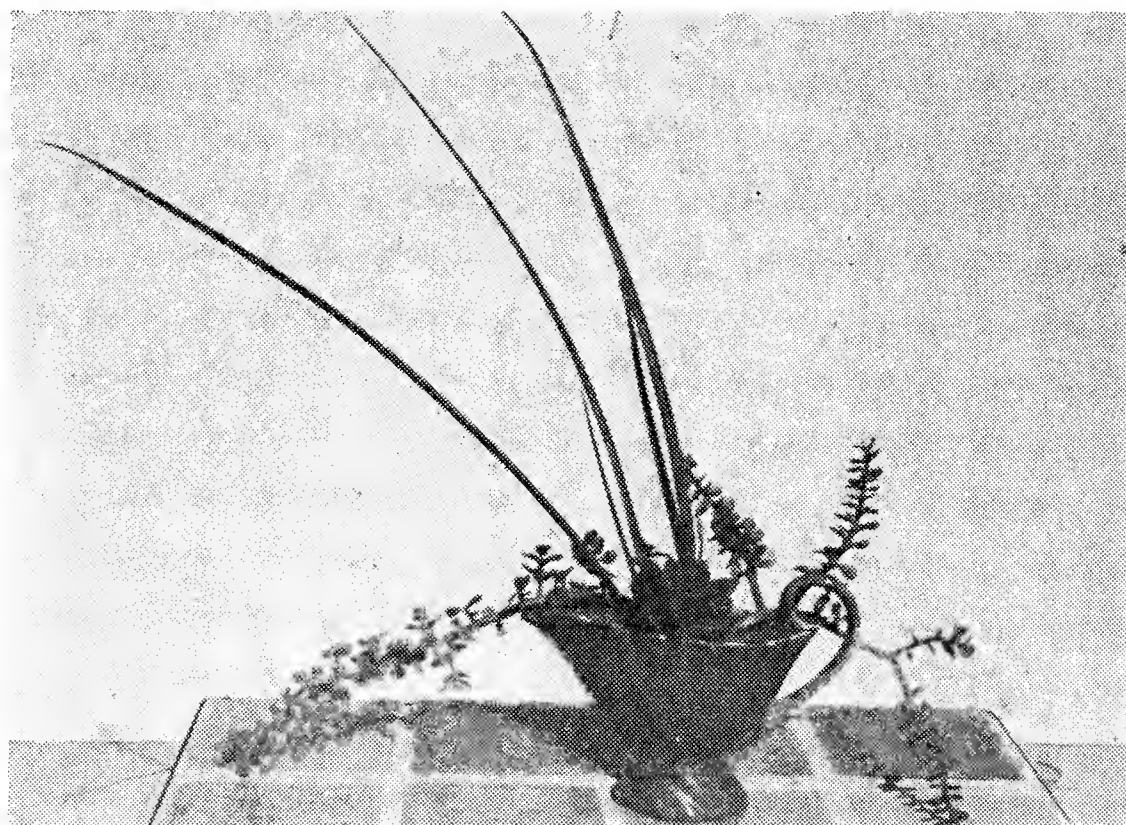
Centerpiece of Other Succulents—Mrs. L. J. Holbert



Arrangement against the wall of Dried Material—Mrs. Ed Speck



Dish Garden of other Succulents—Mrs. Arthur Holt



Arrangement against wall with other Succulents—
Mrs. Richard F. Williams

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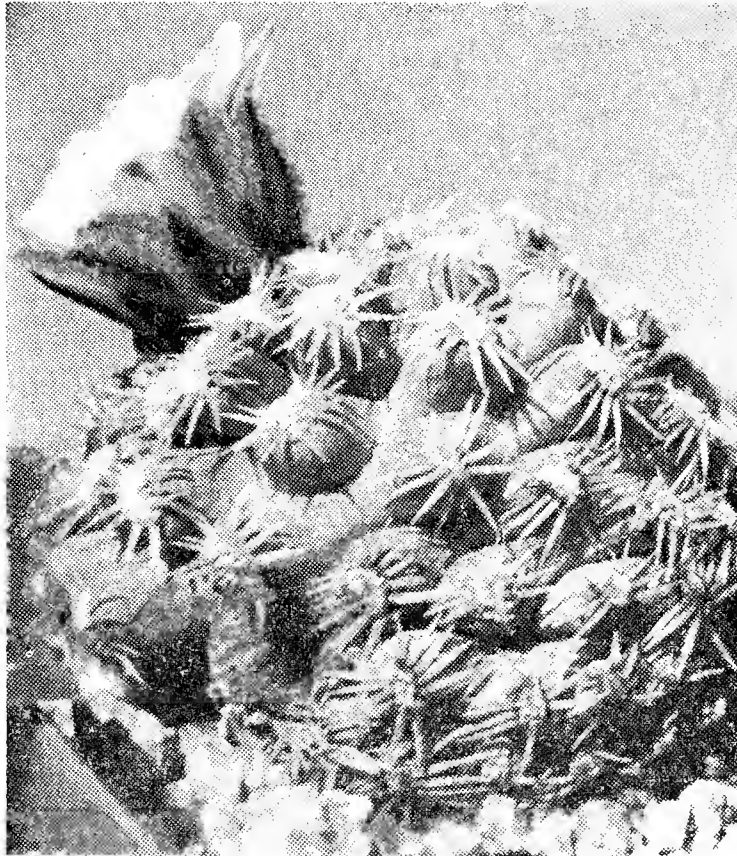
BULLETIN

DESERT BOTANICAL GARDEN OF ARIZONA

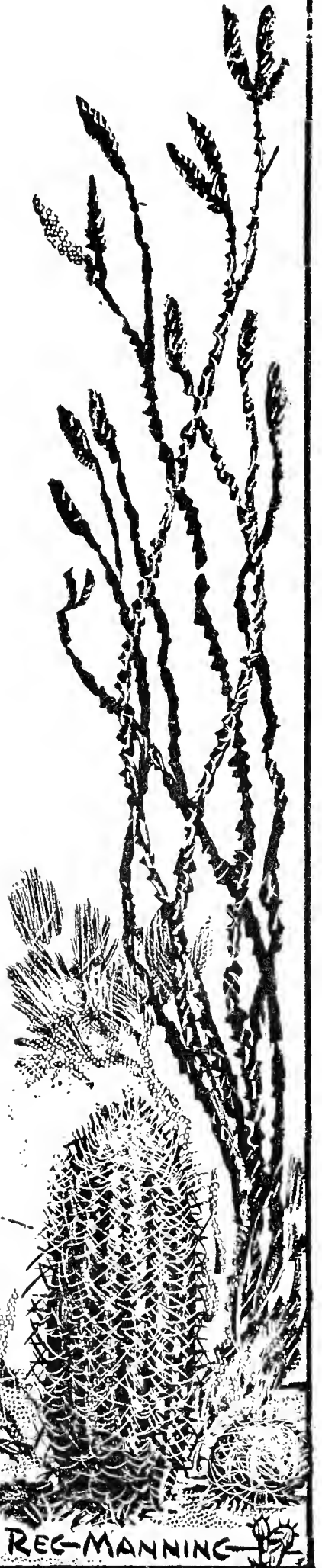
VOL. XVI

April, 1962

No. 4



Pediocactus bradyi, Benson, in flower
Feb. 1962. See page 40



REG-MANNING

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W. HUBERT EARLE, Editor

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Arizona Cactus and Native Flora Society

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	Reg Manning	

Chairman of the Advisory Board --- Leslie J. Mahoney

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Desert Botanical Garden of Arizona

STAFF

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Horticulturist.....	John H. Weber
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Student Horticulturist.....	Demitrios Vlachos
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GARDEN OPEN DAILY 9 A.M.—5 P.M.

Including Week-ends and Holidays

NOTES FROM THE CORNER OF THE EDITOR'S DESK

Annual Members Meeting will be held the first Sunday of May (6th) 3 P.M. in the Webster Auditorium. Mark this date on your calendar by attending the meeting and visiting the Garden. Saguaros and many other plants will be in bloom at that time.

Ballot for the annual election of officers is included in this issue of the Bulletin. The Nominating Committee has selected two candidates whose terms expire April 31 and Mrs. Robert (Mildred) May to complete the slate. Space is provided for write-ins. Please forward your ballot so that it reaches the Garden by May 1st. Thank you!

Wildflowers have been putting on one of the best displays over the desert for some years. . . . The low hillsides, at the edges of the desert, are showing poppies, lupine, phacelia, blue-dicks, chicory, gilia, mallows, bead-mustard and many others.

The low flat deserts have been showing sand verbena, desert phacelia, evening primrose, mustards and desert lilies. Freezing weather in early February killed-off many of the early wildflowers of the flat-desert but others are now making up with a good profusion of color.

The cool spring weather has delayed the Cacti but they are covered with buds and a week of 85-90 degree weather will cause the hedgehogs, prickly pears, beaver-tails and small barrels to burst out in color.

The Garden has published a free pamphlet, "Information on the Flowering of Desert Plants" which is available to anyone phoning or writing for it. We'll be glad to mail it to our members and their friends.

The desert will be in flower for 2-3 more weeks in the lower elevations. Later you will have to drive up into higher areas to find the flowers. Good trips to take this month are Black Canyon Highway from Phoenix to Rock Springs; Bee-line Hwy from the Verde River to Sunflower; Cave Creek to Bartlett Dam and then to Seven Springs; Pinal Pioneer Parkway between Florence and Oracle Junction; Apache trail along the mountain lakes; Gila Bend to Yuma; Superior to Ray and many others that you may stumble upon.

Southwestern Trees (Agricultural Handbook #9)—Elbert L. Little, Jr., has been reprinted and is again available at the Garden's Bookstore for 35c plus 15c for mailing, etc. This is a wonderful and handy 110 page guide to identify the trees of Arizona and New Mexico. Identification is also given on some of the large Yuccas and Cacti.

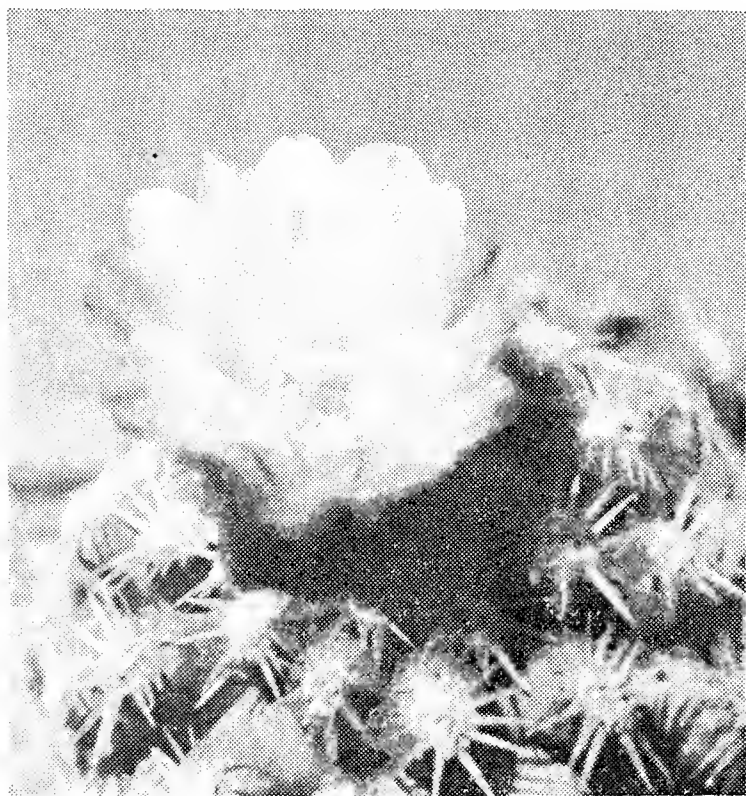
The Flowering Cactus, edited by Raymond Carlson, photographs and text by R. C. & Claire Meyer Proctor has been reprinted and copies can now be purchased at our Bookstore at the new price of \$8.95, add 25c for mailing. This is one of the best color cactus books ever published that shows the true dazzling beauty of these gorgeous blossoms. Most of the Arizona species are shown plus many from other countries. Your library should have this book.

A NEW ARIZONA CACTUS

PEDIOCACTUS BRADYI, Benson, Cactus & Succ. Journal 34: 17-19, 1962.

On June 16th, 1958, Mr. L. F. Brady, paleontologist, brought to the Garden a strange plant that he had found in the Marble Canyon area of northern Arizona while looking for fossils.

Mr. Brady has been a geologist and botanist for many years and has found many different plants in the far corners of the world. Through his years of keen observation he realized that this Echinocactus was not listed in any of the Arizona flora books.



These are the first published photos of *Pediocactus bradyi* in flower. IX

Mrs. Earle and your editor made several trips into the area but were unsuccessful in locating the plants.

Last year Dr. Lymon Benson and Mrs. Benson, with the aid of one of our crude maps, covered the area and Mrs. Benson found the first plant and eventually 6 plants were located before dark. Later in the year another trip was made and your editor and wife were again stymied.

This year our Staff teamed-up with Dr. and Mrs. Benson and, true to form, Mrs. Benson found the first small, $\frac{3}{4}$ " wide, appressed to the ground, plant. Over fifty plants were located and ten were removed for observation. The range has been extended for another mile and it is possible that it extends for many more miles.

The Garden was successful in having several of the plants, collected last year and the one collected by Mr. Brady, flower early last month. The plants, removed this spring, were in bud and are now bearing large $1\frac{1}{4}$ "- $1\frac{1}{2}$ " wide and $\frac{7}{8}$ " tall, silvery white, tinged with yellow, many petalled flowers. These do not resemble any other *Pediocactus* flowers.



L. F. Brady studying a mastodon skull and jaw at the U. of A's Geneochronology Laboratory. During the summer he is curator of Paleontology at the Museum of Northern Arizona



Barren, type locality in which *Pediocactus bradyi* is found amongst light to brown colored broken rocks. Several plants are at the edge of the hat.



Two *Pediocactus bradyi* plants well hidden and appressed to the rocky ground. . . The plant on the left has 2 buds—2/3X.

The base of the flower has a peculiar constriction at the point of attachment which tends to place the plant in another genus. Matured fruits and seeds have not as yet been observed by the Garden. Indications are that the plant has been temporarily placed in the genus PEDIOCACTUS until more information is known about it.

We hope to have seed of these plants to distribute to growers in a few years to further its continuance as the searching for them in their native area is quite laborious and time consuming. We know that many collectors will search for these plants but few will be found. This challenge will undoubtedly extend the plant's range.

CLASS FIELD TRIP



The winter class, all-day desert field trip to the Tonto National Forest, 30 miles N/E of Phoenix. Photo taken after lunch at Butcher Jones Picnic Grounds.

PLANT OF THE MONTH

*Smoke Trees
on the Desert*



Dales spinosa (Smoke Tree) is a shrub or low tree of the Bean Family and is found in sandy washes along the lower Colorado River drainage of 1000' and less. Its indigo flowers and gray leafless stems gives the appearance of a cloud of smoke. The tree has a long, deep tap root and is very hard to transplant.

CANOTIA HOLACANTHA

CELASTRACEAE
(Bittersweet Family)

CRUCIFIXION THORN

By JOHN H. WEBER, Horticulturist

CANOTIA HOLACANTHA grows to be a large shrub or small tree up to eighteen feet in height. It has numerous ascending branches which are spine-tipped and glabrous. The bark is yellow-green and this plant is often confused with the Palo Verdes (*Cercidium* sp.). Seedling leaves are entire with an acute leaf tip; a few being lobate near the base. A sparse pubescence covers the upper and lower leaf surfaces and the new stem growth. The deciduous leaves are alternate and measure $\frac{3}{4}$ of an inch long and $\frac{3}{16}$ of an inch wide. Inconspicuous flowers occur in small axillary clusters. These are present from May to August. Flowers are five-parted; having five sepals, five petals, and five stamens. Ovary is superior in position. The persistent fruit is a reddish-tan woody capsule. This five valved capsule is narrow ellipse in form; $\frac{3}{4}$ of an inch long and $\frac{1}{4}$ of an inch wide. Seed is ellipsoid; $\frac{3}{16}$ of an inch long and $\frac{1}{8}$ of an inch wide, with a $\frac{3}{16}$ inch long wing at one end.

DISTRIBUTION:

CANOTIA HOLACANTHA extends through in elevational range of 2,000 to 4,500 feet; and occupies dry slopes, hillsides, and mesas of this upper desert habitat.

Geographic distribution occupies a portion of three desert systems; the upper limits of the Sonoran Desert in Arizona and northwestern Mexico, the Mohave Desert in Arizona and the southeast part of the Mohave in California; and a small area of the Great Basin Desert in Utah.

In Arizona it is most abundant along Highway 93, particularly in the area of Wickieup, the Aquarius cliffs, and Burro creek. *CANOTIA* ranges south from



Canotia holacantha tree of about 16' tall. Notice the Palo Verde-like branches.

western Coconino and Mohave counties into Yuma county, and southeast into Yavapai, Maricopa, Gila, Pinal, and Graham counties.

UTILIZATION:

The main value, perhaps, that the crucifixion thorn has in landscaping lies in its somewhat wierd or grotesque appearance. If installed where it would be silhouetted by the rising or setting sun or moon or even backlighted by artificial means, this plant would present



Leafless branches of *Canotia holacantha* with its distinctive fruit capsules.

an unusual aspect. Upright habit and slow growth rate makes it adaptable for use in congested areas to create a desert effect.

CULTURE:

A well drained soil and bi-monthly irrigation of juvenile plants during dry seasons are the only requirements that are essential.

PROPAGATION:

Propagation is by means of fresh seed; no pretreatment being needed. Germination is slow (45 to 60 days), as is the growth rate. Seedlings may be started in small containers filled with coarse soil and kept moist until emergence of the seedling. An excess of water should be avoided thereafter.

AVAILABILITY:

CANOTIA is not known to be in stock in commercial nurseries.

REMARKS:

Crucifixion thorn is considered as worthless for browse, but is rated useful for erosion control. The wood is hard and makes good fuel even when green.

REFERENCES:

- Benson and Darrow—The Trees and Shrubs of the Southwestern Deserts.
- Dayton, W. A.—Important Western Browse Plants.
- Kearney and Peebles—Arizona Flora.
- Nichol, A. A.—The Natural Vegetation of Arizona.

GARDEN ACTIVITIES FOR APRIL

- 3rd 8 P.M. Castomaniacs—Webster Auditorium
- 4th 3 P.M. Class—Desert Survival Plants
- 5th 3 P.M. Lecture—Collecting plants in Mexico
- 5th 8 P.M. Arizona Horticultural Society—Webster Auditorium
- 11th 9:30 A.M.—All-day Desert Field Trip
- 12th 3 P.M. Lecture—Arizona Cacti in Bloom
- 12th 8 P.M. Arizona Association of Landscape Architects
- 19th 3 P.M. Lecture—Arizona Wildflowers
- 26th 3 P.M. Lecture—Arizona trees & Shrubs

TOLOACHE
CHAMISO
ESTRAMONIO (Spanish)
THORN APPLE
ANGEL THORN
JIMSON WEED
JAMESTOWN WEED
MAD APPLE
DEVILS'S APPLE
APPLE OF PERU
NIGHTSHADE FAMILY

Datura meteloides DC. and
Datura stramonium L.

Datura meteloides is a native of Mexico and Southwestern United States, but the origin of *Datura stramonium* is disputed; perhaps it comes from the Asiatic continent. The Sanskrit *dhat-tura* and the Hindustani *dhat-tura* form the basis of the general name. When Hernando Cortes entered the elaborate Aztec gardens of Mexico, he and his followers were amazed at their beauty and the variety of cures effected by their varied herbs, among which was the *datura*, used to alleviate all bodily pains. It was then known as *toloatzin* (inclined head) on account of its nodding capsules. This became modified to *tolache*, and used for several distinct species of *datura*. The post-conquest Maya, who called this plant *Mehen-x-toh-ku*, applied it mashed with butter to reduce tumors.

The Aztec, however, were not the only Indians who knew *toloache*, for the Zuni tell us that long ago, when they still dwelt in the underworld, a boy and girl found a trail up to this world of light, and decorated their heads with garlands of the large, white, sweet-smelling flowers while walking upon the earth. But these adventurous journeys were their undoing, for they met the Twin

Sons of the Sun Father, the Divine Ones, to whom they joyously poured forth what they had learned—that they knew how to put people to sleep and to make them see ghosts; that they could make others walk about and detect thieves. The Divine Ones, deeply alarmed, decided the two children should be taken away. So the couple disappeared into the earth forever, but where they vanished flowers sprang up like those the boy and girl had worn on their heads.

Even now the Zuni use *toloache* for purposes similar to those suggested by the mythical children. A small quantity of the powdered root of *Datura meteloides* is administered by the rain priest to cause one to go to sleep and see ghosts. This procedure seeks rain, and "rains will surely come the day following the taking of the medicine, unless the man to whom it is given has a bad (evil) heart."

The Zuni Indians employ *Datura stramonium* as a narcotic, anodyne, and anesthetic, and the blossoms and roots ground to a powder as an external application for wounds and bruises. In Mexico it is sold as a love potion.



Plant and blossoms of *Datura meteloides*. Note, in the foreground, the long slender bud with folded, united petals ready to unfold when it is nighttime. —Photo, Hobart Pribbenow

Mary Austin describes, in the "Land of Little Rain," how a decoction of datura is given by Paiute mothers to their daughters when they are put to the strain of the three-day courting dance—which, if undergone successfully, leads to their proper engagement. If the girl fails, however, her marriage is postponed for another year.

Nor were the effects of this powerful plant entirely limited to Indians, for Robert Beverly, in "History and Present State of Virginia" (1705), amusingly describes its results upon a group of soldiers who had made a boiled dish of its early shoots, believing them to be edible herbs: "Some of them ate plentifully of it," he writes, "the Effect of which was a very pleasant Comedy; for they turn'd natural fools upon it for several days: One would blow up a feather in the Air; another would dart Straws at it with much Fury; another, stark

naked, was sitting in a Corner, like a Monkey, grinning and making mows at them; a Fourth would fondly kiss and paw his companions and swear in their faces with a Countenance more antik than any Dutch Doll . . . A thousand such simple Tricks they play'd, and after Eleven Days, returned to themselves again, not remembering anything that had pass'd." Beverly refers to the plant as Jamestown weed, from which the name Jimson weed is doubtless derived.

An old woman at Arrovo Seco, New Mexico, whose husband allegedly had been blinded by lightning and cured by brandy, told me of a little orphan girl, whose hair, in spite of all experimentation, persisted in housing a generous colony of lice. In desperation, her foster parents ground toloache seeds, mixed them with fat, and rubbed the salve on her head. Like magic the colony vanished. And when a Domingo In-



Five inch white, sculptured-like, *Datura meteloides* blossoms.
Photo from a Kodachrome by Joseph Prophet

dian was told of this miraculous cure, he exclaimed, "Oh! a much better remedy is rabbit's milk!! Needless to say, the author, never having tried this, disclaims all responsibility for its use.

An ointment of the ground seeds and suet is rubbed on boils, pimples, and swellings; the powdered leaves are applied to piles; and hot baths containing the plant give relief to colds and diarrhoea.

During the first World War, *Datura stramonium* was cultivated in the United States as a substitute for atropine.

The dry leaves sometimes are smoked to relieve spasmodic asthma.

"In Mexico today there is a current belief, especially with the peons, who are the direct descendants of the Aztecs, that the unbalanced mind of the miserable Carlotta, widow of the unfortunate Maximilian, was not due to the misfortunes of her husband, which her Chris-

tian faith and resignation would have enabled her to endure, but was caused by a decoction of talavatchi administered by Indian women. The action of this herb, the administration of which was one of the sciences of the Aztecs, is to destroy the mind but not the body. In the Empress' case, although she is possessed of excellent bodily health, outside of an interest shown in flowers, the world to her does not exist. The love of home, country, and friends, passed away after the draught of the old Indian witch's decoction." ("Touring Topics," January, 1930. "Medicine and Surgery Among the First Californians," by Cephas L. Bard, M.D.)

Ethnobotanical excerpt from 'Healing Herbs of the Upper Rio Grande.'—L. C. M. Curtin.

SAGUAROLAND

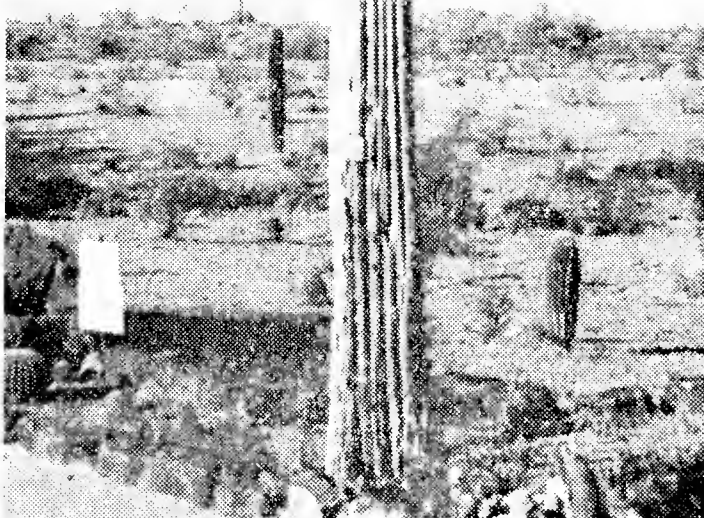
BULLETIN

DESERT BOTANICAL GARDEN OF ARIZONA

VOL. XVI

May, 1962

No. 5



The skeletal form of a Saguaro, *Carnegiea gigantea*. The united rods supported a living plant of many tons. See photo page 60.



REG-MANNING

SAGUAROLAND BULLETIN

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W. HUBERT EARLE, Editor

Volume XVI

May, 1962

No. 5

Arizona Cactus and Native Flora Society

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Vice President	John H. Rhuart	Treasurer	Tom Goodnight
Secretary	Angela Bool	Chief Counsel	Richard B. Snell

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Chairman of the Advisory Board --- Leslie J. Mahoney

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Desert Botanical Garden of Arizona

STAFF

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Horticulturist.....	John H. Weber
Maintenance & Bookstore.....	Wm. C. Hendrix
Bookstore.....	June T. Hendrix
Student Horticulturist.....	Demitrios Vlachos
Student Horticulturist.....	Terry Truesdell

GARDEN OPEN DAILY 9 A.M.—5 P.M.

Including Week-ends and Holidays

LYSILOMA MICROPHYLLA
LITTLELEAF LYSILOMA

LEGUMINOSAE (Pea Family)

John Weber-Horticulturist



Lysiloma microphylla blossoms and fern-like leaves.

DESCRIPTION:

The littleleaf *Lysiloma* is a low branching shrub or tree extending in height from ten to fifteen feet with a trunk diameter to five inches. A dense crown forms a spreading canopy of feathery foliage that is without spines. The trunk and lower branches are covered by light brownish-grey fissured bark; the hard wood being brittle and dark brown in color. A cold, tender tree, *Lysiloma* is deciduous in all but the mildest winters. Leaves are bipinnately compounded, consisting of four to nine pair of primary leaves with numerous secondary leaflets. The 25 to 33 pair of leaflets are oblong and measure $\frac{1}{4}$ inch in length. These are pubescent on some plants and nearly glabrous in others. Stipules are present, but these absciss with leaf maturity.

Flowers occur in dense globular heads

that are more than one half inch in diameter. Petals are united in a white tubular corolla. Stamens number 25 to 30, having yellow-green anthers. Flowering begins in late April and extends into June. Fruit consists of a flat oblong pod, four to nine inches long and one inch in width. This pod is glabrous and splits along a thickened lateral margin. Contained within the pod are a number of oval shaped flat seeds that are reddish-brown in color and measure $\frac{3}{8}$ inch in length and $\frac{5}{16}$ inch in width.

DISTRIBUTION:

Lysiloma occupies rocky hillsides on southern exposures in the upper desert and desert grasslands at an elevational range from 2800 to 3500 feet.

In ARIZONA *LYSILOMA* has a very small local distribution; being found in Pima County at Chimney Creek in the foothills of the Rincon Mountains and

also in the Baboquivari Mountains. This plant is rare in Arizona and is considered to be a remnant of a past floristic type.

In addition to its local distribution in Arizona, *LITTLELEAF LYSILOMA* is found in the states of Baja-California, and Sonora, Mexico, and in the West Indies.

UTILIZATION:

As an ornamental tree, *LYSILOMA* is most often planted for its feathery fern-like appearance. It is frequently used as a foundation tree; being planted against high fences or large blank wall areas. As a small to medium tree in a desert garden, it affords partial shading to understory plantings requiring such protection.

CULTURE:

LYSILOMA should be installed in a site that is free of hard freezes. Deep well-drained soils are required for optimum growth. Irrigation in well-drained soils should be weekly during the dry summer months, and bimonthly in heavier soils. An excess of water in heavy soils results in a yellowing of the foliage. Top mulching with barnyard

manure and light nitrogen fertilization result in more rapid growth.

PROPAGATION:

Propagation is primarily by means of seed. The testa is impermeable and must be scarified to allow penetration of water. Germination is rapid under conditions where temperature is in the 70° to 80° range and duration of the light period is of sufficient length. Seedlings can be started in small pots and later transferred to larger containers or installed directly in place. Rate of growth is slow in containers, but more rapid in the ground.

AVAILABILITY:

LITTLELEAF LYSILOMA is in supply in most southern California and southwestern nurseries. It is extensively utilized as an ornamental tree.

REMARKS:

The wood of this tree is hard and very durable and can be utilized for the same purposes that mesquite and ironwood are used.

REFERENCES:

- Benson and Darrow—The Trees and Shrubs of the Southwestern Deserts.
Kearney and Peebles—Arizona Flora.
Little, Elbert L.—Southwestern Trees.

TORNILLO

SCREW BEAN

PEA FAMILY

The tornillo, or screw bean, received its English name—the equivalent of the Spanish one—from the character of its seed pods, which are spirally twisted and coiled, especially after they have dried and split.

The natural habitat of this plant is in the southern part of New Mexico and across the border into Mexico, but evidently some animal or bird carried its seed up to the lava beds of La Bajada, just below Santa Fe, for one solitary tree of this species grows there, and

Prosopis odorata Torr. & Frem.

LEGUMINOSAE

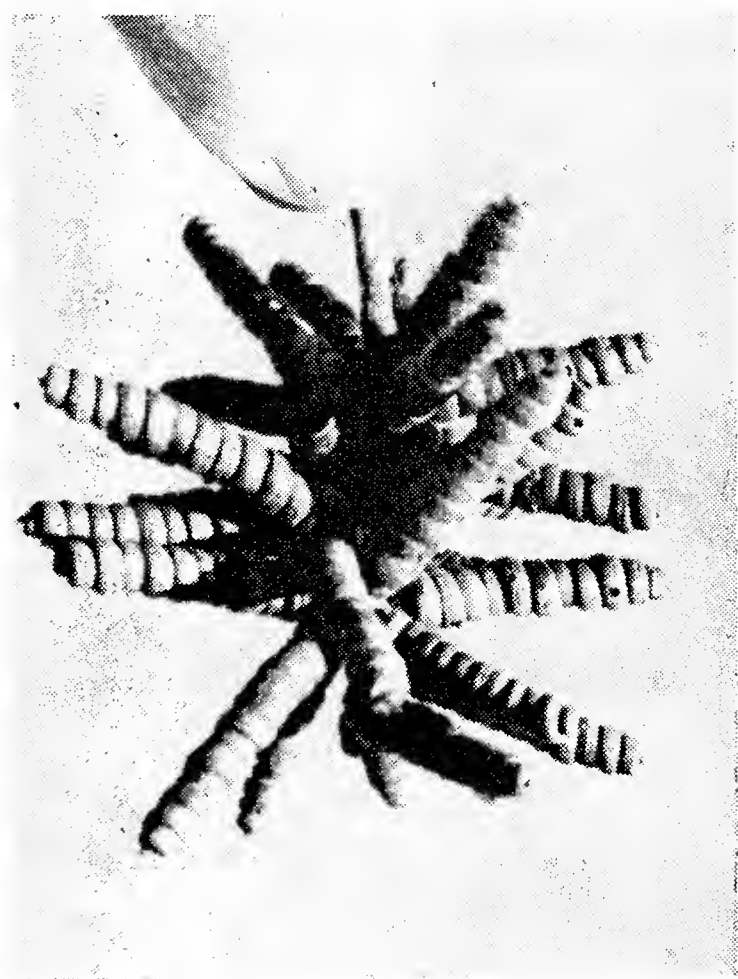
with the assistance of its children springing around its base, hides for a brief interval the surrounding volcanic rock with feathery leafage.

When babies' eyes become inflamed during the summer, the green leaves are crushed, mixed with their mother's milk, and placed in a small cloth bag, which is pressed so the liquid is dropped into their *ojos negros*. Moreover, the leaves may be crushed and mixed with water to form a wash for sore eyes in persons of any age. In case inflammation of the



11 year old Screw-bean mesquite, *Prosopis odorata*

stomach exists, the *tornillo* seeds are chewed and swallowed with water, and if bladder trouble has arisen, a tea can be made from the leaves and drunk three times a day.



Tightly twisted pods of *Prosopis odorata* — 2/3X.

The trunks and branches form good fuel and fence posts, and the bean pods contain a large amount of sugar, which can be converted, by boiling, into a fair kind of molasses.

Tornillo has a very useful sister in the mesquite bush (*Prosopis glandulosa* Torr.), which is like the other except that the beans are somewhat larger and the pods do not curl. A medicinal tea is derived from its leaves, a gum from its bark, a nutritious food and sweet beverage from its ripe seed vessels, honey from its blossoms, fuel and building material from its sturdy wood.

The seeds ripen in bean-like pods which turn a pale golden shade in late summer, and which are fed to horse, burros, and cattle to fatten them after a lean and dry season. These pods are also pounded into meal by the Indians of the Southwestern deserts and made into cakes. These retain all their nutritious quality as long as they are kept perfectly dry, but let them be soaked in water so that fermentation sets in the product is very similar to all English mead: fizzy and intoxicating.

The amber-colored gum which appears at the forked branches of the shrub is not unlike gum Arabic, and makes an excellent mucilage and a soothing gargle for the throat.

When the Spaniards invaded Mexico, they evidently adapted the ancient Aztec name of *mizquitl* to their manner of expression, and changed it to *mesquit*, and also brought with them, as a heritage of the Moorish occupation of Spain, the word *algarroba* (English carob), of Arabic origin, and applied it to the mesquit's bean pods. According to the early Spanish texts, the Aztec used

a decoction of its leaves to restrain excessive menses, and its bruised bark as an astringent.

But the Coahuila and Pima Indians made a makeshift sugar from its sweet pods. The Pima also took the sap internally as a cure for respiratory afflictions, and the Papago Indians drank a decoction of its powdered white inner bark as an intestinal antispasmodic.

Ethnobotanical excerpt from 'Healing Herbs of the Upper Rio Grande.'—L. S. M. Curtin, Laboratory of Anthropology, Santa Fe, N. M.

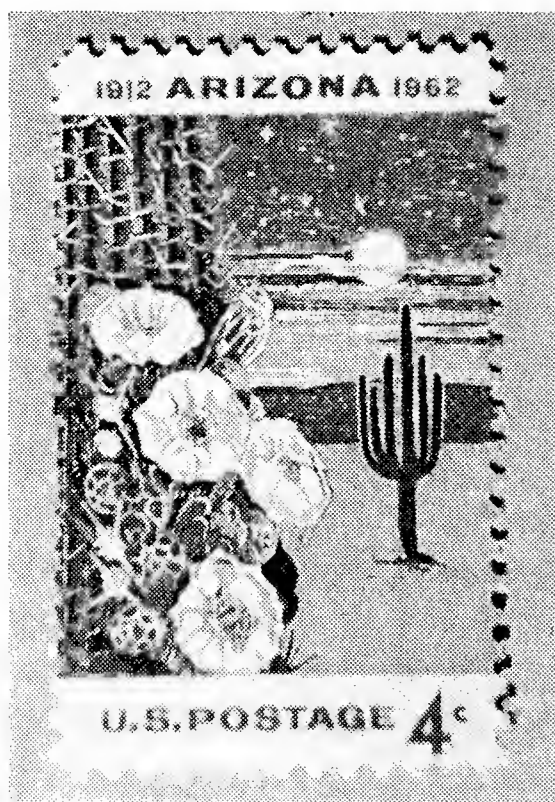
GIANT SAGUARO ON ARIZONA STATEHOOD STAMP

First Cactus On A U.S.A. Stamp

A 4c stamp commemorating the 50th Anniversary of Arizona's Statehood was released Feb. 15th, 1962 in Phoenix. One hundred million stamps were issued and requests oversubscribed the issue by twenty million causing the supply to be quickly exhausted. An unofficial estimate that there were five hundred thousand first-day cancellations at Phoenix indicate a record over any other statehood first-day issues.

The stamp was designed by Jim Chemi and J. E. Ihms of the Phoenix Gazette. The background, of desert and silhouetted Saguaro (*Carnegiea gigantea*), is a deep blue. To the left, in foreground, the Saguaro and its buds are green. The blossoms are white but their centers are inadvertently red whereas the stamens and pistil are yellow—(this would have been an additional color for the presses), the lettering is carmine red.

An interesting feature of the stamp is that the blue color spills over the side edges of the stamp. It is indeed a beautiful and unusual stamp and will be an attractive addition to the stamp collectors' albums.



SCHEDULE OF ACTIVITIES FOR MAY

May 1—8 P.M.—Cactomaniacs

May 6—3 P.M.—Annual Members Meeting

May 14—7:30 P.M.—Executive and Advisory Boards Dinner

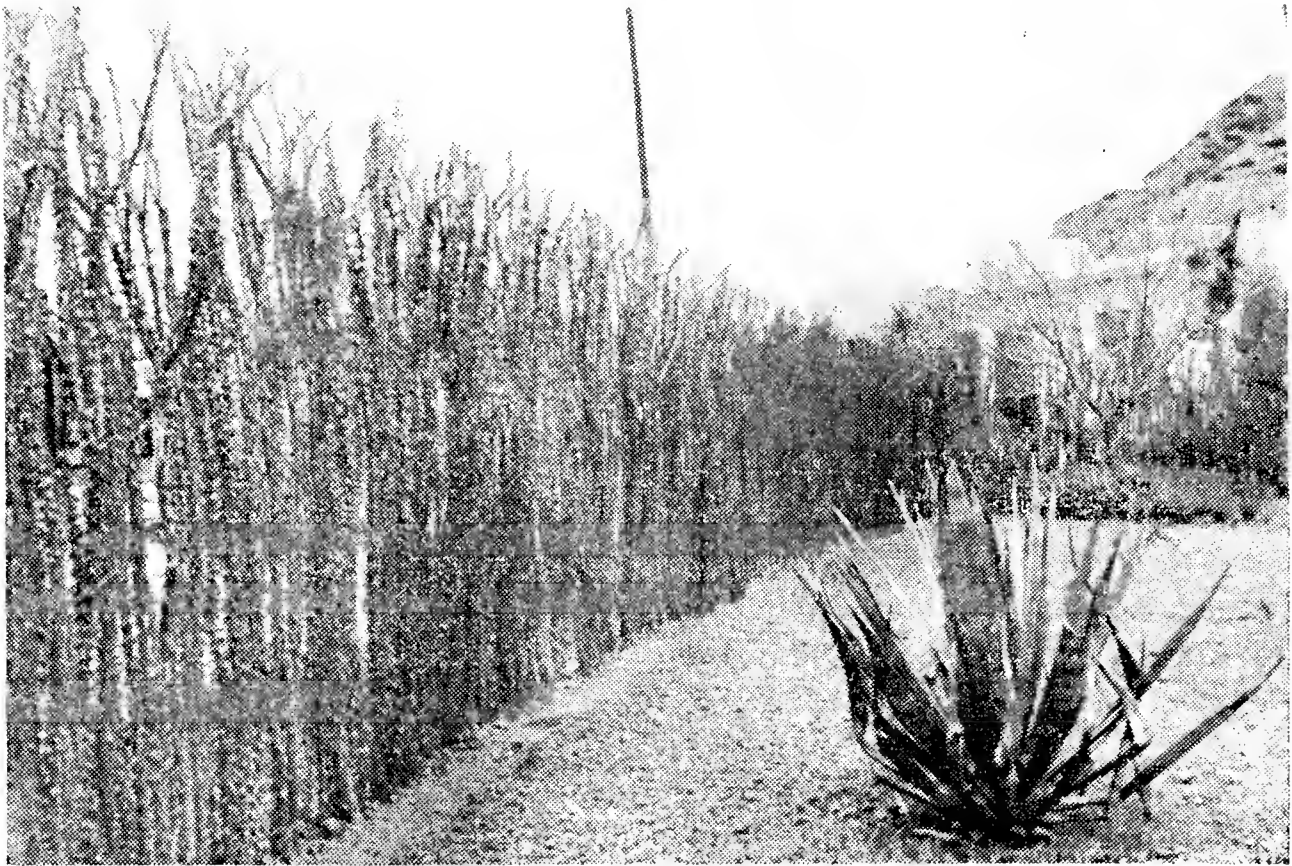
The Garden will be open daily thru the summer from 9 A.M. to 5 P.M. Members are always welcome at any hour.

PLANT OF THE MONTH

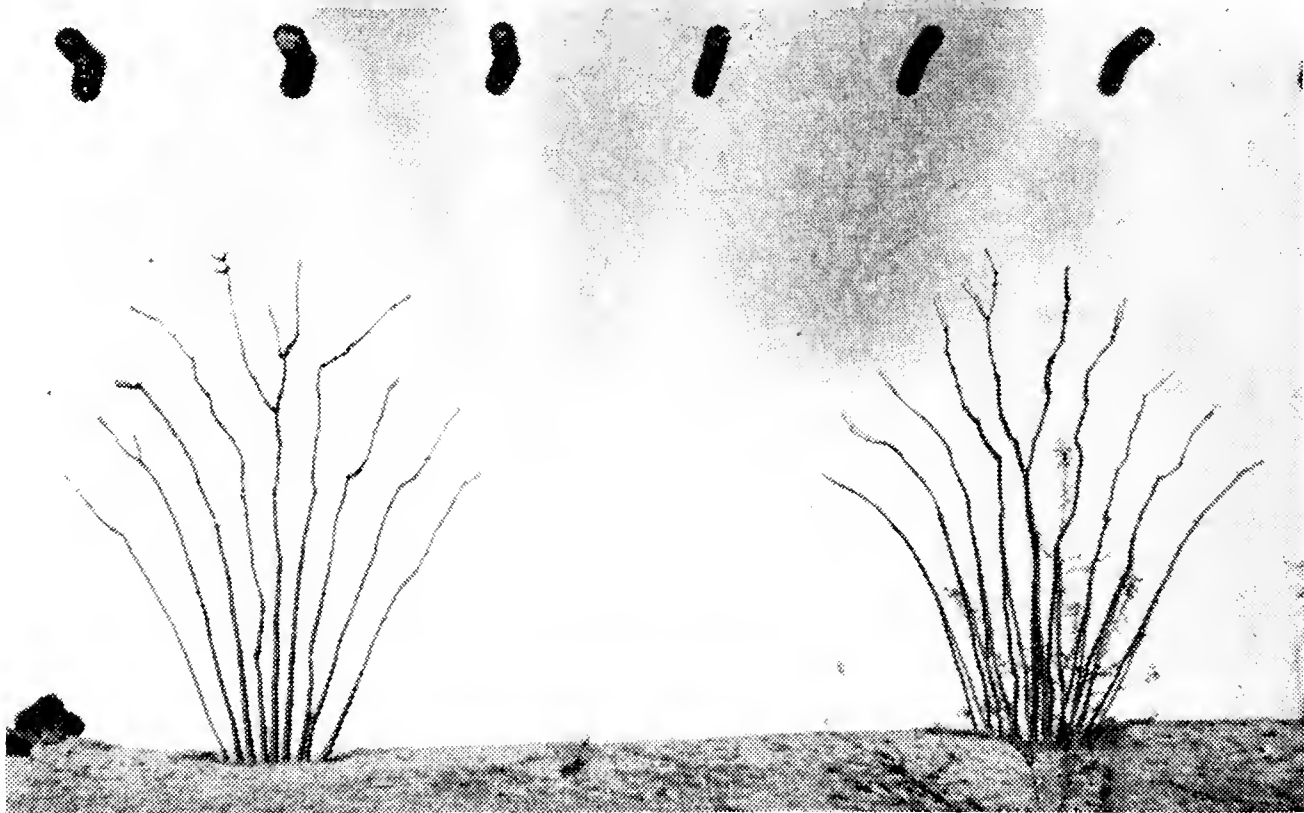


CALIFORNIA FAN PALMS, *Washingtonia filifera*, are pictured with the San Jacinto Mts. in the background. These palms grow from 20' - 75' tall and are used extensively in the S/W for horticultural plantings. They are found growing wild along or near the old beach line of the one-time interior sea in southern California and also in a few moist canyons of the Kofa Mts. in western Arizona.

USE OF OCOTILLO, *Fouguieria splendens*, CUTTINGS



6' Ocotillo cuttings, collected and planted by our garden staff this spring, are planted 10" deep in decomposed granite, supported by 2 strands of wire on short fence posts, makes an effective fence screening the director's residence. This 'Living-Fence' will releaf and flower for many years, making it another interesting demonstration 'do-it-yourself' attraction at the Garden.



15' Ocotillo cuttings 'espaliered' against the Visitor's Reception Building breaks the monotonous appearance of a blank wall. All of the Ocotillo cuttings lose their leaves when planted but with weekly waterings, new leaves and possibly blossoms will appear.

AN UNUSUAL MOTORIZED NATURE TOUR



For those who enjoy viewing flora from an auto at 40 to 80 miles per hour, this tour is 'it'. A most interesting 35 mile natural area has been set aside on each side of the highway and designated as the Pinal Pioneer Parkway. It is located on the highway (80, 89 and 789) between Florence, Ariz. and Oracle Junction. Large, legible signs identify the various forms of flora peculiar to that area.



IRONWOOD TREE—*Olneya tesota*



JUMPING CACTUS—*Cylindropuntia fulgida*



BARREL CACTUS—*Ferocactus wislizenii*



PALO VERDE TREE—*Cercidium floridum*



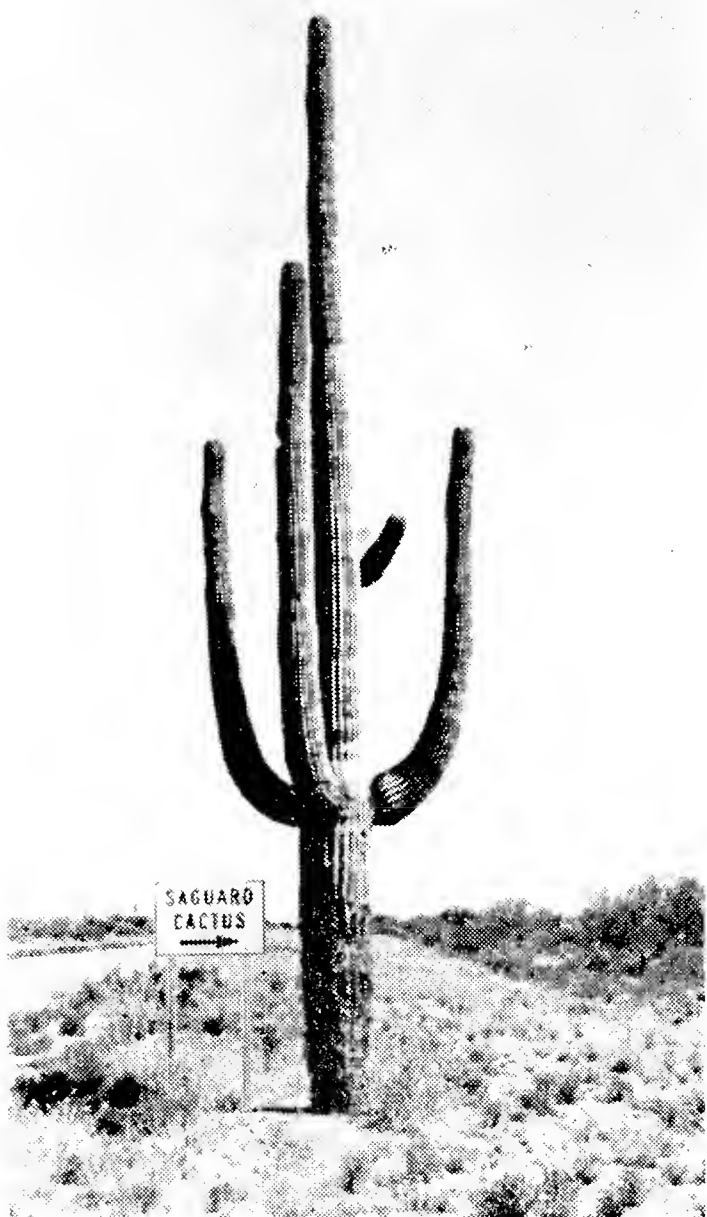
CATSCLAW TREE—*Acacia greggii*



MESQUITE TREE—*Prosopis juliflora*



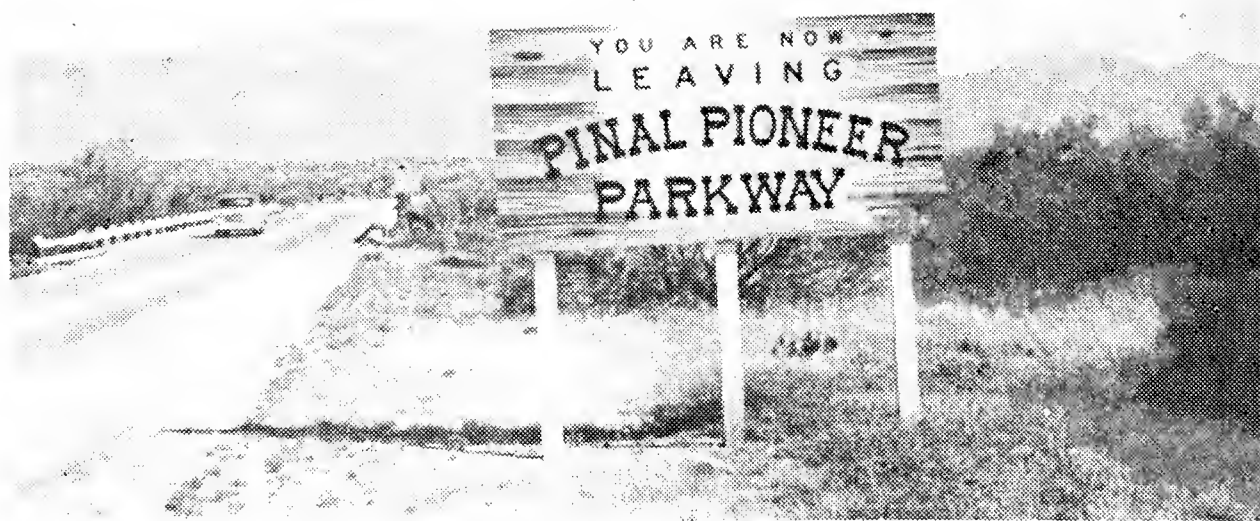
PRICKLY PEAR CACTUS—*Opuntia engelmannii*



Saguaro Cactus—*Carnegiea gigantea* approx. 45' tall



Yucca (first posted as a Yucca cactus.) Soapweed, (*Yucca elata*).



RESUME SPEED. The Santa Catalina Mts. are in the background. Tucson over the mountains to the right.

SAGUAROWLAND

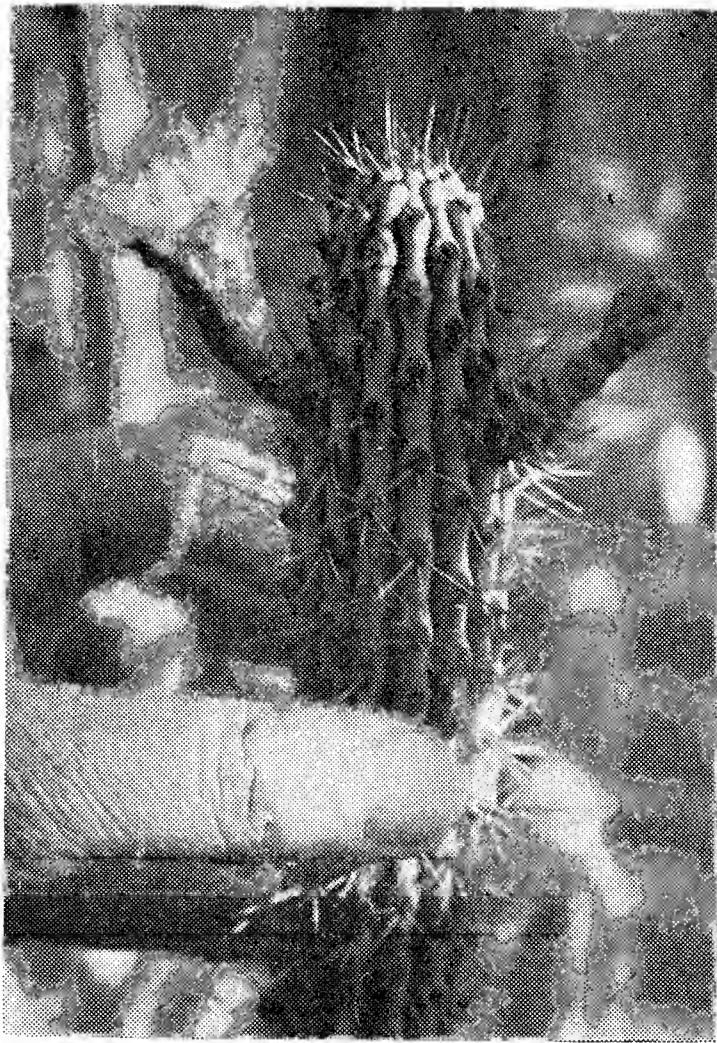
BULLETIN

DESERT BOTANICAL GARDEN OF ARIZONA

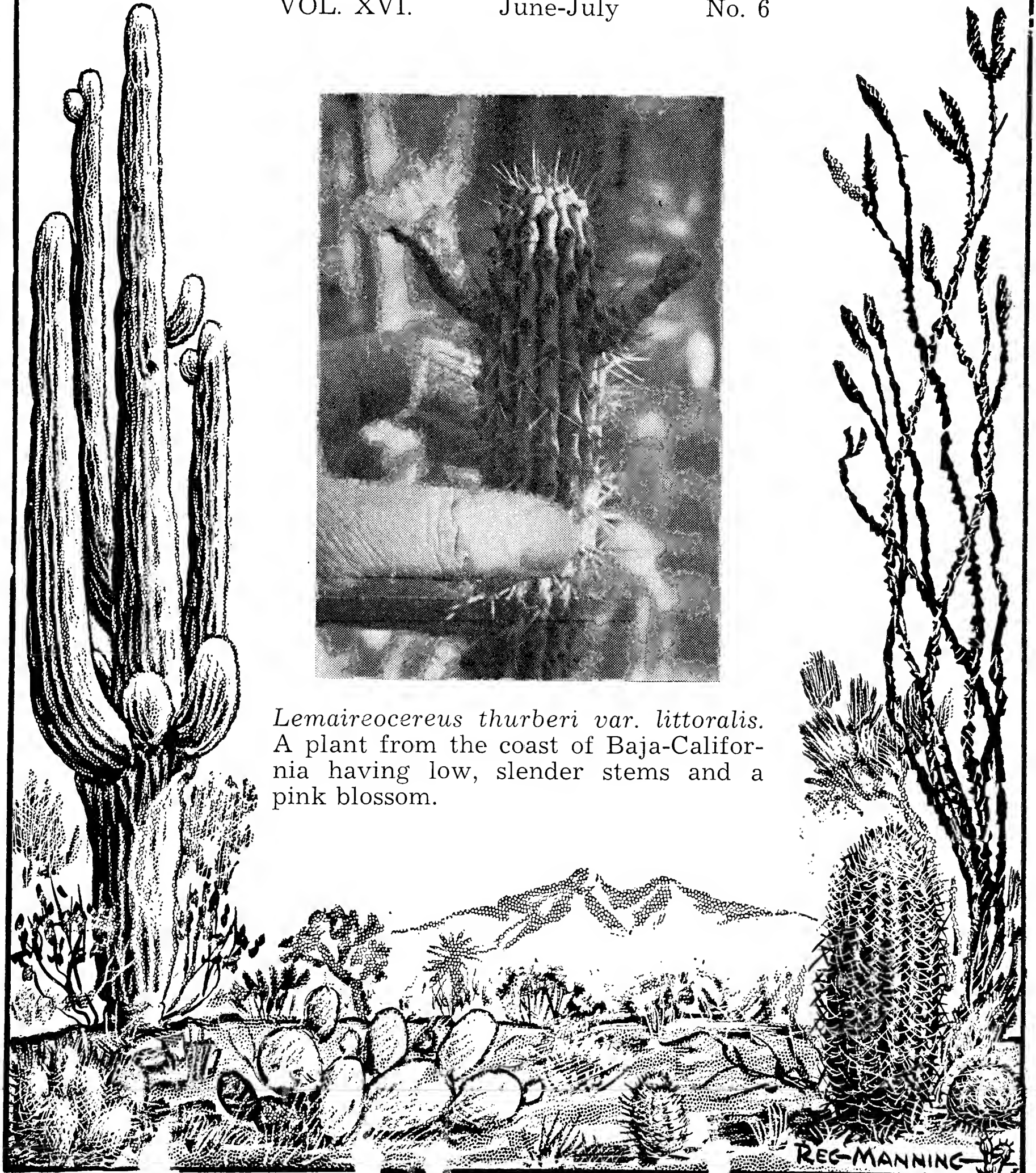
VOL. XVI.

June-July

No. 6



Lemaireocereus thurberi var. *littoralis*.
A plant from the coast of Baja-California having low, slender stems and a pink blossom.



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W. HUBERT EARLE, Editor

Volume XVI

June-July, 1962

No. 6

Arizona Cactus and Native Flora Society

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	Reg Manning	

Chairman of the Advisory Board -- Leslie J. Mahoney

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Desert Botanical Garden of Arizona

STAFF

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Maintenance & Bookstore.....	Wm. C. Hendrix
Bookstore.....	June T. Hendrix
Student Horticulturist.....	Demitrios Vlachos
Student Horticulturist.....	Terry Truesdell

GARDEN OPEN DAILY 9 A.M.—5 P.M.
Including Week-ends and Holidays

ANNUAL MEMBERS MEETING

Was held the first Sunday in May, the 6th, in the Webster Auditorium at 3 P.M. with Mrs. Angel Bool, Secretary, acting as chairman.

Attendance was as usual—small. Hundreds of our members had mailed in their ballots and signified that Mr. Tom Goodnight, Mr. John H. Eversole and Mrs. Mildred May be elected to the Executive Board for a three year term.

A report of another successful year (1961-1962) was given by the Director. The meeting was closed with the serving of refreshments.

27th ANNUAL BOARD MEETING

Was held as a dinner at the Kiva Club, atop the Westward-Ho hotel, Monday evening, May 14th, and was attended by members and their wives of the Executive and Advisory Boards and Mr. and Mrs. Cedric Austin as guests.

MINUTES of the last Board meeting were read by Secretary Angela Bool and approved.

BOARD MEMBERS Tom Goodnight and John H. Eversole were re-elected and Mrs. Mildred May elected to the Executive Board for three years.

ELECTION of officers resulted in that all office holders were re-elected for another year—their names are on the opposite page. For the information of our members our Advisory Board is composed of Mrs. Walter Douglas, James J. Cahill, Mrs. Geraldine Eliot, Mrs. Lorraine Gilliland, Mrs. Homer Lininger, Tucson, and Miss Eleanor Sloan.

SUPERINTENDENT of Parks and Recreation, Cedric Austin, outlined the Papago Park program and the need of some of the Garden's land for future development. Several of our Board Members vigorously opposed the release of additional land to the City of Phoenix for Park purposes. Meetings were arranged with the city for the discussion of Garden boundaries and a Van Buren-McDowell road through our northwest corner of the Garden. This road would facilitate the movement of traffic through the Park and be of great benefit to the Garden.

FINANCIAL REPORT, as shown on page 65, was given by your Director in the absence of Treasurer Tom Goodnight, and a report on the year's past activities and plans for the future. This met with the enthusiastic approval of the Board members.

SYMBOL AND LETTERHEAD, identifying the Garden, was presented by artist Red Manning and accepted by the Board. This new symbol will be on the letterheads, etc., about August 1st.

A VOLUNTARY ADMISSION plan of adults 25c, children 10c, to the Garden, effective June 1st, is to be tried this summer to help defray increased costs due to the greater number of visitors and activities. Desert Botanical Garden members and their guests will be free. A voluntary admission will not deprive those persons who wish to see the Garden, yet may be financially embarrassed.

THE MEETING, in which everyone eagerly participated, was adjourned at a late hour by Chairman John Eversole. The next Board meeting will be held in early October.

DIRECTOR'S REPORT

The Garden again had quite a successful year which in part was due to the fact that last year was the first time that it had ever been open through the hot summer months.

Actual attendance, tabulated from July 1st to April 31st, showed a total of 95,078 visitors for just ten months. A full year then should show about 108,150 attendance. This again indicates that the Garden is another of the outstanding attractions of the State.

Financially we have a good operating balance for 1962-63 and Savings accounts for our future building program. The financial report is self-explanatory showing the 1961-62 budget, 1961-62 income, and a comparison with 1960-61 income and expenditures. Note that sales were up 25%, general income 15% and expenditures were up 11%. If we can always keep within this ratio, we'll always "stay in the black".

Income on sale of seeds was excellent due to repeat orders, over the counter, and a greater 1961-62 wholesale demand.

Our memberships are the highest in history of the garden. 1962-63 should bring us well over 700 members. We certainly wish to thank our members for being so prompt in renewing their memberships and bringing in new members.

Our salaries were higher than the budget due to the 10% raise granted by the Board last May. Our Staff is quite small, when one views all of our activities, but we have been able to accomplish this with the generous and appreciated help of the following part-time volunteers: Mrs. Lillian Armer, Mrs. Thelma MacDougal, Mr. and Mrs. Hiram Pratt, Mrs. Audrey Baldrige, Mrs. Jinneman, Jim R. Osgood and S. M. Dohanian.

Three new Life Members of the year are Mr. and Mrs. Fred Eldean, Scottsdale, and Mrs. James R. Offield, Chicago.

Donations to the Garden for the past year have been numerous and most acceptable from the following:

Mrs. Homer Lininger, Tucson—\$100 towards auditorium chairs.

Mrs. J. Louis, Evanston, Ill.—\$25 towards a wheelchair.

John H. Eversole—\$50.

Don Bauer—Five tons of brown, background rock.

Fred Eldean—2 H.P. water pump and other items for lathouse.

S. M. Dohanian and James Osgood—Planting containers.

Roy Bell—250 paving brick.

City of Phoenix Planning Dept.—Aerial photos and plans of the Garden.

Columbus Development Board, Columbus, N.M.—\$250.

The Garden has been the recipient this past year of many plants through the generosity of the following parties: International Succulent Institute, San Francisco; Mrs. Helen Phillips, McFarlane, Calif.; Alan Blackburn, Albiqui, N. M.; John Hilton, 29 Palms, Calif.; Edward Nadolny, Albuquerque, N. M.; Warren McElroy, Yermo, Calif.; University of California, Berkeley, Calif.; Dr. Lyman Benson, Pomona, Calif.; David I. Eppelle, Belen, N. M.; Jim Blakley, Santa Barbara, Calif.; Mrs. Harry Carter, Winslow, Ariz.; Pierre Fischer, Tucson; Gates Cactus Inc., Corona, Calif.; Mr. and Mrs. Slim Moorten, Palms Springs, Calif.; Johnson Cactus Garden, Paramount, Calif.; Mrs. James Reidy, Tucson; R. H. Diehl, Vista, Calif.; Arthur Combe, Ogden, Utah; Don Skinner, Los Angeles; Wm. Blomquist, San Manuel, Ariz.; James Dillard, Santa Fe, N. M.; Huntington Botanical Garden, San Marino, Calif.; Mrs. Robert Wright, Holbrook, Ariz.; Beahms Cactus Gardens, Pasadena, Calif.; Hummel's Exotic Nursery, Carlsbad, Calif.; Robert Taylor, El Cajon, Calif.; and from Phoenix, Don Bauer, Warner Dodd, Whitman Evans, N. Fickeisen, E. F. Frazier, Harry Hazlett, Gus Hermann, Miss Agnes Holst, Dugan Lewis, Rod McGill, Charles Mieg, Mrs. H. Pratt, Suncrest Nurseries, Mrs. R. I. Turner, Mrs. W. L. Williams and Faith Hoffman. Please forgive me if I've unintentionally overlooked someone. It's been a busy year.

FINANCIAL REPORT

ARIZONA CACTUS & NATIVE FLORA SOCIETY

Sponsoring
The Desert Botanical Garden
 May 1st, 1961 — April 30th, 1962

Comparison

INCOME

	Budget	Income	with 1960-61
Retail Sales	36,000	\$37,663.16	\$30,557.19
Seeds	1,900	2,507.76	1,785.43
Plants, cuttings	350	110.00	259.75
Contributions	2,000	2,110.59	1,974.82
Memberships	2,700	3,066.86	2,579.00
Wholesale (books)	100	62.13	71.71
Webster Trust Endowment	11,500	11,037.92	11,116.74
Miscellaneous	1,150	1,622.41	1,140.75
	55,350	\$58,180.82	\$49,485.19

EXPENDITURES

Purchase for resale	20,700	21,433.55	17,836.15
General Operating	3,520	4,721.28	3,692.45
Buildings and Improvements	420	1,962.34	2,258.39
Auto expense	650	796.04	680.14
Utilities	1,545	1,650.75	1,472.84
Insurance	1,145	1,116.51	1,151.86
Miscellaneous	1,080	1,165.47	944.69
Salaries	16,800	18,334.96	19,230.65
	45,860	\$51,182.80	\$46,267.17

ASSETS

Accounts Receivable	11.25		
Inventory	3,703.89		
Deposit with Ariz. Indus. Comm.	96.00	3,811.14	

CASH

Valley National Bank (Checking)	1,854.77		
Valley National Bank (Savings)	6,315.78		
1st Federal Loan (Savings)	1,228.94		
Petty Cash on hand	74.00	9,473.49	
		\$13,284.63	

LIABILITIES

State Withholding tax	7.63		
Accounts payable	0.00	7.63	

BALANCE

\$13,277.00

MEMBERSHIP GAIN FOR PAST FIVE YEARS

1957-1958—475 Members
 1958-1959—540 Members
 1959-1960—615 Members
 1960-1961—652 Members
 1961-1962—688 Members

ANTICIPATED BUDGET 1962-1963

INCOME

Retail Sales	40,000
Seeds	2,000
Plants, Cuttings	200
Contributions	2,200
Memberships	3,200
Wholesale (books)	1,000
Endowment	11,150
Miscellaneous	1,800
	\$61,550

EXPENDITURES

Purchases for resale	24,000
General Operating	4,800
Bldgs. & Improvements	3,500
Auto Expense	650
Utilities	1,700
Insurance	1,150
Miscellaneous	1,250
Salaries	20,000
	\$57,050

ATTENDANCE

This was the first year that the Garden remained open through the summer. An accurate tabulated attendance was made daily beginning July 1st. Attendance for the ten months was 95,078. It can readily be seen that our full year's attendance will be over 100,000 at the Garden plus the following:

The following groups met at the Garden:

8 Cactomaniac meetings	652
22 Illustrated Lectures	861
15 Desert Plant Classes	612
15th Annual Cactus Chow	11,465
19 College Classes	449
7 High School Classes	297
73 Elementary classes	3,289
15 Girl Scouts, Brownie, etc.	237
11 Boy Scouts, Cubs, etc.	146
4 Ariz. Hort. Society	152
7 Garden Clubs	205
1 Ariz. Assoc. Landscaping Engineers	16

Lectures were given to the following groups away from the Garden:

4 Field trips	152
1 Audubon Work Shop	41
Tucson Cactus Club	65
3 Service Clubs	96
1 Desert Survival	14
4 Garden Clubs	238
1 Desert Institute	65
1 Rock Club	36
1 Maricopa Park Rangers	12
1 Saguaro Nature Club	20
12 High Schools—Arizona	
Academy of Science	1,142
Traveling Science Institute	
Sponsored by National Science Foundation	

PUBLICITY

The Garden was mentioned in the following national magazines during the past year—Desert, Life, Sunset and National Parks.

Many daily newspapers also carried stories of the Garden throughout the country. Our local newspapers, The Phoenix Gazette, Arizona Republic and others gave us good coverage that helped direct visitors and local residents to the Garden.

1962-1963 GARDEN IMPROVEMENTS PROGRAM

- Expansion of water system.
- New roads.
- New entrance.
- Install fluorescent lamps in auditorium.
- Purchase 100 new chairs for auditorium.
- Erect Ramada in Arizona Floral Section.
- Add 960 square feet to propagation section.
- Install water eves in Lathhouse.
- Build car-port at Director's residence.
- Install 8x8 roll-up projection screen in Auditorium.
- Install water bubbler (cooler) in Visitor's Bldg.
- Purchase 16mm projector for evening programs.
- Build a floodlighted parking lot for evening visitors near Auditorium.

PLANT OF THE MONTH

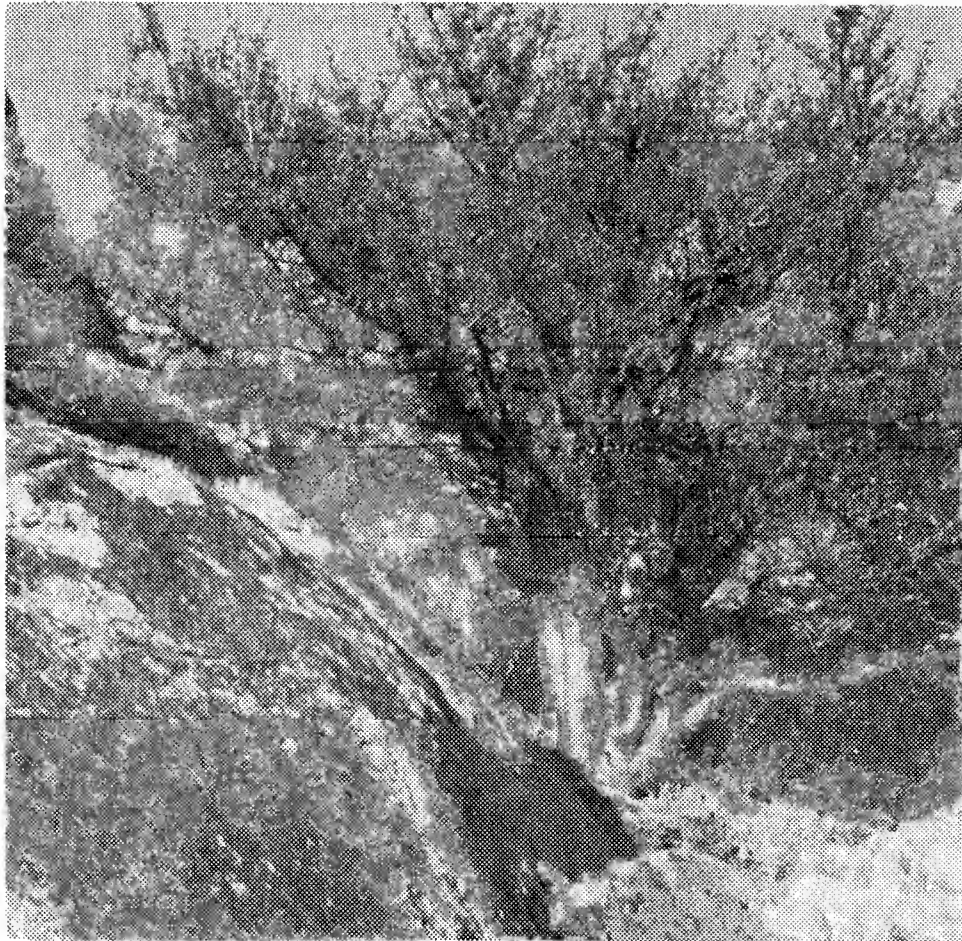


Soapweed, Spanish Bayonet, Elegant Yucca, *Yucca elata*, is found in central and southern Arizona, southern New Mexico, western Texas and northern Mexico. Large clusters of white blossoms appear each year during May and June. The amole in the roots makes an excellent shampoo. The leaves of the plant were used by the Indians in the making of sandals and mats. *Yucca elata* is the State Flower of New Mexico.

BURSERA MICROPHYLLA Gray
ELEPHANT TREE
TOROTE

BURSERACEAE

By JOHN H. WEBER



Bursera microphylla tree, eight feet tall, Note the swollen trunks caused by repeated 'freezing-back' of its branches.

DESCRIPTION:

BURSERA MICROPHYLLA attains the growth habit of a shrub or small tree. In either instance, the limbs branch low and are thickened in the same manner as the trunk. New branches and twigs are red-brown and unarmed; older bark is paper-like, light colored, and exfoliate. An aromatic plant, it emits a very spicy odor when crushed or handled. In Arizona the Elephant tree reaches a height of five meters, but a maximum growth of twelve meters occurs in the southern extensions of the range in Mexico. Leaves are winter deciduous and have an alternate arrangement along the branch. Secondarily divided, a leaf may have from 8-16 pairs of dark green leaflets. These are narrowly oblong, measuring 5-15 mm. long and 1-2 mm. broad. Quite small flow-

ers are present in late June and in July, occurring singly or a few in a cluster. Fruit consists of a leathery three angled drupe, 7-8 mm. long and 5-6 mm. thick. It is one seeded and splits open along the angles. A hard testa covers the solitary seed.

DISTRIBUTION:

BURSERA MICROPHYLLA ranges from the southwestern quarter of Arizona into southeastern California, then south into Baja, California, and Sonora, Mexico. In Arizona this plant grows in the mountains south of the Gila River in Maricopa, Pima, and Yuma counties. It grows quite abundantly in the eastern tip of the Estrella mountains near the confluence of the Salt and Gila rivers. This site near Phoenix is the northern limit of its range.

Occupying an elevational distribution from below 300 meters to 750 meters, the Torote grows on arid hillsides and rocky slopes extending down onto the intermountain plains. Soils are rocky and well drained. Southern exposure is the rule in the colder regions of the range.

UTILIZATION:

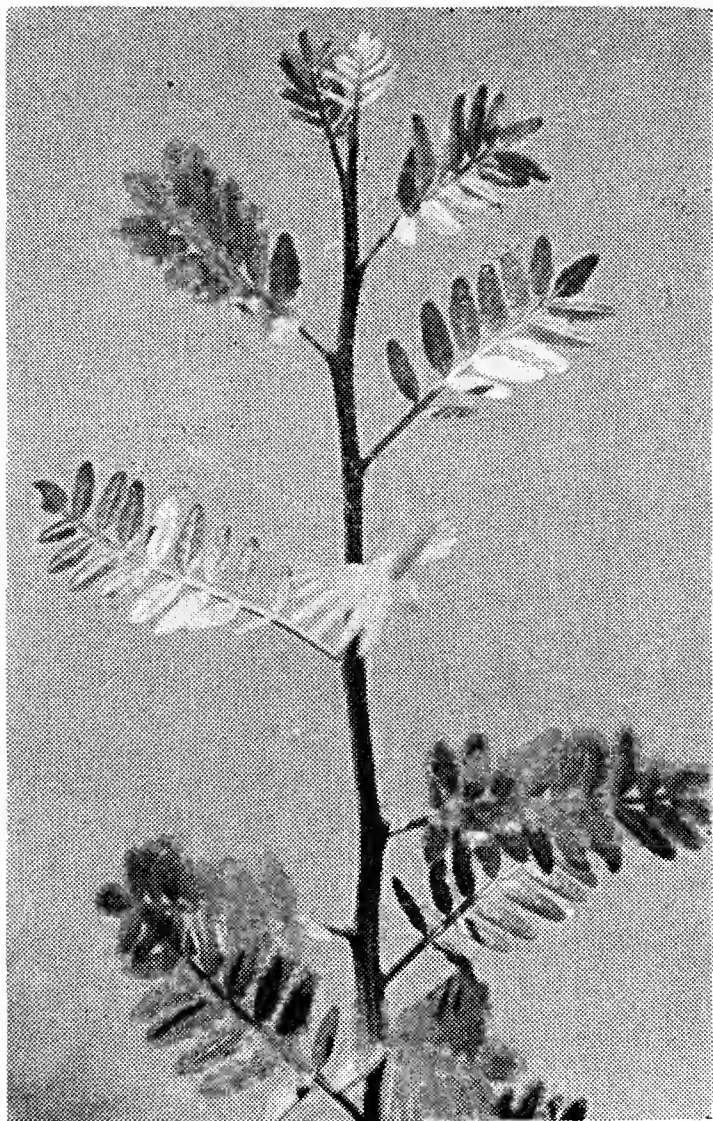
The use of the Elephant tree in landscaping is quite limited due to its being frost tender, requiring that it be installed in only the most protected sites. Effective use as a potted or tubbed plant can be made, if it is afforded cover during the winter months. The gnarled and swollen growth habit of the trunk renders **BURSERA** particularly suitable for fashioning a desert Bonsai. A spicy fragrance is another attribute favoring its use as an indoor or patio plant.

CULTURE:

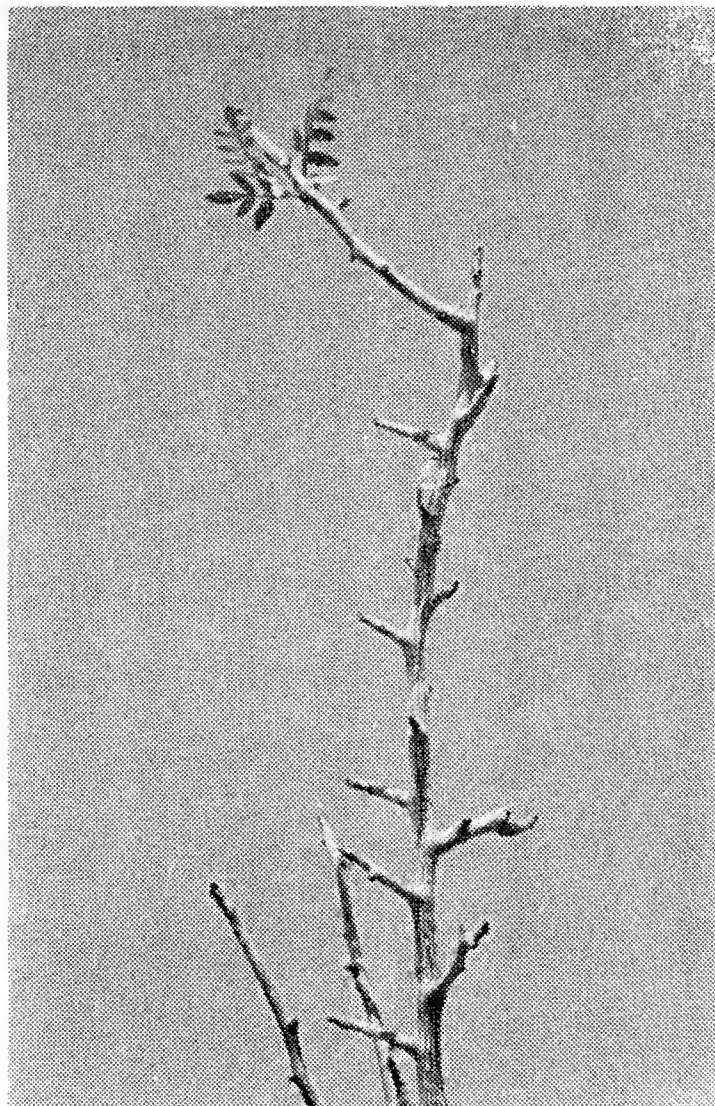
A south or east exposure, adjacent to a wall or building affording maximum protection from frost, should be provided. A well drained soil is essential and heavy soils should be altered so that a porous condition exists. Weekly or bimonthly watering should be applied when the plant is in foliage. Light to moderate nitrogen feeding will provide more rapid top growth.

PROPAGATION:

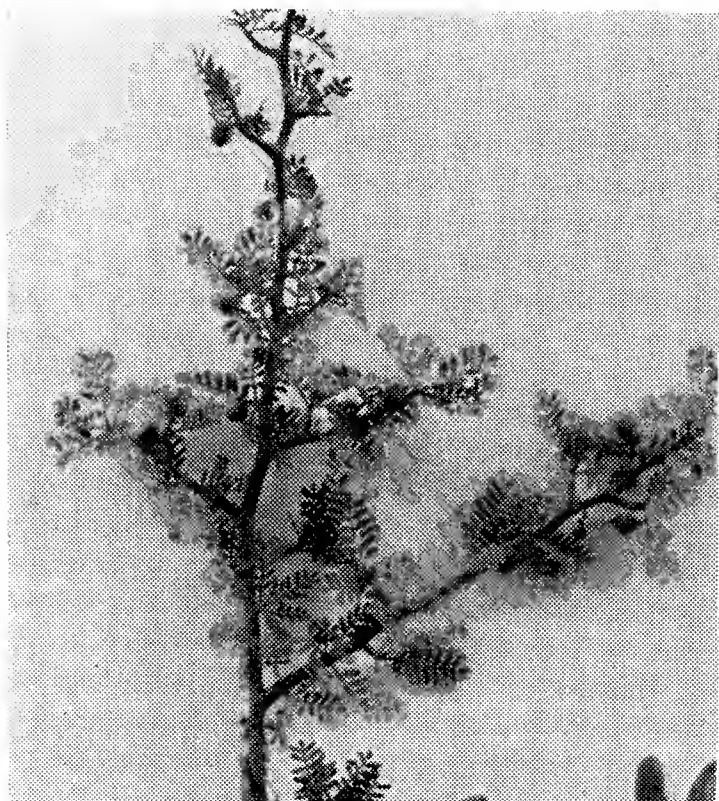
Seed of the Elephant tree seems to remain viable for a long period; however, many seeds are infertile and do not fill. Scarification of the hard bony seed coat is necessary to allow penetration of water. Germination and growth rate are slow, resulting in a plant only 30 cm. (12") in height after two years' growth.



Close-up of the *Bursera microphylla* leaves 2/3X



A two year old *Bursera microphylla* seedling beginning to releaf.



Branch of *Bursera microphylla* showing the single, dark fruits.

AQUAPA CATTAIL CATTAIL FAMILY

One seldom fails to see, throughout the United States, in marshy land, the familiar brown-topped wands of the cattail rising above a thick mass of long slender leaves. Its roots contain a nutritious secret which evidently was formerly known only to the Indians, who dug and ground them into a meal, but now chemical analysis has revealed that they contain a core of nearly solid starch, equal in food value to rice and corn.

Maya texts, which refer to the cattail as *puh*, say that its leaves were made into rush mats, and rural Mexicans still thatch their roofs with *aguapa* stalks before covering them with a final layer of adobe. At present, Spanish New Mexicans weave its leaves into baskets, and sometimes stuff their pillows with the silky down from the sausage-shaped inflorescence at the tips of the stalks.

M. R. Harrington, in a delightful article, "The Cat-tail Eater," which appeared in the September, 1933, "Mas-

AVAILABILITY:

BURSERA is not known to be in supply in commercial establishments. It is rarely seen in cultivation and may be found only in a few specialty nurseries.

REMARKS:

Some use of **BURSERA** has been made as a source of dye and tannin. A resin has also been extracted to be employed as a cement and varnish.

REFERENCES:

Benson and Darrow, *The Trees and Shrubs of the Southwestern Deserts*.

Jaeger, E. C., *Desert Wild Flowers*.

Kearney and Peebles, *Arizona Flora*.

Shreve and Wiggins, *Vegetation and Flora of the Sonoran Desert*.

Standley, P. C., *Trees and Shrubs of Mexico*.

Typha latifolia L. Typhaceae

terkey," a publication of the Southwest Museum, relates an experience with an elderly Paiute woman: "The old lady brought from a wickiup a pack-basket full of the 'tails' and carried them to a place prepared for the purpose—a bit of hard ground, carefully cleared and smoothed, five or six feet across. Here she shelled enough down from the stalks to cover an area a yard in diameter to the depth of half an inch or so. Then she did an unexpected thing: she got up and went back into the wickiup, returning a few minutes later with a limber switch and a blazing stick from her campfire.

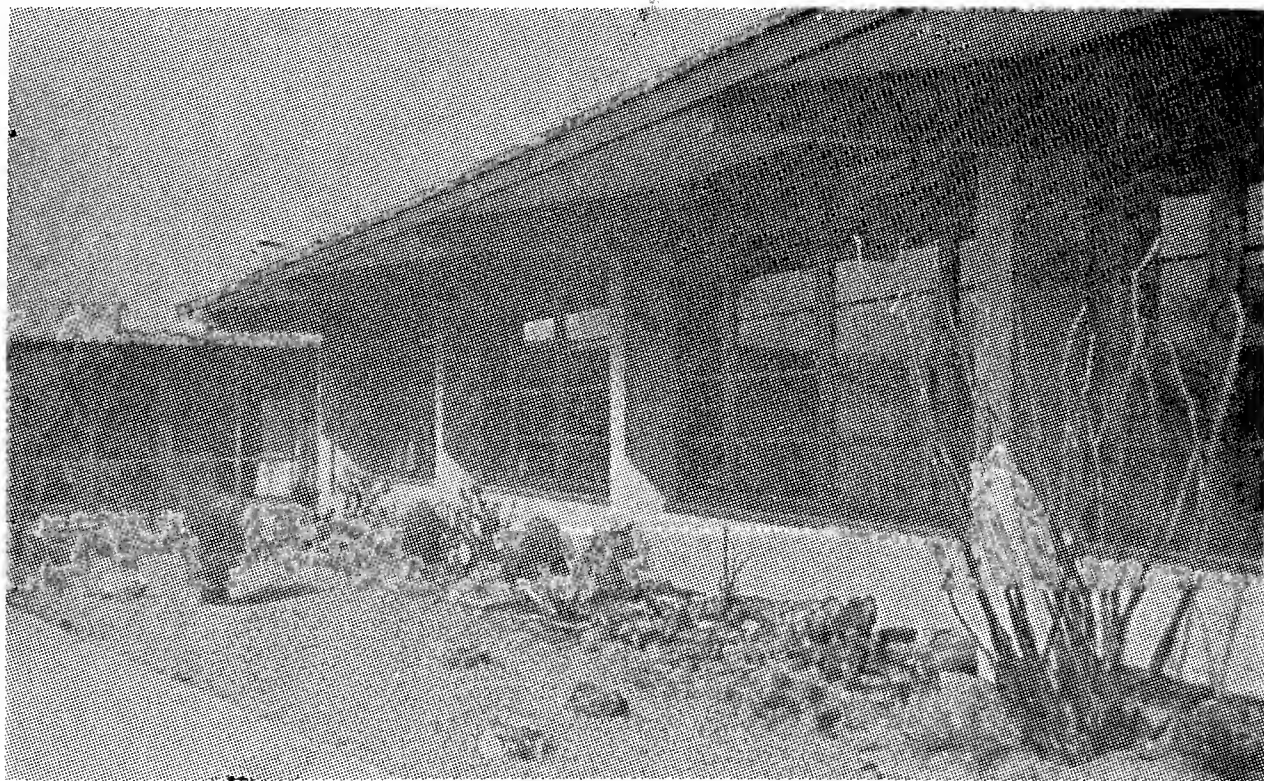
"Kneeling, she touched the fire to the down and began to agitate it vigorously with the switch. Almost instantly the flame ran through it, consumed it, and died away. But the seeds were not consumed; there they lay . . ." "Taste, them," she said in Paiute. I did, and found them good, with, if I remember, a sort of nutty flavor."

ST. MARKS SCHOOL OF TEXAS GARDENS

Were started with a cactus collection by one of our members, Art Douglas, several years ago. Mr. Jerry Thompson, Director of Botanical Activities, is now expanding this work with the aid of our Garden. An unusual three-zoned greenhouse with rooms of dry, warm and desert environment; normal temperature; moist, tropical rainforest; gives the botany students three zones in which to conduct individual research.



A portion of several hundred feet of bench space for cacti and other succulents in the 'dry room.'



A landscaped bed of Arizona desert plants that get some protection from the overhanging roof. Over twelve inches of snow covered these plants last winter.

Photos from: Southwest GARDNER, official publication of the Dallas Garden Center.



Blue-barrel, Flat-barrel, *Echinocactus horizonthalonius*, is found in central southern Arizona, southern New Mexico, Texas and Mexico. It is a slow growing, low barrel up to twelve inches tall of a bluish-green color. Its interesting spines may be short or quite long, straight or curving and appressed to the plant. It bears two to three inch pink flowers throughout the summer. This is an excellent plant for your collection as it thrives in cultivation and enjoys the full sun.

SAGUAROWLAND

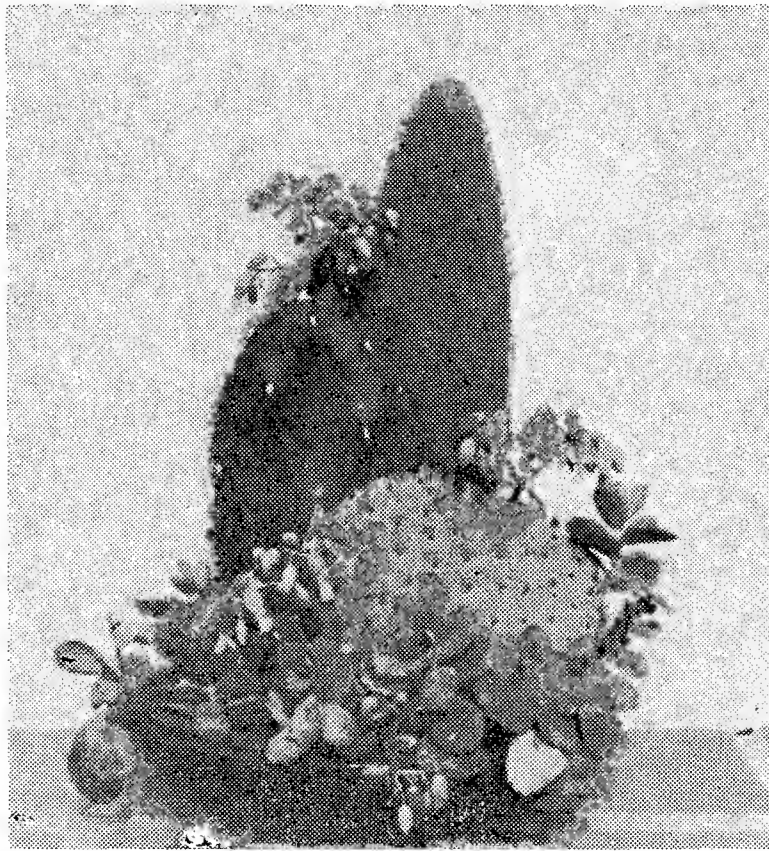
BULLETIN

DESERT BOTANICAL GARDEN OF ARIZONA

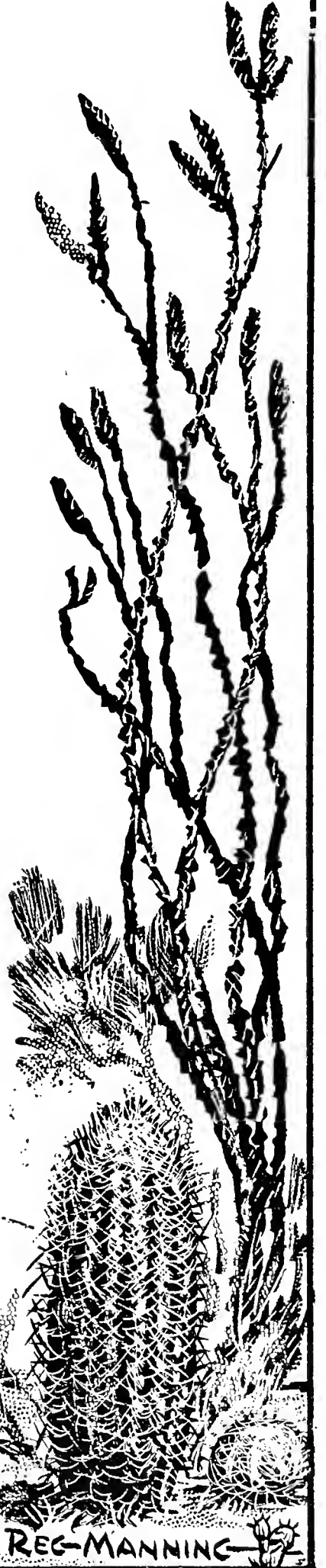
Vol. XVI.

Aug.-Sept.

No. 7



Arrangement of Cacti and Succulents using (bottom to top) *Opuntia basilaris*, *O. elata*, *O. maxima* and *Kalanchoe grandiflora*.



REG-MANNING

SAGUAROLAND BULLETIN

Published and owned by the Arizona Cactus and Native Flora Society, sponsors of the Desert Botanical Garden of Arizona. P.O. Box 5415, Phoenix 10, Arizona. Saguarioland Bulletin attempts to promote the Garden and to provide information on the desert plants and their culture. Subscription \$5.00 per year, the subscription including active membership in the Society and the Desert Botanical Garden. Issued 10 times a year.

W. HUBERT EARLE, Editor

Volume XVI

Aug.-Sept., 1962

No. 7

Arizona Cactus and Native Flora Society

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	Reg Manning	

Chairman of the Advisory Board --- Leslie J. Mahoney

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Desert Botanical Garden of Arizona

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Bookstore.....	June T. Hendrix
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Student Horticulturist.....	Don Cole

GARDEN OPEN DAILY 9 A.M.—5 P.M.
Including Week-ends and Holidays

NOTES FROM THE CORNER OF THE EDITOR'S DESK

ATTENDANCE

June, July and August of 1961 (the first time that the Garden had ever been open through the summer) showed an attendance of 10,850 persons. The same period this year indicated 11,174 viewed the Garden through the heat of the summer. This was a slight increase over last year despite the fact that a decrease was expected due to the hottest summer on record.

Construction of water and irrigation lines through the park caused the roads to be partially closed and quite a number of visitors were scared away.

PAPAGO PARK

A new paved road through the park will be completed by next year and it will help expedite the increasing traffic.

The Arizona Zoo (practically a neighbor) has constructed a large number of buildings in its children section and will be opened November 21st. Their building program is set up for many years and when completed should be the most outstanding zoo in the country.

The new Papago Park 18 hole Golf course has been graded this summer and recently seeded. It is quite a sight to see the beautiful green grass growing amongst desert surroundings. The course is expected to be opened to the public in 1963.

The new Phoenix Baseball Stadium is being graded and concrete grandstand and bleachers are expected to be finished in early 1963.

The Hole-in-the-Rock picnic area (between the Garden and the Arizona Zoo) has been having a large attend-

ance and the City Parks Dept. is planning on enlarging its lakes.

Papago Park is quickly being transformed into a center for recreation and enjoyment. Our Garden will continue to serve as an outstanding educational attraction with its tours, classes, programs, botanical and horticultural exhibits.

VACATIONS

Are a needed excuse to get away from your daily routine to give you a better perspective of your job. Mrs. Earle and I certainly appreciated the opportunity to take our first extended vacation in years. We travelled up the west coast to Victoria, across Canada to Ontario, southwest to the Black Hills, south to Santa Fe and Las Cruces, west to Phoenix, then down to Alamos, Sonora.

We were fortunate to be able to visit many private gardens, botanical gardens, State, Provincial and National Parks, members of the Garden, friends and relatives.

We found several recently-opened botanical gardens and were quite impressed with the vast use of flowers to brighten up the short growing season throughout the northern states and western provinces. The other extreme was the tremendous display of wildflowers and shrubs this summer between Navajoa and Alamos, Sonora, Mexico due to the wettest season for several years.

We know that many of our members also had wonderful vacations this year as shown by the many postcards they mailed to our Staff members. We certainly enjoyed these cards and extend our sincere thanks.

(Continued on Page 84)

ACACIA ANGUSTISSIMA

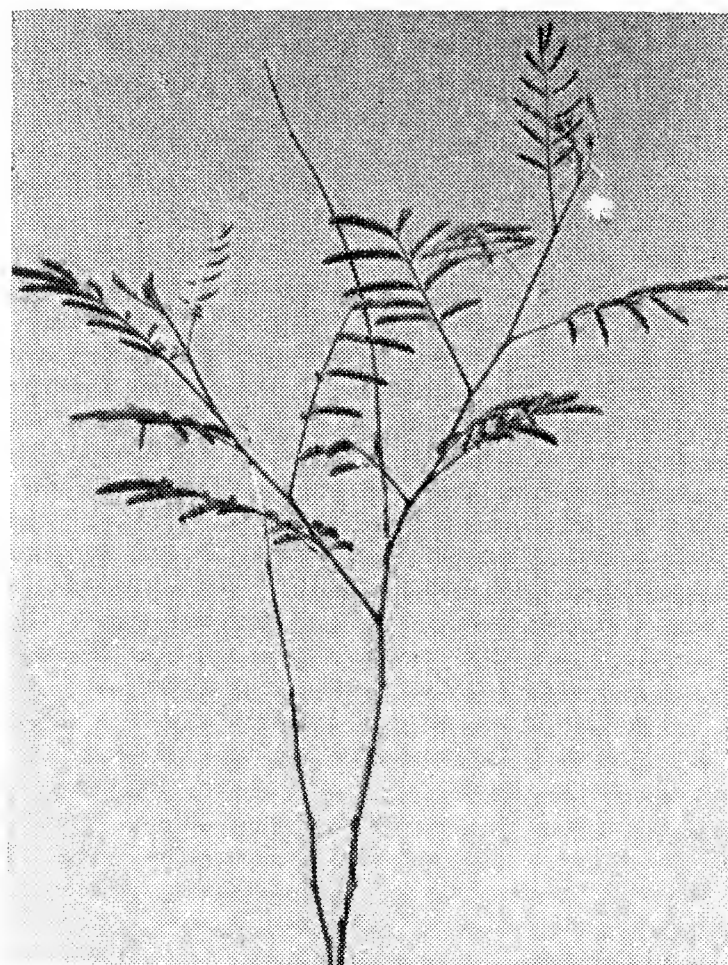
WHIT-BALL ACACIA FERN ACACIA

LEGUMINOSAE
(Pea Family)

By John H. Weber, Horticulturist

DESCRIPTION:

ACACIA ANGUSTISSIMA is a variable plant usually occurring as a many branched shrub less than one meter in height. In rare instances, it becomes a small tree up to four meters in height. Stems are unarmed and herbaceous, and in the colder sections of the range, these die back to a woody crown in winter.



A 3', 2 year old plant of *Acacia angustissima*

The feathery foliage is also variable; the pinnae numbering from six to fourteen pairs, and the leaflets from twenty to thirty-three pairs. Leaves measure eight to ten cm. or longer and the leaflets three to six mm. in length and one mm. or less in breadth. Flowering commences in May and continues into September. White flowers tinged with pink occur in large dense heads about thirteen mm. in diameter. The head is a much reduced

raceme with pediceled flowers, these emitting a delicate sweet aroma. Fruit consists of a thin-walled flattened pod, having no construction between the seeds. The brown pod is linear-oblong and measures four to eight cm. in length and eight to fifteen mm. in width. Early dehiscence results in quick seed dispersal. Seeds are gray with brown or black mottling. These are thick, oblong, and measure three to four mm. long and two to three mm. broad.

DISTRIBUTION:

Fern Acacia ranges from southern Florida and Missouri into Texas, New Mexico, and Arizona then south throughout Mexico and Central America. The type locality is Campeche, Mexico. Locally it extends from eastern Yavapai county south and east into Maricopa, Gila, Pima, Santa Cruz, Cochise, Graham, and Greenlee counties. ACACIA ANGUSTISSIMA is found growing at an elevation from 1,000 to 1,700 meters, generally on north and east exposures. This elevational range places the plant within the Desert Grassland and Oak Woodland types where it is in association with chaparral species such as lemon-bush (*Rhus trilobata*), scrub oak (*Quercus turbinella*), manzanita (*Arctostaphylos* sp.), mountain mahogany (*Cercocarpus* sp.), buckhorn (*Rhamnus* sp.), and silk-tassed (*Garrya* sp.). Fern acacia commonly occupies dry, rocky hillsides, mesas, and canyon slopes.

UTILIZATION:

Employment of ACACIA ANGUSTISSIMA in landscaping the desert scene or home premises has more value in the aesthetic rather than functional sense. An extended flowering period coupled with a fern-like foliage and delicate perfumed flower renders worthwhile consideration on the use of this plant.

Selectively pruned sprays are ideal for making temporary indoor arrangements and floral centerpieces. Two factors to be considered in placement are: winter dieback and a small to medium growth form.

CULTURE:

A full sun location having well-drained soil is desirable. Weekly irrigation should be provided during dry periods of the active growing season. As a



1/2" flower and buds of *Acacia angustissima*

shrub, this plant seldom exceeds a meter in diameter and spatial needs are quite limited. Light nitrogen feeding in early spring hastens new growth from the woody crown.

PROPAGATION:

Propagation of fern-acacia is easily achieved by seed. Pretreatment is necessary to overcome seed coat impermeability. Scarification of the coat by any means that allows water penetration will attain this aim. Seed viability is long term, but many seeds are infested with insect larvae and must be treated if they are to be stored. Growth rate is slow during the first year and best results are gained if the plant is container grown during this period.

AVAILABILITY:

ACACIA ANGUSTISSIMA is not known to be in stock in any commercial nursery.

REMARKS:

Fern-acacia has high browse value, being most palatable in spring and fall months. Wherever abundant, this plant has erosion control value as well.

REFERENCES:

Benson and Darrow—The Trees and Shrubs of the Southwestern Deserts.

Gentry, Howard S.—Rio Mayo Plants.

Kearney and Peebles—Arizona Flora.

Standley, Paul C.—Trees and Shrubs of Mexico.

BOTANICAL INSECTICIDES*

INSECTICIDES DERIVED FROM PLANTS

In the July, 1961, issue of Crop Comments, we started a series of articles on the history, development, and laws governing the use of insecticides. This article is the fourth of the series, and while previous articles, (July, September, November, 1961) dealt with the development of insecticides and State and Federal laws governing their use, we now

begin a discussion on the various classes of insecticides commonly used today.

Insecticides are classified according to their derivations. The oldest known insecticides are the BOTANICALS (insecticides obtained from plants.) Other commonly known classes of insecticides are the Chlorinated Hydrocarbons like DDT and Chlordane, the Organic Phos-

* Courtesy of CROP COMMENTS, Arizona Agrochemical Corp.

phates like Parathion and Phosdrin, and the most recently developed Carbamates like Sevin. There are other classes of insecticides which are less known; each of these classes will be discussed individually in future issue of Crop Comments, but for the present, let's review the oldest group of these chemicals which have been used to some extent from the earliest days of written history, and are still in common use today.

Several very useful insecticides are actually the products of growing plants. Most of these insecticides act as contact poisons and two of them, Pyrethrum and Rotenone, have the advantage of being highly toxic to insects, but harmless to warm-blooded animals. While some of these Botanical Insecticides have lost favor to the newer synthetic compounds, for many applications better chemicals have not been developed.

Probably the best known of the botanical insecticides is nicotine, which is extracted from those portions of tobacco plants, such as stems, which are unsuitable for smoking or chewing. The first known use of nicotine as an insecticide was in 1690, when tobacco was applied to pear trees in France to control the pear lacebug. However, it wasn't until 1828 that nicotine was discovered as being the active ingredient of tobacco. Since this discovery, the pure nicotine has been converted to nicotine sulfate to reduce its toxicity to humans. Prior to the development of the synthetic insecticides, nicotine enjoyed a very wide use, with the annual production in the United States running about 5,000,000 pounds. Although the commercial use of nicotine has been considerably reduced, it is still a favorite chemical of the home gardener for controlling aphids and other pests or ornamentals.

Another Botanical Insecticide which has seen extensive use is Rotenone. Rotenone (also known as Cube or Derris) was used by the native tribes of Africa,

India and South America at least as early as 1665 as a fish poison. The procedure used by the natives was to grind the plants and mix in water and gather up the fish when they had floated to the surface. These fish were perfectly edible as Rotenone is not poisonous to warm-blooded animals.

The first recorded use of Rotenone as an insecticide was in 1848 when Rotenone was recommended for the control of insect pests of Nutmeg Trees in Singapore. By 1939, the use of Rotenone in the United States alone had increased to over four million pounds per year, the majority being imported from Java, Malaya, and the East Indies.

The most common ingredient of today's home "Bug Bombs" is Pyrethrum, produced by grinding the flowers of certain species of chrysanthemums. Pyrethrum is highly prized for its quick knock-down and kill of houseflies, mosquitoes, and other flying insects. The use of Pyrethrum has increased steadily since its first commercial production in 1828 and several million pounds per year are currently imported into the United States. While pyrethrum chrysanthemums grow well in the United States, the difference in labor costs makes it cheaper to import from Africa and South America.

The most recently developed Botanical Insecticide is Sabadilla, obtained from the seeds of a species of lily which resembles barley in appearance. Sabadilla grows wild over large areas in Mexico, and to a lesser extent, the United States. Sabadilla is the active ingredient of Thriptox, which is widely used for the control of thrips on citrus and other crops.

While over 1,000 other species of plants have shown some insecticidal activity, few of these have been commercially developed due to their more limited effectiveness and the development of the more efficient man-made insecticides.

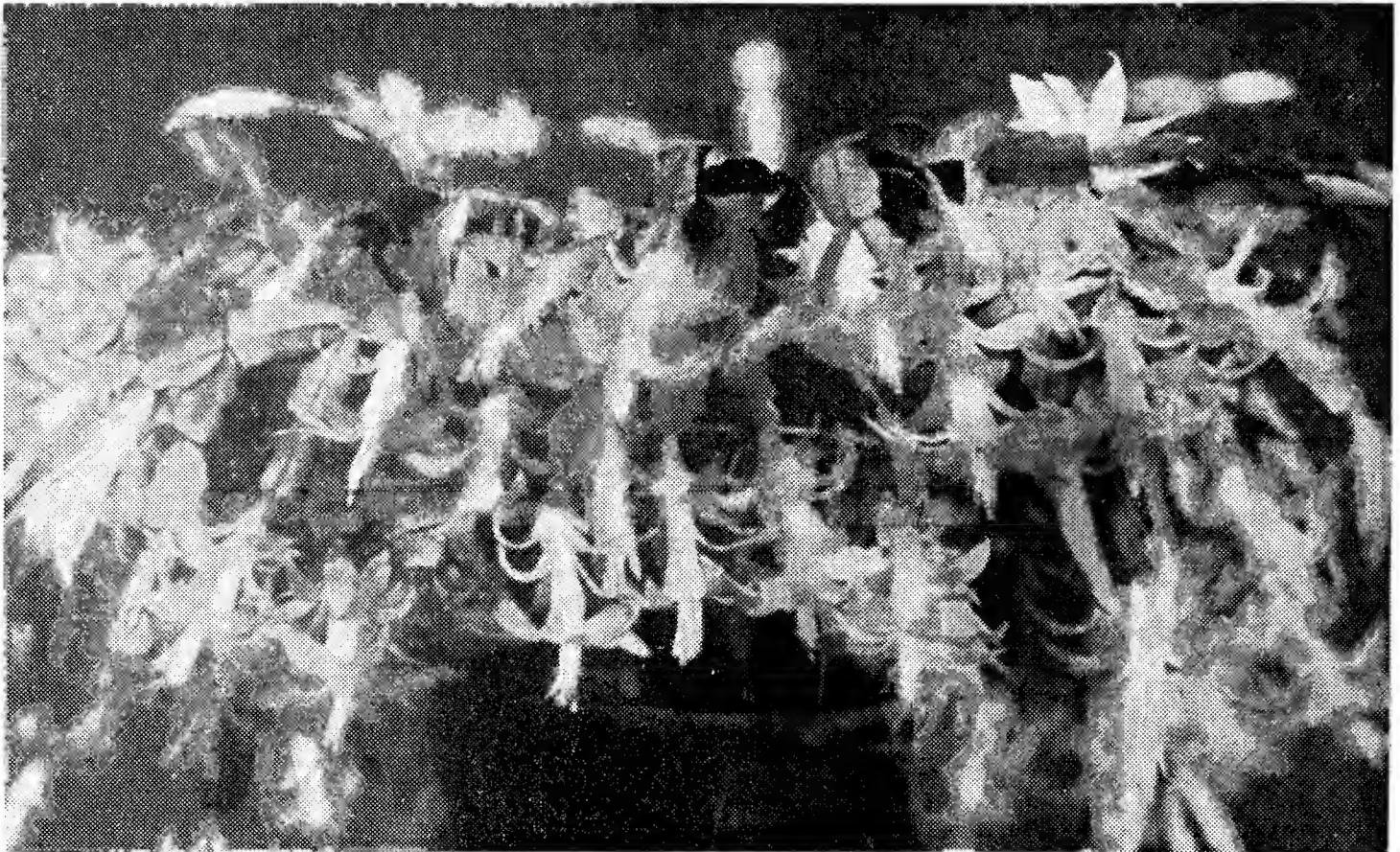
PLANT OF THE MONTH



Utah Juniper, Western Juniper (*Juniperus osteosperma*) is a 15'-40' tall cedar found in the dry plains, plateaus and mountains of the Juniper-Pinyon woodlands from western New Mexico through Arizona to eastern California, north to southern Nevada, Idaho and S/W Wyoming. Its single trunk and branches make excellent fence posts and fuel. Years ago the Indians used to eat the berries which are somewhat bitter.

HOW TO MAKE YOUR CHRISTMAS CACTUS BLOOM*

By Katherine B. Walker, Michigan



A potted *Schlumbergera bridgesii* in profuse bloom.

Botanically, Christmas Cactus is, indeed, a true cactus; but for its own well-being, it really should have been given some other common name. To many people, the word "cactus" connotes visions of extreme heat, sand, and dry air, and consequently these would-be gardeners give any and all cacti the growing conditions they assume (incorrectly, by the way) the plants might have been accustomed to. With Christmas cactus such treatment is fatal.

The plant is originally a native of Brazil, and there it grows upon trees as an epiphyte, in the manner of orchids. It doesn't particularly care for heat, it would starve in sand, and dry air is an anathema to it. So to enjoy the greatest success with Christmas cactus, just forget that it belongs to the cactus family.

One of the most frequently asked indoor-garden questions, is "how can I make my Christmas cactus bloom?" My

own procedure is to plan the family vacation for early fall, since I seem unable to leave the plant alone if we are in the same house—and the one thing Christmas cactus wants most of all, from mid-September until the first of November, is to rest. Between getting ready to go, and getting the house back in running order when I return, I'm too busy to do my usual heavy-handed watering, and the Christmas cactus really enjoys the partial neglect.

Of course there is more to growing these plants than giving them an autumnal rest. First of all, since they are normally epiphytes, they must be protected against water-logged soil. At the same time, they need ample water during their growing periods. Use a loose potting soil composed of loam and leaf mold, with enough sand added to provide good drainage. When using solid-bottom planters instead of clay pots, I like to use a mixture of sand, peat and

* Reprinted from Flower & Garden Magazine for Mid-America.

chicken-grit (one part each), which retains moisture well and yet allows some aeration of the roots. This mix, by the way, is excellent for many plants besides Christmas cactus . . . try it with African violets and watch them flourish!

Don't pot Christmas cactus too firmly; if it tends to lop over when newly-potted, brace it in position until the roots have spread enough to hold it upright.

How to Water

Watering and humidity play important roles in the growth of these plants. Each grower soon develops a personal preference in how and when to water, but as a general rule, the plants should be watered heavily when in active growth, and kept on the dry side during the fall. At no time should the plants be allowed to wilt from lack of moisture. Give them gentle showers once in a while, using tepid water. This not only stimulates new growth, but also keeps the plants dust-free and discourages insect infestation. Try to give them a humid location—I have two in the kitchen and one in the laundry-room,



Close-up of flower of *Schlumbergera bridgesii*.

the only places in my house where they don't seem to suffer from dry air. If your home is excessively dry, set the pots on pebble-trays to increase humidity.

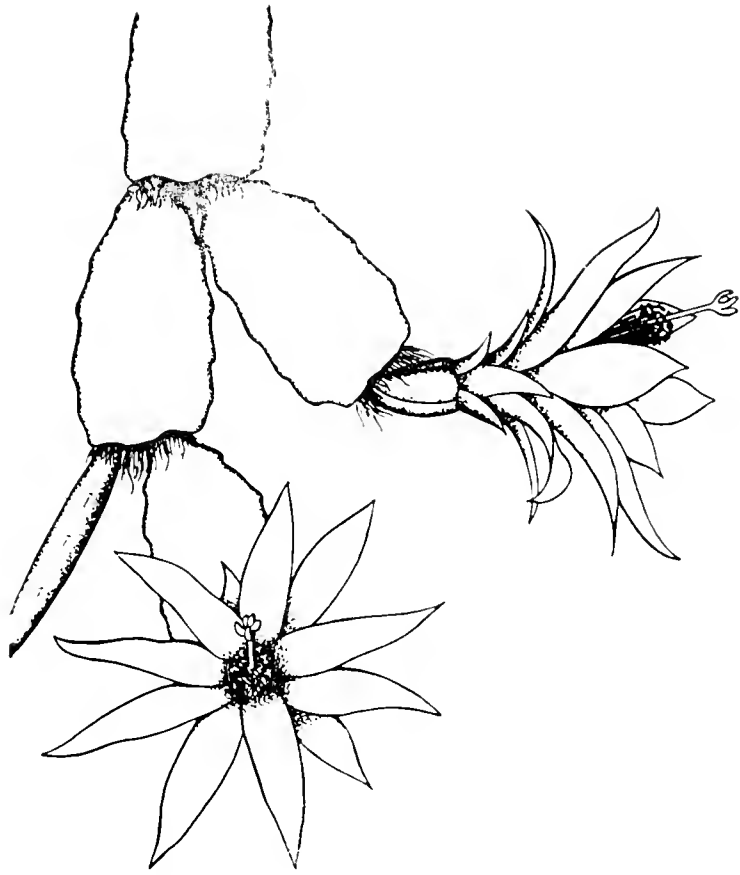
The temperature tolerances of Christmas cactus seem to range from below freezing to 'way past stifling hot. I've seen them growing beautifully in greenhouses where the air was so warm I could hardly breathe, yet the ones on my kitchen-window ledge, where ice forms on the inside of the glass in very cold weather, go right ahead and bloom as if they enjoyed having cold feet. I believe the plants are able to adjust to their surroundings, provided they are given time to do so; plants constantly shifted from one place to another, or put outdoors for the summer, seem to lose some of this adaptability.

Correct light intensity is also important to these jungle natives. Too much sun bleaches the foliage, and may burn new growth, so try to place them in an east or north exposure. If only south or west windows are available, give enough shade to diffuse the sunlight.

Proper feeding is necessary, too. Some growers like to reduce both plant food and water for a brief period after flowering ceases, but I prefer to give regular liquid feedings throughout the entire growing period. This, like watering, soon becomes a matter of personal preference. You can readily determine the plant's need for additional food by the color and texture of its joints; if they are a good green, and fill out properly, the plant is well-fed.

Propagation

To propagate Christmas cactus, take cuttings of any length, from one joint to several inches. Insert one joint deep (single-joint cuttings should be inserted to half their length) in moist potting soil, and do not disturb for six months. Cuttings will also root in plain water, and may be grown on for some time before potting. Eventually, however, the



Line-drawing of *Schlumbergera gaertneri*. Marshall & Bock-Cactaceae

older joints become rounded with age, and the plant begins to take on the appearance of a rather odd-looking tree; it should be potted long before reaching this stage. And if this growing-in-water seems to contradict my earlier statement that the plants need to be kept on the dry side during fall, I can only agree that it certainly does! It is inconsistencies like this that make horticulture such a fascinating hobby!

Far from being the difficult plant that many people think it is, Christmas cactus is one of the easiest to grow and to bring into flower. If a plant refuses to set buds, the trouble probably lies with the care it received six months prior to the time bloom was expected. If it sets buds and then drops them, you've been careless with the water, giving too much or too little, or else you moved the plant and it's too busy getting acclimated to go on with the business of blooming. Put it in a nice steamy east window, remember to give it food and water and a six weeks' rest in the fall, and your plant will burst forth with its own Merry Christmas greeting next year.



Line-drawing of *Zygocactus truncatus*. Marshall & Bock-Cactaceae

Editor's note: In this article no attempt has been made to straighten out the botanical names of plants commonly called "Christmas cactus." The plant most often sold as the "Christmas cactus," and labeled *Zygocactus truncatus* is in reality a *Schlumbergera bridgesi*. Many collections contain both of these Christmas cacti. The *Schlumbergera* (pictured) does not have the sharp teeth on the margins of its leaves like those of the *Zygocactus*.

CYGON, A NEW INSECTICIDE

Cygon, a new insecticide recently released by American Cyanamid Corporation shows promise for easing the insect problems around the home. Rose growers especially will welcome this material for giving long lasting control of thrips, aphids and mites.

The reason for the value of Cygon lies in its systemic activity. The chemical can be applied to the soil for uptake by the plant roots. After being translocated to the leaves, the material persists for two weeks or more, killing the insects before they can cause serious damage.



Horticulturist John Weber and your Editor inspecting stems of *Lemaireocereus hollianus* in the Garden. This photo and several others and a story "Blooms in Desert Darkness" by photographer Willis Peterson were featured in the ARIZONA WAYS AND DAYS, July 15th.

(Continued from Page 75)

SUMMER CONSTRUCTION

Has been at a standstill in the Garden this summer due to the fact that all our efforts have been centered on getting water to the plants. Hoses and hand-watering have continued from 7 A.M. to 9 P.M. daily through seven days of the week. Rain, rain is what the plants need but so far this summer it has avoided us like a plague. We hope that a shower or two will descend upon us before cool weather as the plants need to take in some moisture before the cold nights of late October when the growing season ends for our cactus.

Fortunately we have not had too many cactus plants die due to lack of moisture but they are quite dry and desiccated (wrinkled). Our trees and shrubs have done quite well and many are now in bloom.

SEPTEMBER

Is usually a quiet month in the Garden with travel and speaking engagements beginning in late October but this September is an exception as shown by the following schedule:

Sept. 9th—Cactus and Succulent Society Annual Meeting—Los Angeles.

Sept. 11th—Collect seed—Alamos, Sonora, Mexico.

Sept. 15th—U.S.D.A.—Nogales, Ariz.

Sept. 17th—Yuma Garden Clubs—Yuma, Ariz.

Sept. 17th—Yuma Botanical Society—Yuma, Ariz.

Sept. 28th—Ist Presbyterian Church, Tempe, Ariz.

NEW LETTERHEAD

Has been designed by our Board member, Reg Manning. Below is shown the new envelope-head which will also be used on many of our publications to symbolize the Garden. The letterhead is much larger and the background of the 'D' has orange clouds to indicate the setting or the rising sun. We have had many favorable comments on this unique design and we do extend our thanks to Reg for his fine job.



CHANGE OF ADDRESS

Please note our new mailing address, as shown in the above envelope-head, of P. O. Box 5415, Phoenix 10, Ariz.

The main reason of the change was that we daily receive mail addressed with PHOENIX and it has then been delayed a day or two when it was transferred to our TEMPE address. Our box is located in the new post office located at 2800 E. McDowell Road, just 2½ miles west of our McDowell Road entrance to the Garden.

Much of the Garden's business is transacted along McDowell Road and this factor will make an additional convenience and saving of time.

GARDENS ACTIVITIES FOR OCTOBER

October 2nd.....Cactomaniacs meeting, 8 P.M.
Movie, "Arizona Conquest."

SAGUAROWLAND

BULLETIN

DESERT BOTANICAL GARDEN OF ARIZONA

VOL. XVI.

October

No. 8



Flowers of *Lemaireocereus hollianus*. An unusual columnar plant from Tehuacan, Mexico. Blooms freely in the Garden until late Nov. See page 83 Aug.-Sept. Bulletin for photo of the plants.



REG-MANNING

SAGUAROLAND BULLETIN

Published and owned by the Arizona Cactus and Native Flora Society, sponsors of the Desert Botanical Garden of Arizona. P.O. Box 5415, Phoenix 10, Arizona. Saguaroland Bulletin attempts to promote the Garden and to provide information on the desert plants and their culture. Subscription \$5.00 per year, the subscription including active membership in the Society and the Desert Botanical Garden. Issued 10 times a year.

W. HUBERT EARLE, Editor

Volume XVI

October, 1962

No. 8

Arizona Cactus and Native Flora Society

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Desert Botanical Garden of Arizona

STAFF

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Student Horticulturist.....	Don Cole

GARDEN OPEN DAILY 9 A.M.—5 P.M.
Including Week-ends and Holidays

PROSOPIS JULIFLORA

LEGUMINOSAE
(Pea Family)

MESQUITE

By John H. Weber, Horticulturist



A 30' *Prosopis juliflora* tree growing in the Garden along with Salt-Bush (*Atriplex canescens*) and Yellow Palo Verde (*Cercidium microphyllum*)

DESCRIPTION:

Mesquite is extremely variable in form, ranging from a spreading shrub to a large tree. Maximum height attained is about sixteen meters (50'), with a trunk diameter of one meter. The spreading crown consists of numerous crooked branches armed with stout yellowish spines. Beneath a thick dark bark lies a dense hard wood. As with many desert woods, the heart wood is red-brown and the sapwood is yellow. Two varieties of *Prosopis juliflora* are found in Arizona; one has glabrous leaves and the other has leaves covered with dense hair. Mesquite becomes deciduous when subjected to near freezing temperature. Primary leaflets are in one or two pairs, the secondary leaflets usually number more than nine pair. These secondary leaflets are linear-lanceolate to oblong in shape, from five to ten mm. long, and are spaced

from two to eighteen mm. apart. Flowers are small, greenish-yellow and fragrant. These are arranged in narrow cylindrical spikes five to eight cm. long and are present from April through August. Fruit is a long compressed pod eight to twenty cm. "5" long and 1 cm. wide. This yellowish pod is partly constricted between the seeds and is indehiscent, not releasing the seed. The obovate seed ripens in August and September and is frequently infested with weevil larvae.

DISTRIBUTION:

Mesquite is common on sandhills and plains, desert slopes and mesas, and stream bottom lands and washes. In Arizona it occurs in the desert grassland and lower Oak woodland types at elevations ranging from 350 to 1550 meters (1000'-5000'). Soils vary from drift sand to deep bottom land soil where maximum growth is attained.



A low 12' *Prosopis juliflora* tree along the Pinal Pioneer Highway, 30 miles north of Tucson

Mesquite has extensive distribution on the American continent; from southwestern United States on the north through Mexico and Central America into northern South America on the south. It ranges from eastern Texas, Oklahoma, southern Kansas; west through New Mexico and Arizona; into southern California, southern Nevada, Southwestern Utah and southeastern Colorado. In Arizona *Prosopis juliflora* is found in the southern central and northwestern parts, extending up the Colorado, Salt, Gila and Verde River drainages.

UTILIZATION:

The native mesquite of southwestern United States is not utilized in landscaping to the extent that *Prosopis chilensis* is so used. In dense plantings it provides a screening effect and in tree form will produce partial shading for tender succulent plants. In thicket

plantings mesquite offers excellent cover for small wildlife and nesting birds.

CULTURE:

Optimum growth occurs on deep well drained soils with weekly irrigations during the dry hot summer months. Moderate applications of nitrogen fertilizer in spring and late summer is beneficial.

PROPAGATION:

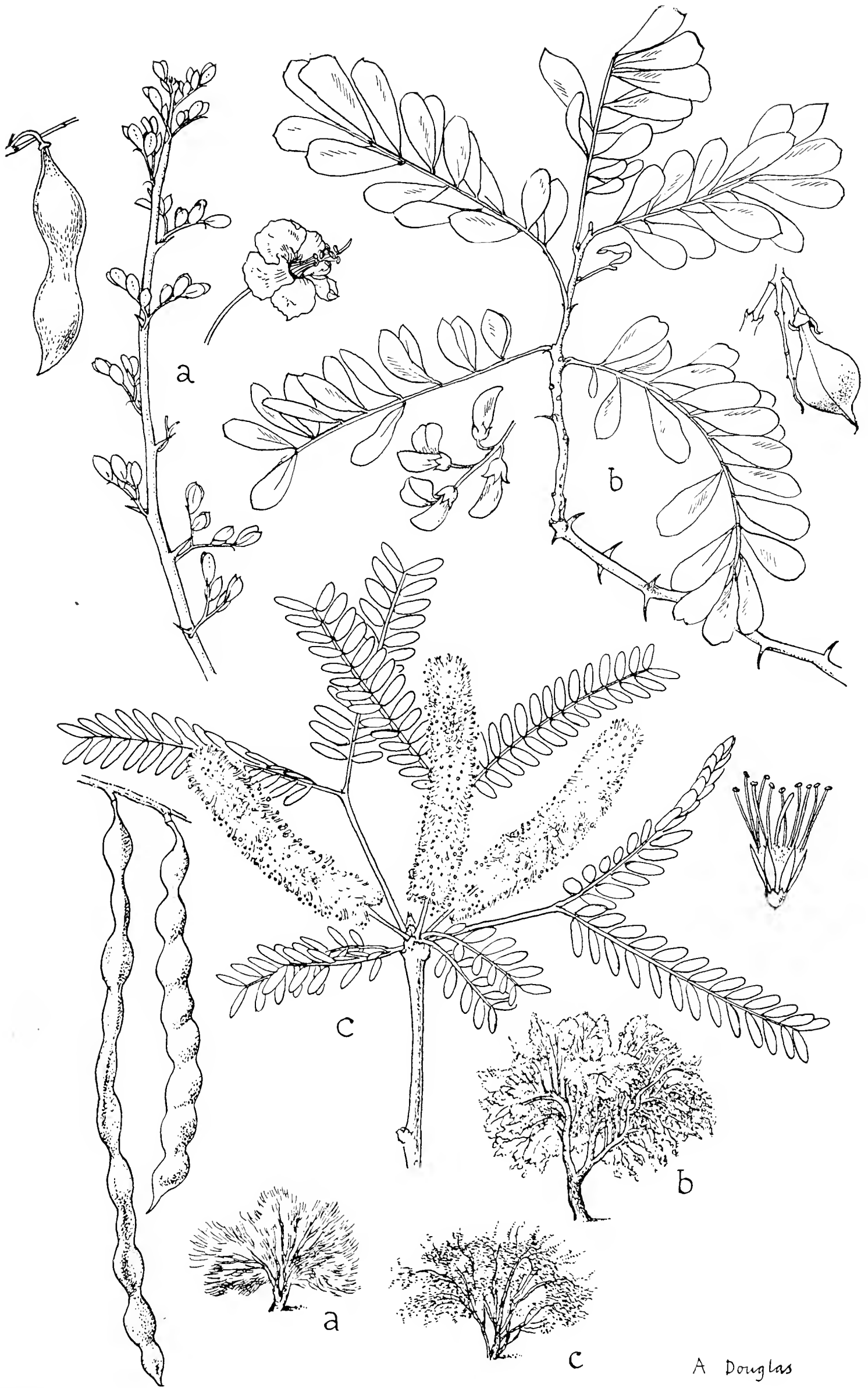
Mesquite exhibits seed coat impermeability and the seed must be treated to allow germination. Mechanical scarification is effective as well as soaking in concentrated sulfuric acid for 15-30 minutes. It can also be overcome by placing the seed in boiling water and allowing them to soak for 24 hours while the water cools. Temperature range from 80-85 degrees is ideal resulting in a high germination rate. The growth rate of the native mesquite is quite slow, but that of the Chilean Mesquite is rapid.

DESERT TREES, shown on opposite page:

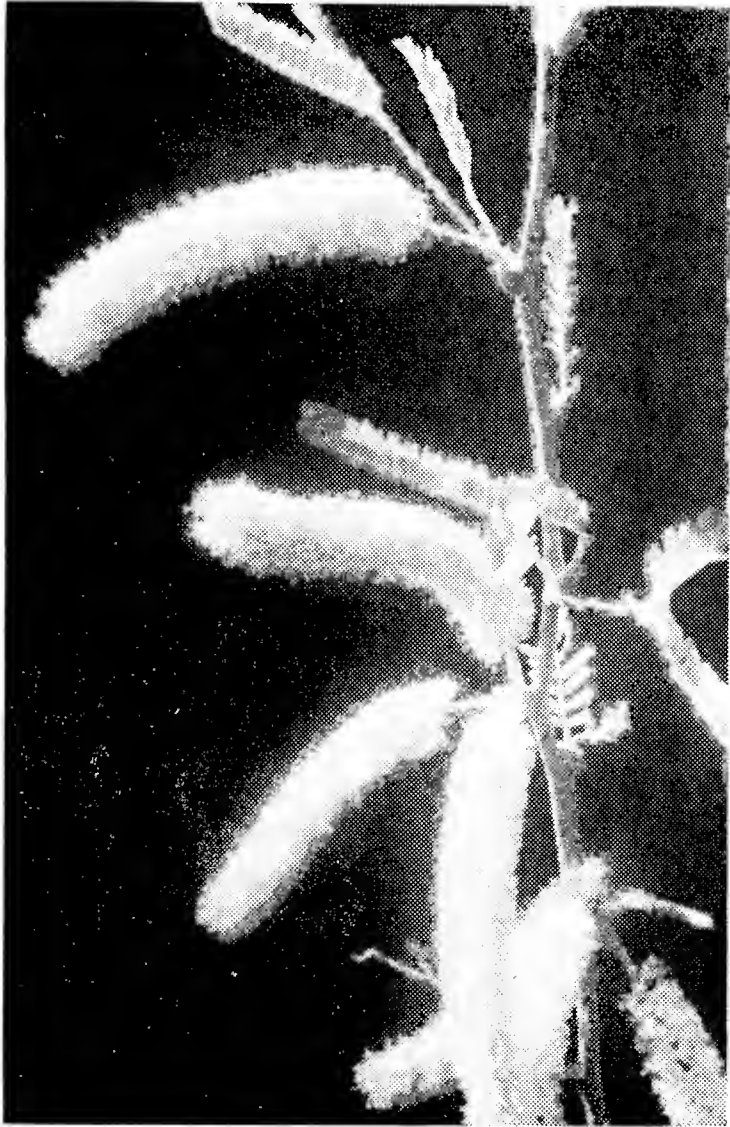
(a) Blue Palo Verde, (*Cercidium floridum*) 2/3X

(b) Ironwood, (*Olneya tesota*), 1X

(c) Mesquite, (*Prosopis juliflora*). Spray 1X, fruit 2/3X. flower 10X



A Douglas



Mesquite with catkin-like flowers
i/3X



Cluster of Mesquite fruit 1/4X

AVAILABILITY:

Prosopis juliflora is available only in a few nurseries specializing in desert trees and shrubs. The Chilean Mesquite is in supply and is extensively planted. It freely hybridizes with the native mesquite producing several intermediate forms.

REMARKS:

Mesquite pods are rich in protein and are highly palatable to livestock, wild Burros and browsing wildlife. The flower nectar produces a high grade honey. In the past it has been extensively used for fuel and fence posts.

REFERENCES:

- Benson & Barrow—The Trees and Shrubs of the Southwestern Deserts.
- Dayton, W. A. — Important Western Browse Plants.
- Kearney & Peebles—Arizona Flora.
- Little, Elbert L.—Southwestern Trees.
- Standley, Paul C.—Trees and Shrubs of Mexico.
- Dept. of Agric. Miscel. Publ. #654—Woody Plant Seed Manual.

GARDENS ACTIVITIES FOR OCTOBER

October 2nd.....Cactomaniacs meeting, 8 P.M
Movie, "Arizona Conquest."

PLANT OF THE MONTH



One-seed Juniper, Cedar, (*Juniperus monosperma*) growing in the Oak Creek country, Ariz. A spreading, no-trunk tree with low upward-curved branches. Found at 3000'-7000', widely spread over plateaus, plains and upper desert grasslands. Its berries are relished by birds and animals and are used to give a certain taste to gin. In some areas vast stands of Juniper have been uprooted to allow grass to re-establish for rangeland.

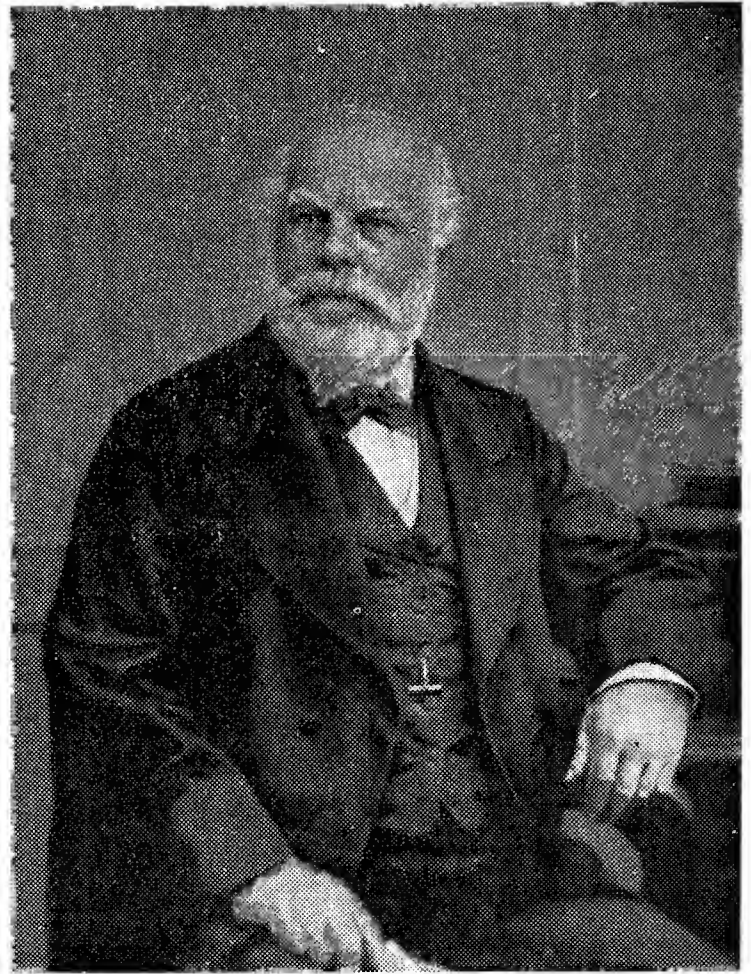
DR. GEORGE ENGELMANN

1809-1884

Dr. George Engelmann was an outstanding physician in St. Louis and by avocation an excellent botanist. He emigrated from Germany in 1832 after graduating from Wurzburg, where he received his Doctor of Medicine, 1831. He travelled through the Mississippi Valley for three years before setting-up, in absolute poverty, a medical practice in the frontier town of St. Louis which at that time had a population of eight to ten thousand persons.

In a matter of a few years he prospered and became a leading physician. Despite the strict, daily urgencies of his practice he found time to investigate the many strange plants that were brought back to St. Louis by members of military and railroad expeditions that were exploring the far west.

He was a pioneer in cacti research but also had a great interest in oaks, conifers, grapes, **Agaves**, other groups, and meteorology. After his death in 1884 a list was compiled of over one hundred of his publications that had appeared in U. S. Government Reports and other botanical publications. He wrote in a very small script and his botanical illustrations are outstanding examples of detail as shown on the following four pages of the Bulletin. His best known work, "Cactaceae of the Boundary," 1859, was combined with several of his other works by William Trelease and Asa Gray and published as "Botanical



George Engelmann, M.D.

Works of the late George Engelmann," 1887, as collected for Henry Shaw, founder of the Missouri Botanical Gardens in whose library can be seen all of George Engelmann's original manuscripts.

It is rather interesting to botanists that Dr. Engelmann did not see in the wild, until his travel years later, the many plants that he had previously studied and described. He did a most remarkable job and his descriptions and plant names are still valid.

Several botanists described new species of plants and named them in honor of Dr. Engelmann: a few are as follows;

Engelmann's Spruce—*Picea engelmannii* Parry 1863

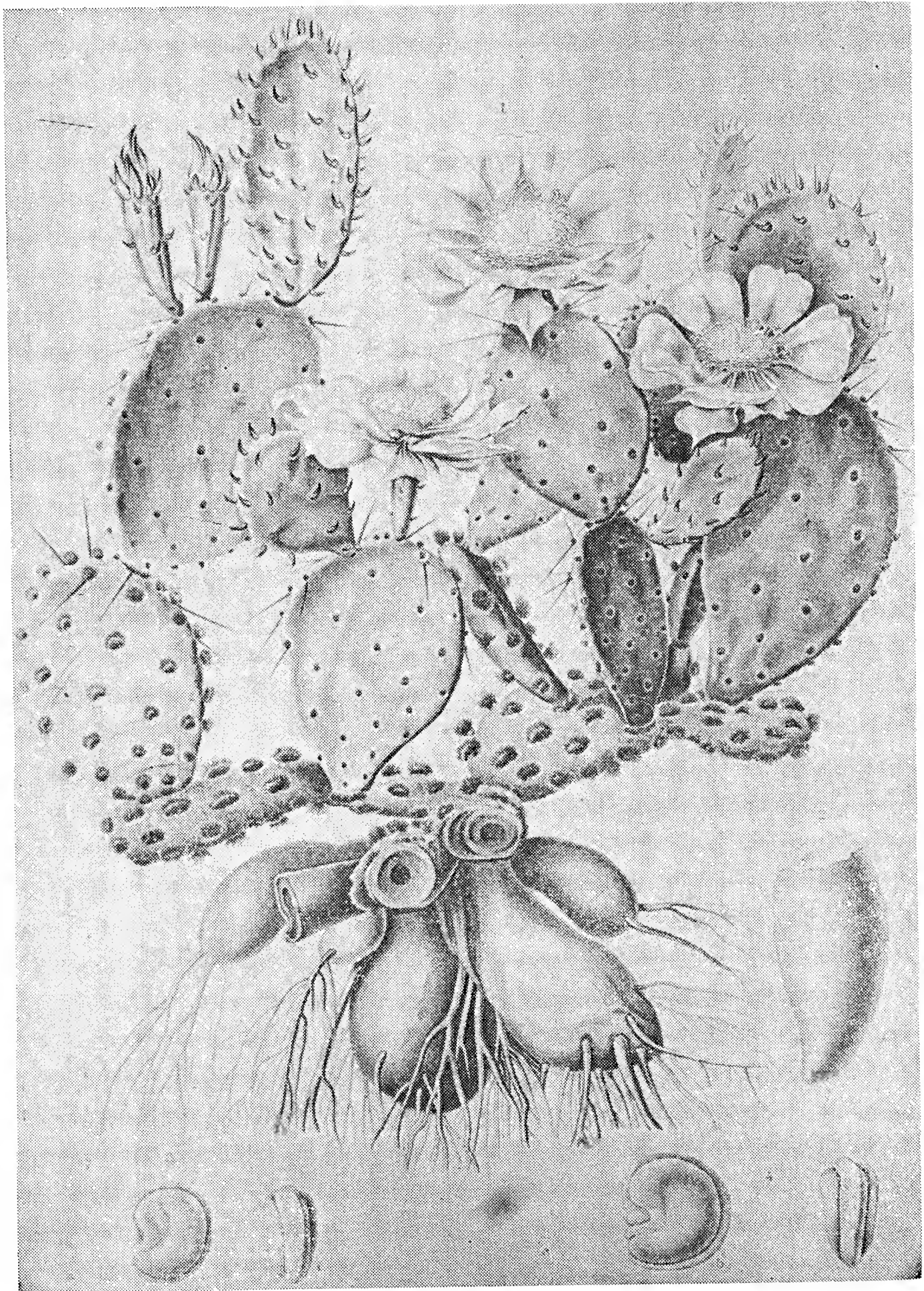
Engelmann's daisy—*Engelmannia pennatifida* Torrey & Gray 1841

Engelmann's Prickly Pear—*Opuntia engelmannii* Salm-Dyck 1850

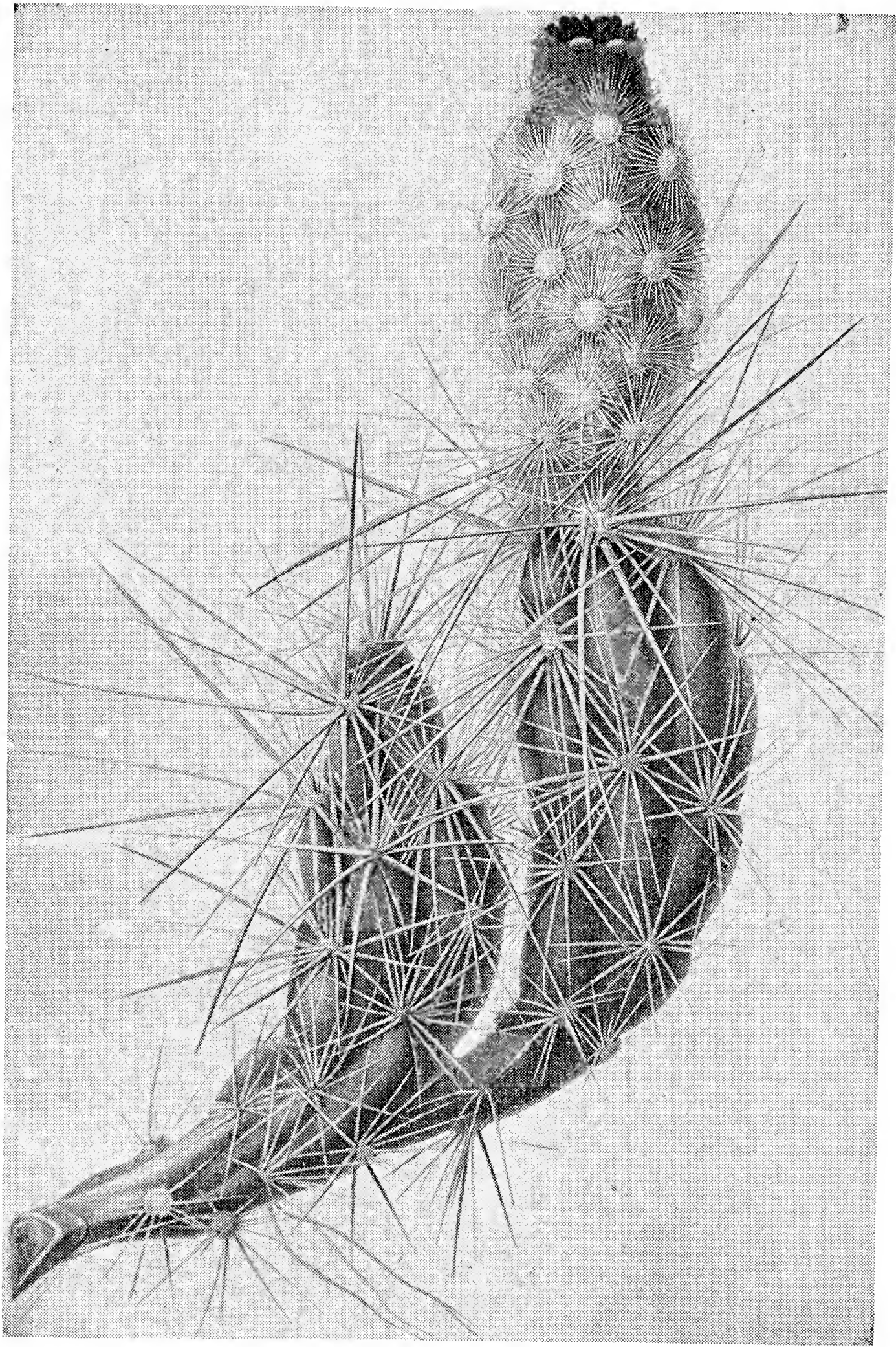
Engelmann's Hedgehog—*Echinocereus engelmannii* Parry & Rumpler 1852

Recurved barrel—*Cactus engelmannii* Kurtz 1891, relegated to synonymy, now—*Coryphantha recurvata* Engel 1863, B&R 1923

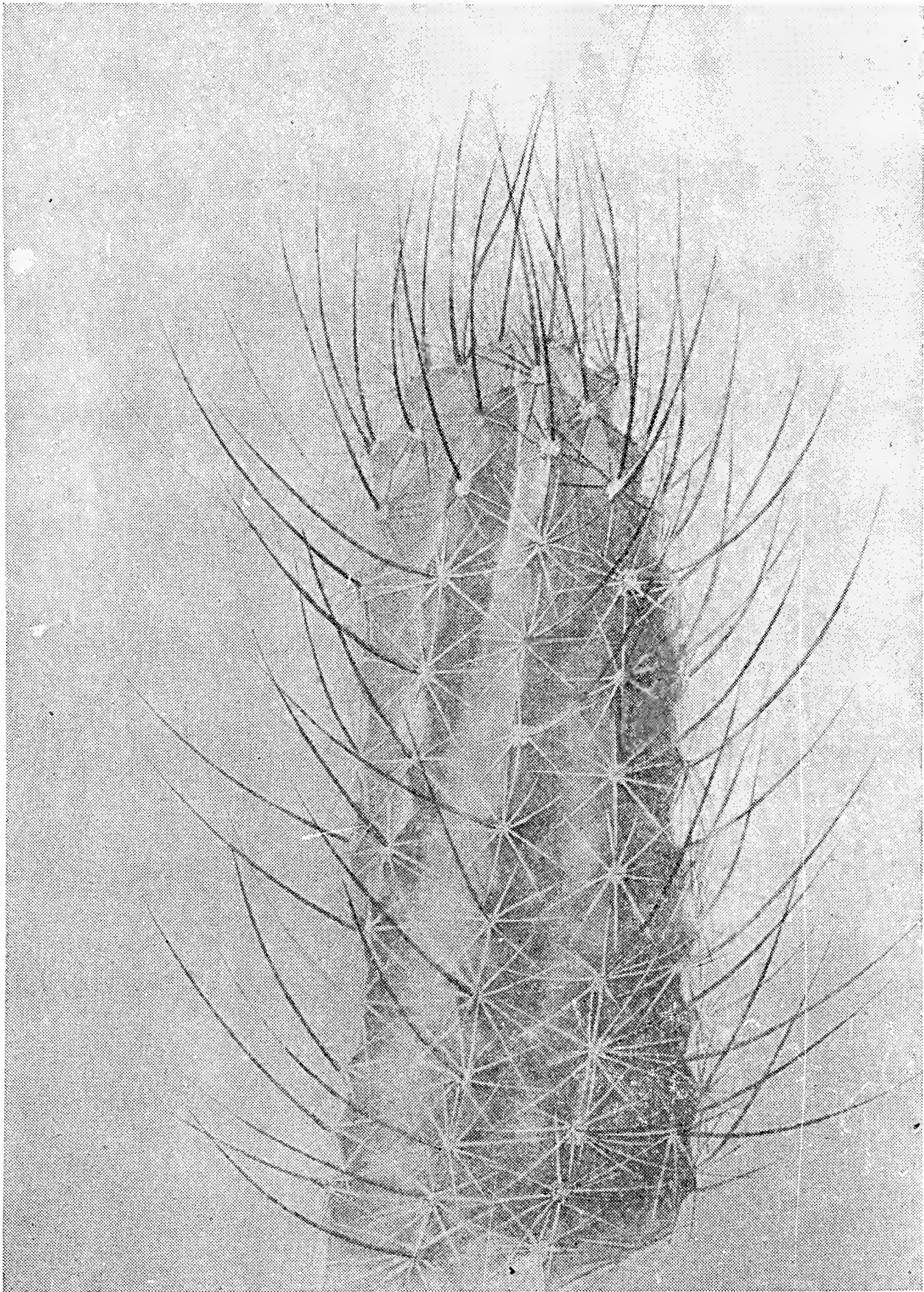
Mulle Barrel—*Mammillaria engelmannii* Cory. *Rhodora* 1935, relegated to synonymy, now—*Coryphantha muehlenpfordtii* Poselger 1853, B&R 1923



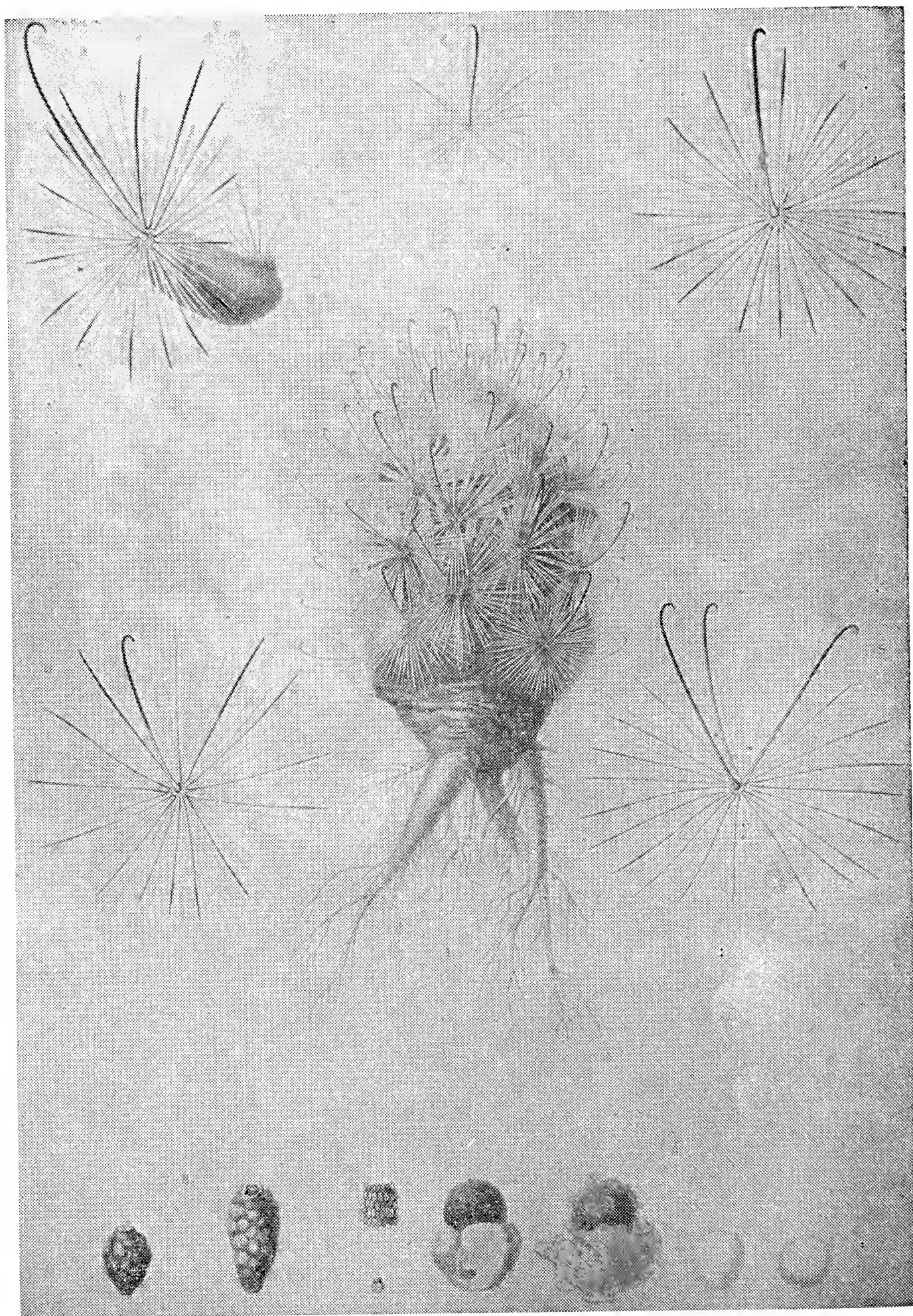
Opuntia macrorhiza Engelman 1850. A plant similar to *Opuntia compressa* except for its swollen roots. It is found from Missouri to Arizona in grasslands, Oakland and Rocky Mountain forests at 4,500' to 6,000'. Its flower is yellow with a reddish to purplish center.



Opuntia stanlyi Englemann in Emory's Military Reconnaissance 1848. A low growing 4"-12" *Corynopuntia* (club-shaped) plant that forms wide mats found in S/W New Mexico and eastern Arizona. It was named for J. M. Stanly, an artist member of Emory's expedition.



Echinocereus fendleri Engelmann in Gray Pl. Fendl. 1849. A variable plant growing in Texas, N. M., Ariz., Sonora and Chihuahua. Named for August Fendler (1813-1889) who collected the plant in Santa Fe, N. M. Blossoms vary from light to dark purple; the spiny fruit are quite edible.



Mammillaria tetrandra Engelman American Journal of Science 1852. A plant similar to *Mammillaria microcarpa* except for a soft body and seeds bearing a corky base. Found in Ariz., Calif., Utah, Nevada and Sonora. This fishhook pincushion has lovely pink to purple blossoms followed by smooth, red, edible fruits.

SAGUARO

BULLETIN

DESERT BOTANICAL GARDEN OF ARIZONA

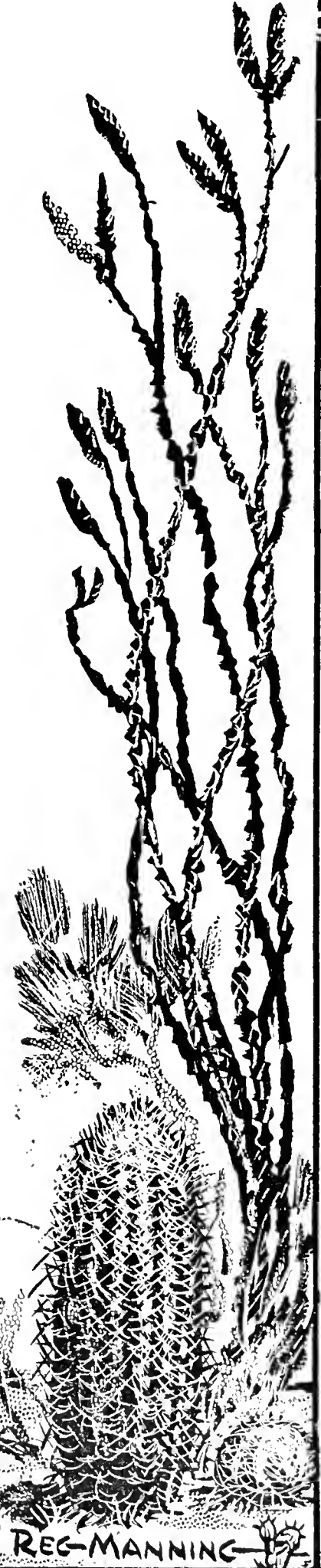
VOL. XVI.

November, 1962

No. 9



Arizona Queen of the Night, (*Peniocereus greggii*) 2 oz., 5" long, orange-red edible fruit ripens in late Sept. and early Oct.



REG-MANNING

SAGUAROLAND BULLETIN

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W. HUBERT EARLE, Editor

Volume XVI

November, 1962

No. 9

Arizona Cactus and Native Flora Society

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Desert Botanical Garden of Arizona

STAFF

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GARDEN OPEN DAILY 9 A.M.—5 P.M.
Including Week-ends and Holidays

NOTES FROM THE CORNER OF THE EDITOR'S DESK

The Garden's fall and winter program started with a large group of Cactomaniacs meeting Oct. 2nd, and will get into full swing in November with lectures, classes and speaking engagements.

The hot fall weather has hindered our clean-up work in the Garden but our able horticulturist John Weber and staff now have many of the beds dressed-up and the Garden is now assuming its usual spick and span appearance which brings forth favorable comments from our many visitors.

CACTOMANIACS

Are a group that have met the first Tuesday of each month during the winter months for the past twelve years under the able leadership of Chief Cactomaniac Charles Mieg. Their membership is within that of the Garden but all persons are invited to attend. Added features of their programs this winter will be the showing of movies and the discussion each meeting of a different genera of cacti. Standard Oil of California and Arizona State University will furnish the following films:

- Nov. 6—Wind and Spray
- Jan. 8—Water—Fountain of Life
- Feb. 5—Fish-On
- April 2—Morning Star
- May 7—Weather—Breath of Life

CLASSES

Will be held each Wednesday at 3 P.M. and last for one hour at the Webster Auditorium on "Identification, Growing and Use of Desert Plants." These courses will be held in the fall, winter and spring and are outlined as follows:

- Deserts—how formed and their plants
- Identification of Succulent Plants
- Culture of Succulent Plants

Identification of Desert Trees and Shrubs

Culture of Desert Trees and Shrubs

All-day Field Trip for Identification of desert plants

The above course will begin Nov. 7th, the winter course January 9th and the spring course March 6th. Attendance is usually about 45-60 persons each week but a larger group is expected this year due to the many inquiries we have had the past month.

LECTURES

Are given each Thursday at 3 P.M. in the Webster Auditorium and each usually lasts about thirty to forty minutes. Kodachrome slides are used for the following subjects which will run consecutively until April 25th:

- Arizona Cacti in Bloom
- Arizona Wildflowers in Bloom
- Arizona Trees and Shrubs
- Arizona Birds, Animals and Reptiles
- Arizona Scenics
- Succulent plants other than Cacti
- Collecting plants in Mexico

DESERT NOTES

By Hank Mochel, 29 Palms, Calif. is a package of exciting desert wildflowers and cacti notes just recently added to the Garden's Book Store. Each box has 8 cards for \$1.00 illustrating either Palo Verde, Yucca, Joshua Tree, Desert Willow, Sand Verbena, Desert Lily, Phacelia, Mallow and many other blossoms. They are well printed from detailed water color and pen paintings and warrant your inspection. Incidentally they would make excellent Christmas cards, but you would have to 'write-in' your own greetings. We call your attention to these cards as they are quite unusual and just recently created by artist Hank Mochel.

CASSIA WISLIZENII A. Gray

LEGUMINOSAE

SENNA

(Pea Family)

By JOHN H. WEBER, Horticulturist

DESCRIPTION:

Cassia wislizenii as a large shrub attains a height from one to three meters (3'-14'). Branches are spreading, ascending and somewhat stiff. The bark of the stem and branches is brown or grey-brown and exhibit lenticles that are conspicuous. Leaves are deciduous beginning to fall before the first frost. Leaflets are in two to four pairs, each rounded at the apex with a small projecting point, elliptic to oval in shape. They are thickened and measure to five mm. in width and ten mm. in length. Stipules are present and prominent.

The flowering period is prolonged, ranging from June through September. The large yellow flowers, up to four cm. in diameter, are in terminal or axillary racemes. The inflorescence, however, is few flowered. Stamens number ten. Fruit consists of a linear, strongly flattened pod seven to twelve cm. in length and up to 8 mm. wide. Seed is yellow-brown to brown in color and oval to almost square in shape.

DESCRIPTION:

This shrubby senna ranges in distribution from the States of Quertaro, San Luis Potosi, Tamaulipas and Chihuahua in Mexico into southern Texas, southwestern Mexico and southeastern Arizona. In New Mexico it is found in Hidalgo and Luna counties and in Cochise County of Arizona. *Cassia wislizenii* is found growing at an elevational range from 1,200 to 1,500 meters (3800'-4700') most generally on limestone outcrops or soils derived from that source. It occupies rocky hills, dry slopes and mesas within the desert and desert grassland.

UTILIZATION:

Cassia wislizenii is a shrub that has long been overlooked as a desirable ornamental for southwestern landscaping.

It can be used as a foundation plant or as a specimen plant, singly or in groupings, in open areas. A prolonged period of flowering with masses of large yellow blooms negates the winter deciduous period. This shrub is an ideal replacement for those *Cassias* in the trade that have only a short flowering term during spring months.

CULTURE:

A full sun exposure will serve, however, a partially shaded site is preferable in low desert areas. Regular weekly irrigation during dry summer months is required. With optimum growing conditions this *Cassia* attains considerable size so that space limitations must be taken into consideration in placement. Top mulching with manure conserves moisture during summer months. Within its range this plant receives more rainfall than is accorded our low desert regions.

PROPAGATION:

Germination is slow and many seeds appear to be infertile. The seed coat is thin, but durable and scarification will hasten water penetration. Growth rate is slow in the seedling stage and only moderate thereafter.

AVAILABILITY:

Cassia wislizenii has been offered by a few local southwestern nurseries, however, it has been in short supply and is not known to be a stock item with large wholesale growers.

REMARKS:

Protection from rodents should be afforded this plant during extended drought when forage is in short supply.

REFERENCES:

Benson and Darrow — Trees and Shrubs of the S/W Deserts.

Kearney & Peebles—Arizona Flora.

Standley, Paul C.—Trees and Shrubs of Mexico.



Cassia wislizenii seedling plant, 28" tall, 2 years old and of blooming size.



Cassia splendida is a recent import into Southern California from South America. Growing at home of John Rhuart, Phoenix.



Cluster of *Cassia corymbosa* flowers $\frac{1}{2}$ X. A free flowering CASSIA that blooms through our summer and is semi-hardy in higher elevations. Above plant now growing at home of John Rhuart, Phoenix. This plant has been imported from Argentina and is found in some local nurseries.

ROOTS OF MAMMILLARIA MICROCARPA



Single, double and a fasciated root emerging from healed portion of *Mammillaria microcarpa*.

Succulent plants are noted for their peculiar ability to develop their bodies or stems into grotesque fasciations or crests. As yet, no definite answer has been found as to why they assume these forms.

Last spring, the above Fish-hook pin-cushion, (*Mam. microcarpa*) developed rot at its base so Biology teacher, Paul Bricker, Coronado H. S., Scottsdale, Ariz., cut off the rotted portion and set the plant aside to heal.

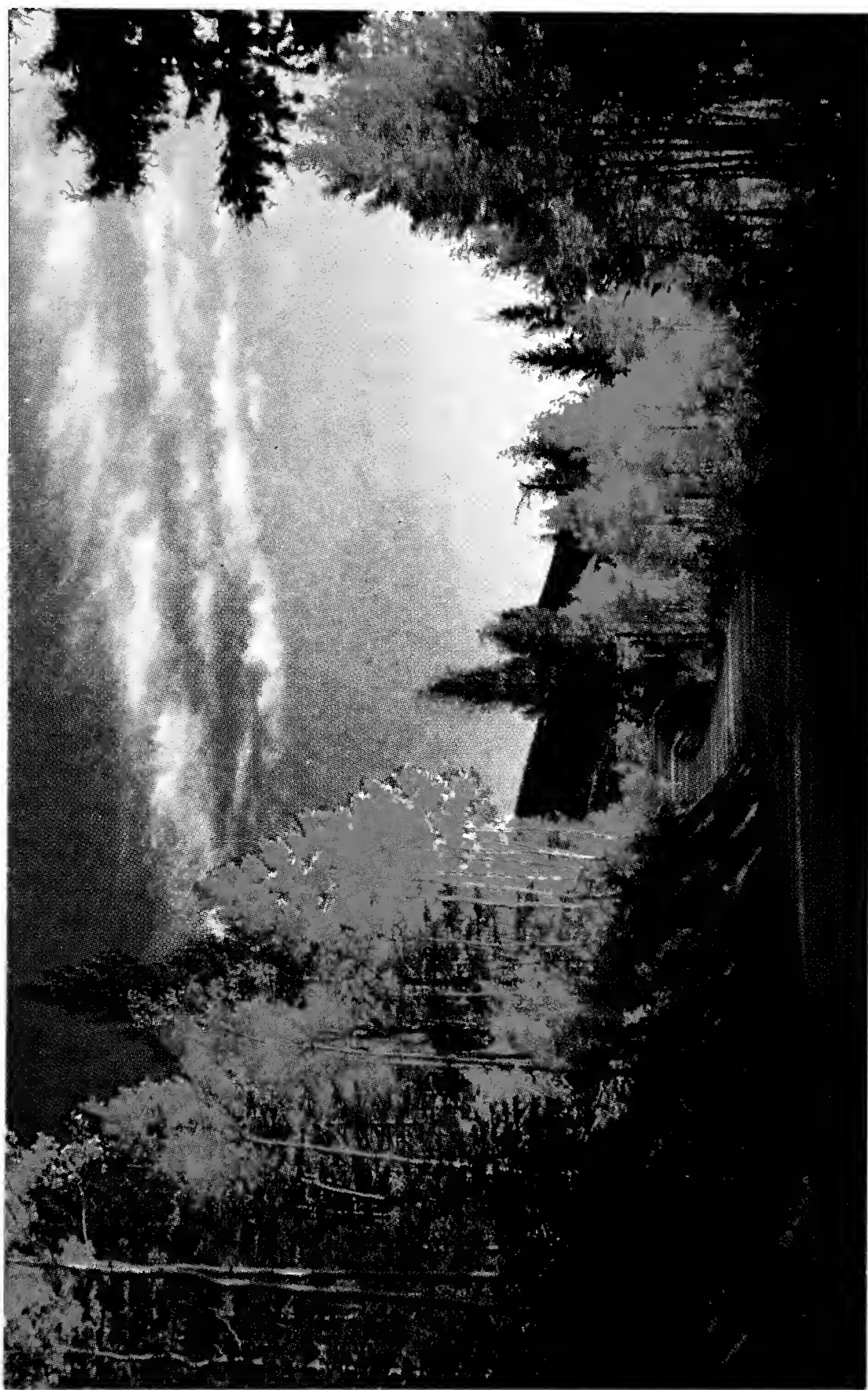
The plant was not noticed until recently by our Student Horticulturist, Terry Truesdell who's interest was aroused by the peculiar growth emerging from the healed portion of the plant. He then brought the plant to the Garden for observation.

On close inspection you can see normal single and double roots emerging from the circle of vascular fibers. One of these single roots has developed an unusual fasciation which we have never before seen on a cactus root.

It is possible that many cactus have fasciated or crested roots but this plant has been out of the ground for seven months allowing it a long time to develop roots for observation. Incidentally the roots of this plant were white when first taken out of the dark but have now turned green when exposed to the sunlight.



Close-up of fasciated or crested root, $1\frac{1}{3}X$. Note apparent normal root tips emerging from the fasciation.



QUAKING ASPEN (*Populus tremuloides*). A distinctive, white barked tree up to 40' tall that is recognized with its autumnal golden leaves. It grows in thickets at 6,500' to 9,500' in our Rocky and Sierra Nevada mountains but at lower elevations in the Northeastern U.S. and then through Canada to Alaska. Its flattened leaf stalk allows the leaves to tremble in the slightest breeze, hence the botanical specific name *tremuloides*.

YERBA MANSA
YERBA DEL MANSO
LIZARD-TAIL

Yerba del manso, which, according to Charles Francis Saunders, means the herb of the tamed Indian, is a low-growing perennial whose smooth light green leaves with reddish stems crowd the marshes, and whose large cream-white flowers, to adopt a Tennysonian phrase, sow the ground with stars.

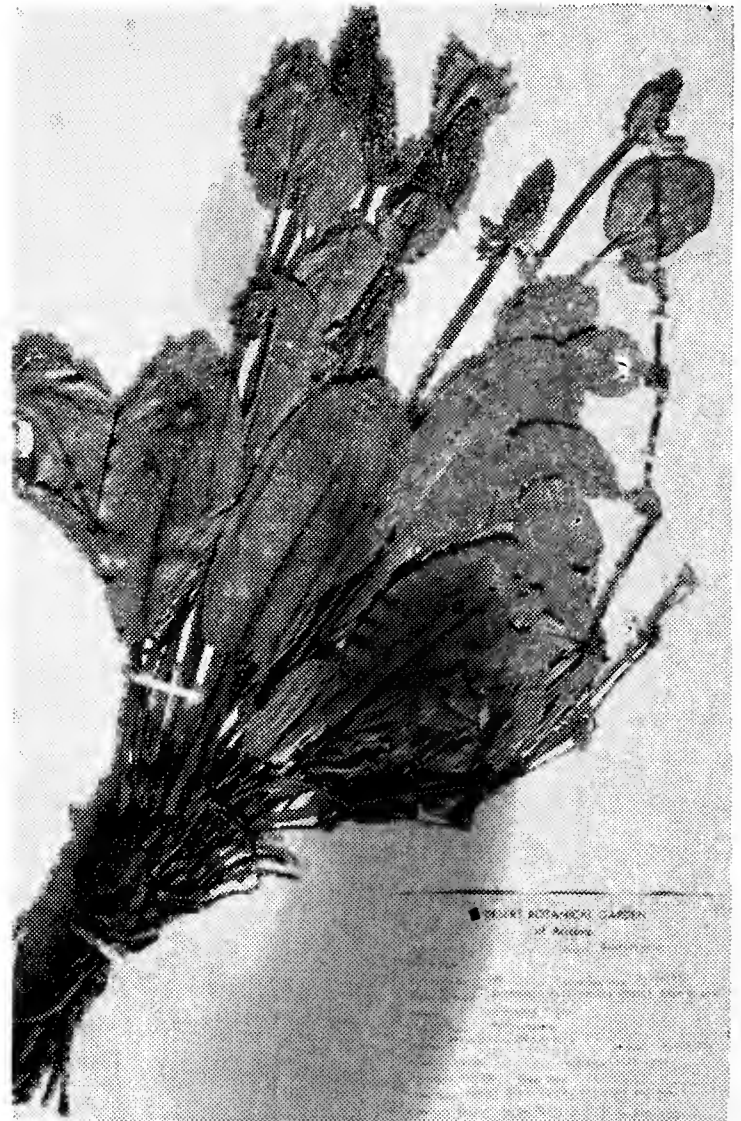
It is common in wet, alkaline seeps throughout most of our Southwest, and probably, among all of the Spanish-Americans in the region, no other plant enjoys so wide a medicinal fame as yerba mansa, or has a higher repute. Both Spanish Californians and Spanish New Mexicans emphatically declare that its creeping aromatic root is applied with excellent results—whether made into a tea, powder, or a poultice—to all manner of abrasions, burns, and sores in men and animals.

In New Mexico, natives gargle inflamed throats with a teaspoonful of the dry ground root and one-half glass of water, and place the crushed root on ulcerated gums. They also mix powdered *punche Mexicano* (native tobacco), a small piece of chewing tobacco, a bit of old sole leather that had been heated in a fire until it had become red and then cooled and ground, and about an inch of pulverized *yerba del manso* root, as an ointment for piles. All of these substances must be beaten together and finally mixed with some beef drippings. This amount should produce enough salve for nine days.

Those of Spanish origin in California consider that an application of wilted *yerba mansa* leaves will reduce swellings, and the entire plant, in the form of a wash or poultice, can be used with good results for rheumatism.

Anemopsis californica

SAURURACEAE Family



Herbarium mount of *Anemopsis californica*, 18" tall.

The Spanish people of both California and New Mexico take a decoction of the herb as a blood purifier, and in the treatment of derangements of the mucous membrane and for digestive upsets. Spanish American adults in New Mexico stir a teaspoonful of the powdered root into a glass of water and drink the whole three times a day to counteract simple dysentery.

For bleeding dysentery an egg is boiled slightly in the early morning, without allowing the white to harden; the tip of the shell is removed, and a small quantity of the ground root is

poured in. This preparation is immediately drunk from the shell.

Children who suffer from stomach trouble and babies affected by colic are given relief in a slightly different manner. The roots are boiled in water until a red liquid develops. This is imbibed at intervals until relief is secured.

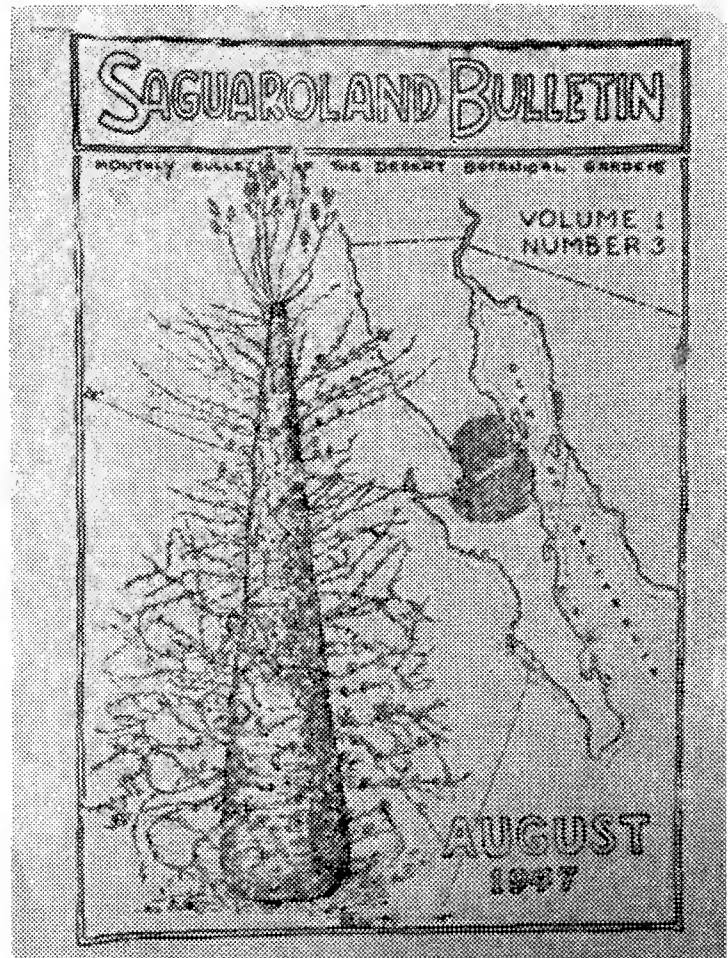
The Maricopa and Pima Indians long have taken a decoction of the plant as an antiluetic. One writer affirms that this remedy "is known to be effective."

Ethnobotanical excerpt from HEALING HERBS OF THE UPPER RIO GRANDE—L. S. M. Curtin, Laboratory of Anthropology, Santa Fe, N. M.



Cluster of 1½" Lizardtail flowers.

SUMMER PROJECT



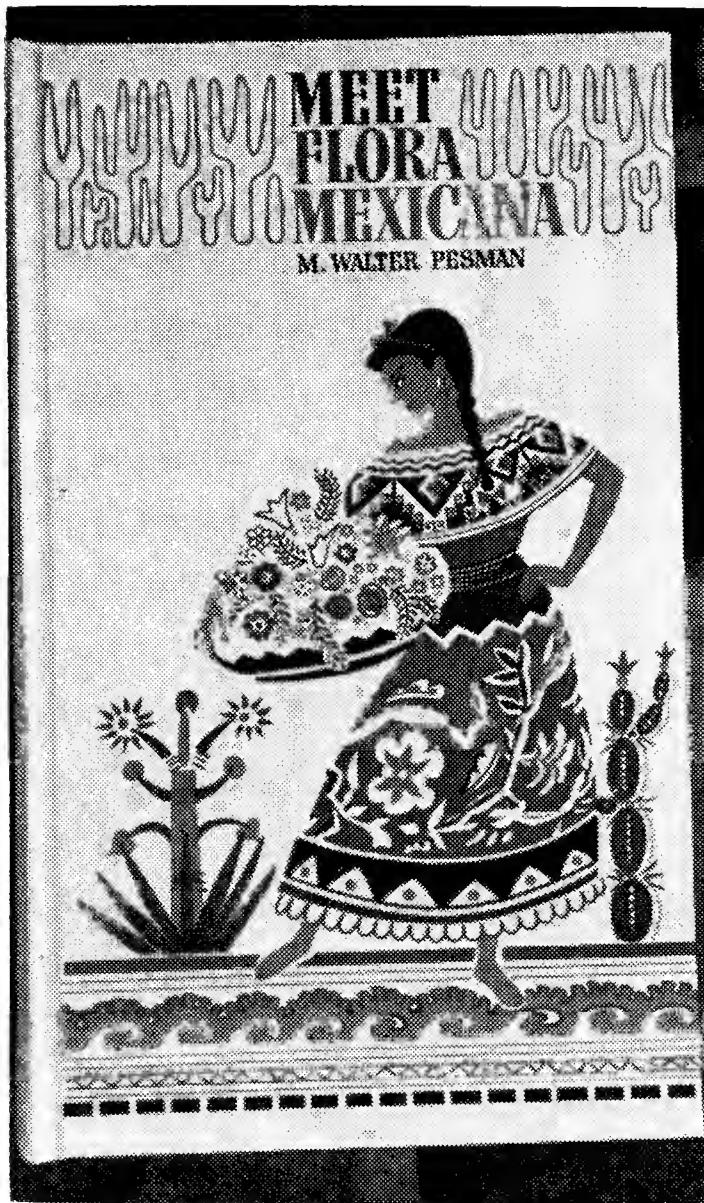
Many of our older members will recall with a nostalgic feeling the cover of a early Saguaroland Bulletin with a frontal cover drawing by John McChesney depicting a Bojuum tree, Cirio (*Idria columnaris*).

During the past fifteen years, extra copies of Volumes 1-3 have become depleted so as a summer project our Student Horticulturist Don Cole dug out the old mimeograph sheets and made fifty complete sets of the ten numbers in each volume.

The purpose of having these sets on hand is that many cactus collectors, writers and libraries are continually asking for back numbers and complete volumes for their files. Cost is fifty cents per number or five dollars a volume.

We have filled many back orders but if we have overlooked your request, please notify us for the copies you need.

BOOK REVIEW



MEET FLORA MEXICANA—M. Walter Pesman, Dale King, Globe, Ariz. Pub. 1962, 280 pages, map, 13 photographs, 270 line drawings, paper, \$4.00, wire-bound \$5.00, cloth \$6.00.

For those fortunate persons who have travelled in Mexico or those who expect to travel through this fabulous country, do not hesitate to add this informative book to your reference library before making another trip below the border.

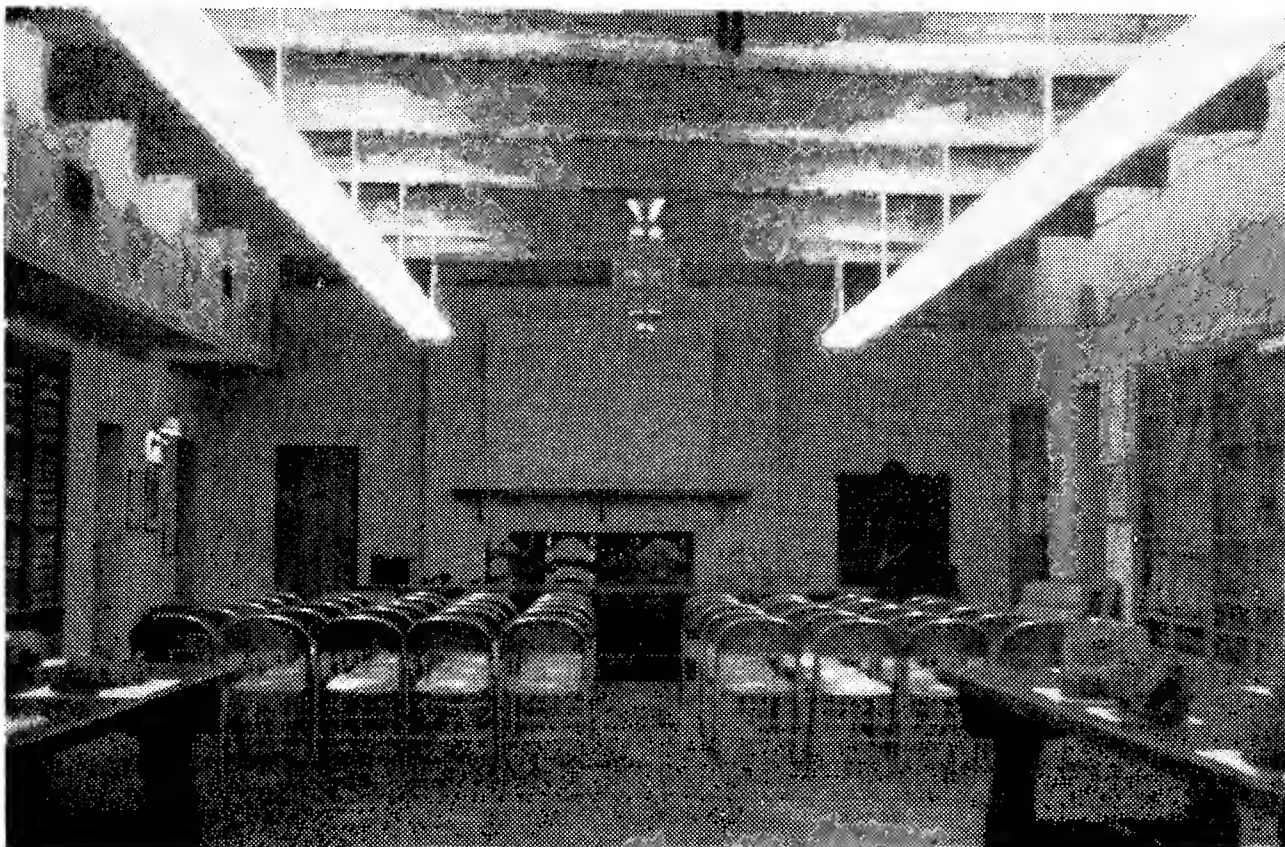
Mr. Pesman is a landscape architect of Denver, Colo., and has made several trips into Mexico to sketch the flora. He set-up this pioneering book for those persons traveling Mexico during the winter months but many of the late spring or after-summer-rains showy plants are also included.

The book is wisely divided into the following floral zones for easy reference as you travel the highways: Low Desert, Mesquite and Grassland, Thorn Forest, Chaparral, Pine-Oak Forest, Boreal Forest, Tropical Deciduous Forest, Savanna, Flat Coastal Region, Tropical Evergreen Forest, Rain Forest, Cloud Forest and Introduced and Cultivated Plants.

This book has been a vast undertaking and the author has drawn from the bibliographies of about fifty authors for the authenticity of his book. Included with each plant's botanical name is our common name and the Mexican or Spanish common name. Also included in the book is an excellent colored distribution map of Mexico by Dr. A. Sarker Leopold, U. of C., for his Mammals of Mexico on which Mr. Pesman has superimposed the main highways of Mexico for your orientation.

The Garden Book Store has this book in stock. Add 15c for mailing.

NEW LIGHTING IN WEBSTER AUDITORIUM

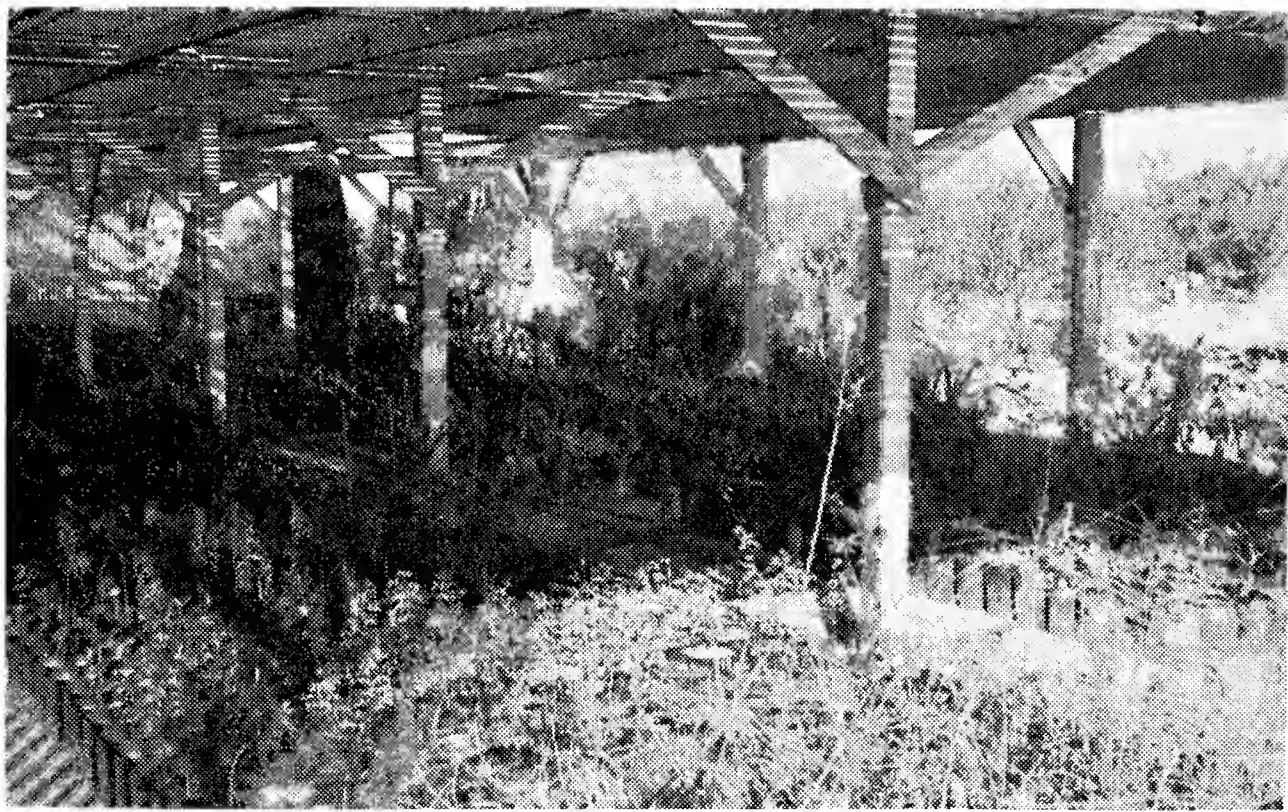


View from east entrance showing the two rows of continuous fluorescent lights strong enough to allow the taking of these pictures without any additional light. These new lighting fixtures at a cost of \$695 now afford ample light for meetings and classes. The upper right bank gives sufficient light to view the display cases in the north well for daytime visitors.



View from other end of Auditorium showing a few of the 106 new comfortable chairs recently purchased for \$430. Also note the soft glow the new lights cast upon the Ponderosa Pine ceiling logs.

SUMMER PROJECT



Another 800 square feet of space has been provided for growing of plants in the propagation building this past summer.

GARDEN ACTIVITIES FOR NOVEMBER

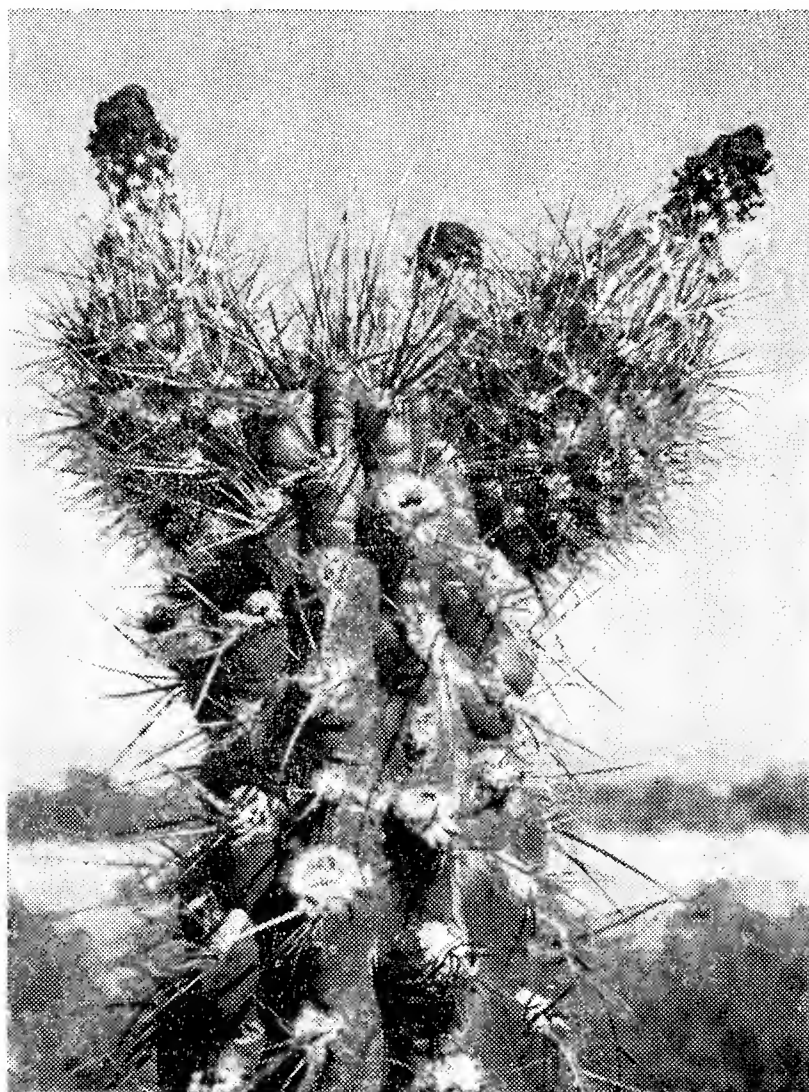
- Nov. 1st, 3 P.M.—Kodachrome Lecture—ARIZONA CACTI IN BLOOM
- Nov. 2nd to 12th—Garden Exhibit at ARIZONA STATE FAIR
- Nov. 6th, 8 P.M.—CACTOMANIACS, Movie—WIND & SPRAY
- Nov. 7th, 3 P.M.—Class, DESERTS, HOW FORMED, AND THEIR PLANTS
- Nov. 8th, 10 A.M.—Camp Fire Girl Leaders, field trip at Mitchell Lodge
- Nov. 8th, 12 noon—Tempe Kiwanians—ARIZONA CACTI IN BLOOM
- Nov. 8th, 3 P.M.—Koda. Lect., ARIZONA WILDFLOWERS
- Nov. 14th, 3 P.M.—Class, DESERT SUCCULENT PLANTS
- Nov. 14th, 8 P.M.—Tempe Women's Club, ARIZONA WILD FLOWERS
- Nov. 15th, 10 A.M.—Garfield Garden Club tour of the Garden
- Nov. 15th, 3 P.M.—Kod. Lect., ARIZONA TREES AND SHRUBS
- Nov. 21st, 3 P.M.—Class, CULTURE OF SUCCULENT PLANTS
- Nov. 22nd, 3 P.M.—Kod. Lect., ARIZONA BIRDS, ANIMALS & REPTILES
- Nov. 28th, 3 P.M.—Class, DESERT TREES AND SHRUBS
- Nov. 29th, 3 P.M.—Kod. Lect., ARIZONA SCENICS

SAGUARO LAND

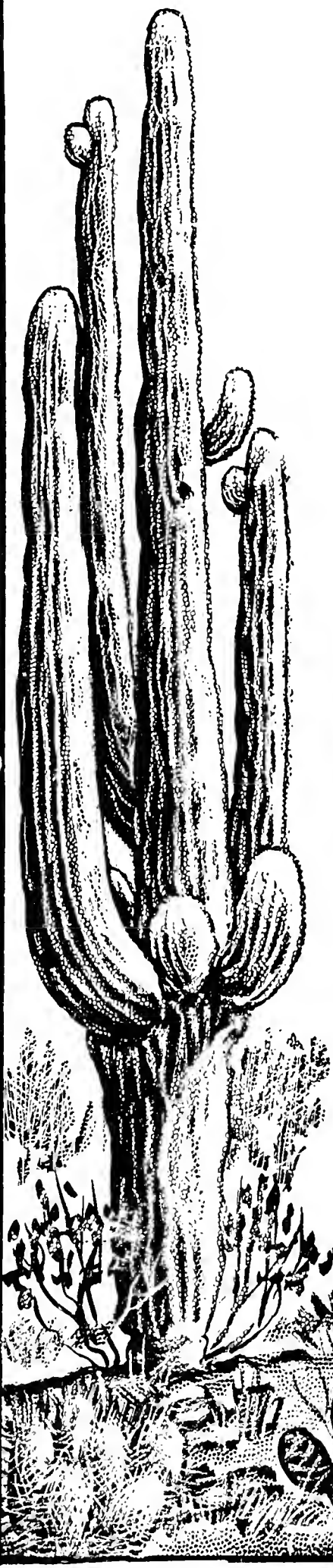
BULLETIN

DESERT BOTANICAL GARDEN OF ARIZONA

VOL. XVI. December, 1962 No. 10



Lemaireocereus hollianus with 3" long fruits. Photos of the blossoms were on the October cover.



REG-MANNING

SAGUAROLAND BULLETIN

Published and owned by the Arizona Cactus and Native Flora Society, sponsors of the Desert Botanical Garden of Arizona. P.O. Box 5415, Phoenix 10, Arizona. Saguarioland Bulletin attempts to promote the Garden and to provide information on the desert plants and their culture. Subscription \$5.00 per year, the subscription including active membership in the Society and the Desert Botanical Garden. Issued 10 times a year.

W. HUBERT EARLE, Editor

Volume XVI

December, 1962

No. 10

Arizona Cactus and Native Flora Society

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Desert Botanical Garden of Arizona

STAFF

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Student Horticulturist.....	Terry Truesdell
Student Horticulturist.....	Don Cole

GARDEN OPEN DAILY 9 A.M.—5 P.M.
Including Week-ends and Holidays

TO ALL OUR MEMBERS & THEIR FRIENDS



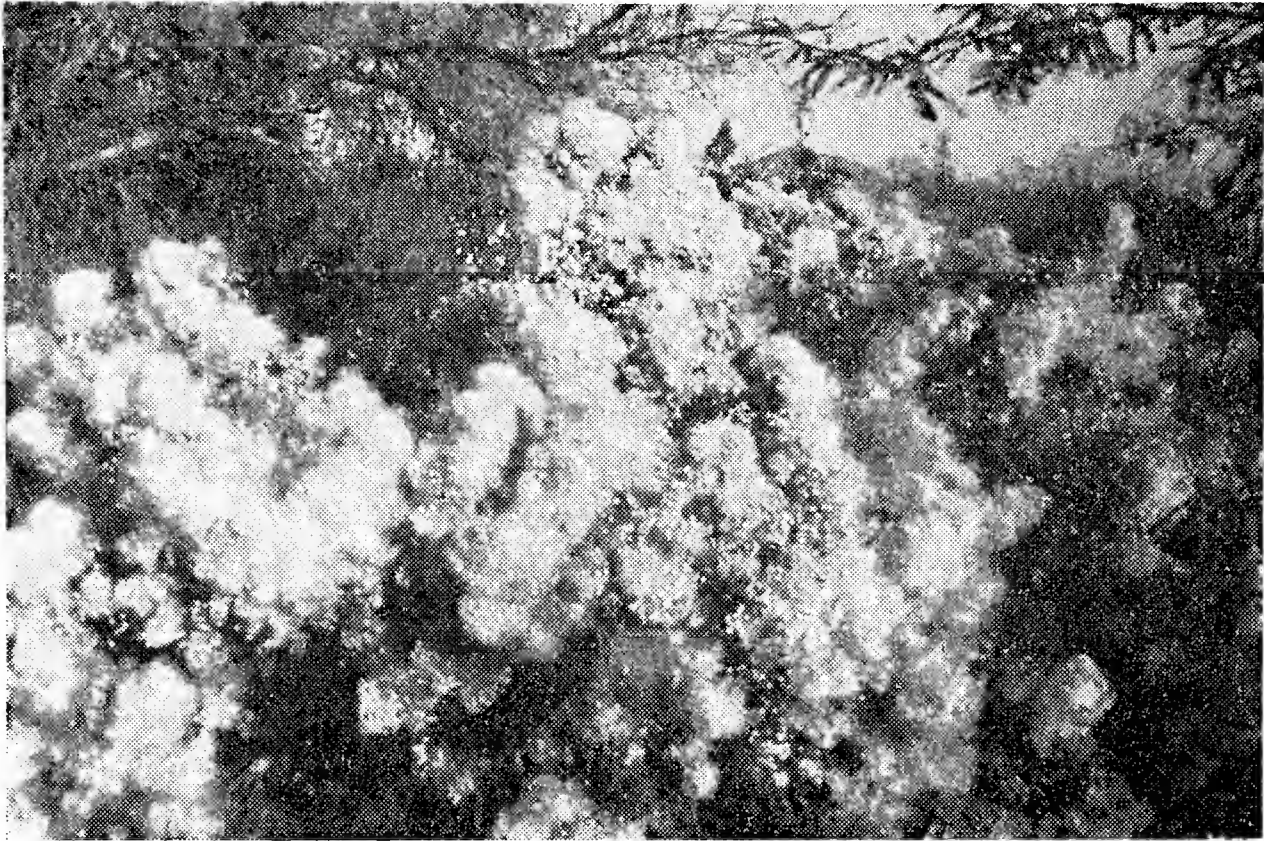
FROM . . . THE DESERT BOTANICAL GARDEN BOARD
AND ITS STAFF



A grouping of Arizona Pinon-Pine trees in the Visitors Building that greeted our Christmas season visitors.

DESERT-BROOM

By John Weber, Horticulturist



A fruiting desert broom bush, *Baccharis sarothroides*, 6 feet high and nine feet wide.

DESCRIPTION:

Baccharis sarothroides is an evergreen, woody-stemmed shrub with a spreading to erect strongly angled branches. The terminal portions of the strongly angled branches are green. Leaves are alternate and measure 12-25 mm. in length and 11-5 mm. in width. Leaf shape is linear to spatulate with entire to toothed margins. These are bitter to taste and resinous to touch. As a shrub, desert-broom attains a height from one to four meters (3-13 feet).

Flowers are whitish or yellowish and are present in the early fall months, the numerous heads having a paniced arrangement. Fruit ripens in October and November and releases the seed which becomes windborne to great distances. Each seed is tipped with white, bristly hairs which aid in the distribution by wind.

Desert-broom is found growing at an elevational range of 300 to 1550 meters (950-4800 feet) on alkaline soils. It generally occupies wet locations along stream-beds, draws, canyon bottoms and rocky slopes. This plant is frequently in association with Mesquite (*Prosopis* sp.) and mesophytic vegetation common to stream ways within the desert and desert grassland.

Desert-Broom ranges from southern California east into Arizona and southwestern New Mexico and south into Sonora, Sinaloa and Baja, California, Mexico. Locally in Arizona, the plant extends from Mohave and Yavapai counties south into Yuma, Pima, Maricopa and Pinal Counties and east into Gila, Greenlee, Graham, Cochise and Santa Cruz counties.

UTILIZATION:

Baccharis may be used as a large foundation plant to divide unbroken wall spaces. When clustered in groups at corners or accent points away from any structural form, a pleasant effect is created. It serves as good cover vegetation on septic tank leach beds where optimum conditions exist for the growth of this plant. Individually installed as a specimen plant, it is particularly showy in late November when the ripening seed is being released. The plant and surrounding area appears to be covered by snow.



Close-up of *Baccharis sarothroides* fruit which are air-borne.

CULTURE:

Desert-broom, attaining a large size, requires considerable space to make normal growth. Weekly or bimonthly irrigation should be provided during dry summer months. The plant is subject to stem borers and control is accomplished by selective pruning of infested stems.

PROPAGATION:

Propagation by means of seed is easy. Seed that is stored dry over winter months and is planted the following spring germinates rapidly with no pre-treatment being necessary. Installed in moist soil and covered with $\frac{1}{8}$ -inch of soil. Plant emergence begins within four days. New plants can be obtained also by making hard-wood stem cuttings. Growth rate of seedlings or cuttings is moderate to rapid.

AVAILABILITY:

Baccharis sarothroides is not in commercial use in Arizona.

REMARKS:

Desert-broom is not palatable forage and it is considered by some authorities to be poisonous to livestock. The name Rosin-Bush is also commonly applied to this species.

REFERENCES:

Benson and Darrow—The Trees and Shrubs of the Southwestern Deserts.

Dayton, W. A. — Important Western Browse Plants.

Kearney and Peebles—Arizona Flora.

U. S. D. A.—Miscel. Publ. No. 654—Woody Plant Seed Manual.

PLANT OF THE MONTH



Oleanders of the Desert

OLEANDER (*Nerium oleander*) is not a plant of the desert but of moist areas. It grows up to 20' in the hot desert if given ample irrigation and thus makes quick hedges. It blooms quite freely through the summer with white to light red blossoms. Its leaves are quite toxic to browsing animals and also irritates persons who have respiratory ailments.

ROSTER OF MEMBERS

The Garden has been for many years reluctant to publish a roster of its members because such a listing might become a mailing list for others. Nevertheless, with tongue in cheek, on the following pages is our roster arranged by years when each member first began to aid in the support of the Garden. It is most gratifying to recognize those that have been with the Garden for so many years.

1937

Archer, Mrs. Lou Ella, 3322 W. Manor Dr., Phoenix 14, Arizona
Campbell, Mrs. Clinton, 361 N. 4th Ave., Phoenix 3, Arizona

1946

Archer, Mrs. S. M., 990 Summit Ave., St. Paul, Minn.
Corpstein, Mrs. Peter, 5720 N. 16th St., Phoenix 16, Arizona
Griffiths, Miss Glendale, 326 W. Vernon St., Phoenix 3, Arizona
Knorpp, Mrs. Walter Wesley, Hotel Westward Ho, Phoenix 3, Arizona
Lindsay, Dr. George E., 1016 Cypress Way, San Diego 3, Calif.
Marshall, Mrs. W. Taylor, 327 N. Ave., 61, Los Angeles 42, Calif.

1947

Beahm, Sherman E., 2686 E. Paloma St., Pasadena 8, Calif.
Berstrand, A., 4 Place Pierre-semard Mogent Sur Marne (Seine) France
Birchett, Mrs. Joseph T., 202 E. 7th St., Tempe, Arizona
Bool, Mr. and Mrs. H. W., 2735 E. Camelback, Phoenix 16, Arizona
Bright, Mr. and Mrs. Wm. O., 1939 W. Tulip Tree Lane, La Canada, Calif
Buining, A. F. H., "Hohorst," Hamersveld, Holland
Burrall, Edward L., Mr. and Mrs., 89 E. Country Club Drive, Phoenix 14, Arizona
Cactus & Succulent Society of Calif., Inc., c/o Mrs. Otto Krueger, 61 Skyway Lane, Oakland 19, Calif.
Cutak, Lad, c/o Missouri Botanical Garden, 2315 Tower Grove St., St. Louis 10, Mo.
Davies, Paul H., 3006 Country Club Manor, Phoenix 14, Arizona
Deutsche Kakteen-Gesellschaft, Ahrfeldstr. 42, Essen, Germany
Donnelly, Mrs. Rita, 750 Naples St., San Francisco, Calif.
Earle, Hubert & Lois, P. O. Box 5415, Phoenix, Arizona
Eversole, Mr. and Mrs. John H., 121 W. Berridge Lane, Phoenix 13, Arizona
Frye, Miss Wava K., 9361 Virgil Ave., Detroit 39, Michigan
Gates Cactus Inc., P. O. Box 247, Corona, Calif.
Goldman, Mr. and Mrs. Richard S., Rd. 2, Box 237, South Bedford Rd., Mt. Kisco, New York
Johnson, Mrs. Ray P., 3006 W. Manor Dr., Phoenix 14, Arizona
Kitchel, Mr. and Mrs. Den Ison, 2912 Sherrana Lane, Phoenix 16, Arizona
Manning, Mr. and Mrs. Reg, 5724 E. Cambridge St., Scottsdale, Ariz.
Marshall, Mrs. Alice L., 7445 N. 15th Ave., Phoenix 21, Arizona
Martin, Mr. and Mrs. A. Malcolm, 202 Ely Ave., Huntingdon Valley, Pa.
National Cactus & Succulent Society, Sherwood, Nottingham, England
Polaski, Mr. and Mrs. Chas., 1801 Coventry Lane, Oklahoma City
Proctor, Frank, P. O. Box 1454, Phoenix 1, Arizona
Rhuart, John H., 5301 E. Valle Vista Rd., Phoenix 18, Arizona
Sloan, Miss Eleanor B., 3322 W. Manor Dr., Phoenix 14, Arizona
Smith, Mrs. Grace B., P. O. Box 164, Selkirk, N. Y.
Soule, Howard M., 338 W. Cinnabar, Phoenix 21, Arizona
Stargo Garden Club Morenci Arizona, Morenci, Arizona
Tempe Garden Club, Tempe, Arizona
Thoeny, Dr. and Mrs. O. W., 721 Encanto Dr. S. E., Phoenix 7, Arizona

1948

Alschuler, Mrs. Rose, 777 Sheridan Rd., Highland Park, Ill.
 Arizona Republic, 120 E. Van Buren, Phoenix 4,, Arizona
 Blocher, Arthur, 317 W. Division St., Amboy, Ill.
 Cahill, Mr. and Mrs. James J., 51 E. Rose Lane, Phoenix 12, Arizona
 Colburn, Miss Muriel, 2821 S. Jackson St., Denver 10, Colo.
 Cole, Mr. and Mrs. Chas. R., 3515 Evanston Ave., Cincinnati, Ohio
 Columbine Garden Club, Phoenix 18, Arizona
 Desert Garden Club of Tucson, 255 Sierra Vista Dr., Tucson, Arizona
 Detroit Cactus and Succulent Society, c/o Louis Kellar, 5620 Beaconsfield, Detroit
 24, Michigan
 Douglas, Mrs. Walter, 4320 N. 40th St., Phoenix 18, Arizona (November-May)
 Eldean, Mr. and Mrs. Fred, 516 Luhrs Bldg., Phoenix 3, Arizona
 Eliot, Mrs. Geraldine, 430 W. Latham St., Phoenix 3, Arizona
 Fenton, Mrs. Arthur P., 123 Buck Lane, Haverford, Pa.
 Gilliland, Mrs. Charles, 4841 Rockridge Rd., Phoenix 18, Arizona
 Goldwater, Barry, Senate Office Bldg., Washington, D.C.
 Gray Herbarium of Harvard University, 22 Divinity Ave., Cambridge 38, Mass.
 Haskell, Mr. and Mrs. Arnold D., 3670 Wilshire Blvd., Los Angeles 5, Calif.
 Kalman, Mrs. Paul J., 3933 N. Tucson Blvd., Tucson, Arizona
 Lewis, Mr. and Mrs. Orme, 4615 Alta Hacienda, Phoenix 18, Arizona
 Lininger, Mrs. Homer D., P. O. Box 6669, Tucson, Arizona
 Lollesgard Specialty Co., 2015 E. 14th St., Tucson, Arizona
 Louis, Mrs. Henrietta J., 2703 Euclid Park, Evanston, Ill. (April)
 Murray, Mrs. Helen Anderson, 65 E. Mariposa, Phoenix 12, Arizona
 Phoenix Chamber of Commerce, 805 N. 2nd St., Phoenix, Arizona
 Phoenix Gazette, Phoenix 4, Arizona
 Purdy, Daisy E., 307 Cheery Lynn Rd., Phoenix 12, Arizona
 Rose Garden Club, c/o Valley Garden Center, 1809 N. 15th Ave., Phoenix 7
 Saguaro National Monument, Rt. 8, Box 350, Tucson, Arizona
 Schreuder, Mr. and Mrs. John A., 197 Carlos Dr., Martinez, Calif.
 Shirley, Joseph W., 950 Roseward Dr., Yuma, Arizona
 Showers, Mrs. Byron J., 8324 N. 8th Ave., Phoenix 21, Arizona
 Turner, Mrs. R. Izer, 324 W. Siesta Way, Phoenix 41, Arizona
 Valley National Bank, Drawer 71, Phoenix, Arizona

1949

Adams, Blanche H., 1013 W. San Miguel Ave., Phoenix 13, Arizona
 Arizona Guide (Krause, Mr. and Mrs. M. W., 7110 Wilder Rd., Phoenix 21, Arizona
 Bass, Wm. G., Box 1356, Wickenburg, Arizona
 Bock, Mr. and Mrs. John A., P. O. Box 239, Sharon, Pa.
 Cactus Shop, Box 64, Morristown, Arizona
 Dwight, Mrs. Daniel W., 707 W. 17th Ave., Spokane 41, Wash.
 Fisher, Mr. and Mrs. K. R. S., 1024 W. Main St., Mesa, Arizona
 Friedrichs, Mr. and Mrs. Otto, Rt. No 2, Box 480, Golden, Colo
 Hales, John B., 1641 E. Willetta, Phoenix 6, Arizona
 Lutgerding, Mrs. Mabel C., 101 E. Country Club Dr., Phoenix 14, Arizona
 Mahoney, Mr. and Mrs. Leslie J., 7750 N. 7th St., Phoenix 20, Arizona
 Mieg, Mr. and Mrs. Charles E., 7804 Foothills Drive S., Scottsdale, Arizona
 Natanson, M. A., Rt. 1, Box 1040, Apache Junction, Arizona
 Pidgeon, Mr. and Mrs. C. C., 5235 N. 18th Pl., Phoenix 16, Arizona
 Prophet, Mr. and Mrs. Joseph, 6536 E. Hummingbird Lane, Scottsdale, Arizona
 Robare, Mrs. Katherine, Pomerene Route, Benson, Arizona
 Villard, R. L., 506 W. Alameda St., Roswell, N. M.

1950

Bilisoly, Mrs. J. M., 622 E. Winter Dr., Sunnyslope, Ariz.
 Bravo, Dr. Helia, Montes Eelberg 165, Mexico 10, D. F.
 Callicrate, Dr. and Mrs. D. L., 2250 Strong Rd., Salem, Oregon
 Clore, Mr. and Mrs. Wm. W., 6050 N. 7th St, Phoenix 14, Arizona
 Cook, Mr and Mrs. W. G., 1146 E. Willetta, Phoenix 6, Arizona
 Dept. of Interior, National Park Service, P. O. Box 1728, Santa Fe, N. M.
 Dept. of Library and Archives, 309 Capitol Bldg., Phoenix 9, Arizona
 Desmond, Mr. and Mrs. Thomas C., 94 Broadway, Newburgh, N. Y.
 Goodnight, Tom, c/o V. N. B., Willetta Branch, 1st St. & Willetta, Phoenix 4, Arizona
 Helin, Charles, 4099 Beaufait Ave., Detroit 7, Mich.
 Hutchison, Paul C., Dept. of Botany, Univ. of Calif., Berkeley, Calif.
 London Cactus Club, L. T. Peters, 5 Marlborough Rd., Ashford, Middlesex, England
 McCleary, Dr. and Mrs. James A., 1249 Luanne Ave., Fullerton, Calif.
 Marnier, J., La Postolle 91 Boulevard Haussman, Paris 8, France
 Old Fashioned Garden Club, 1809 N. 15th Ave., Phoenix 7, Arizona
 Offield, James R., 410 N. Michigan Ave., Chicago 11, Ill.
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 Reiss, N. D., 7629 E. Jefferson, Detroit 14, Mich.
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1954

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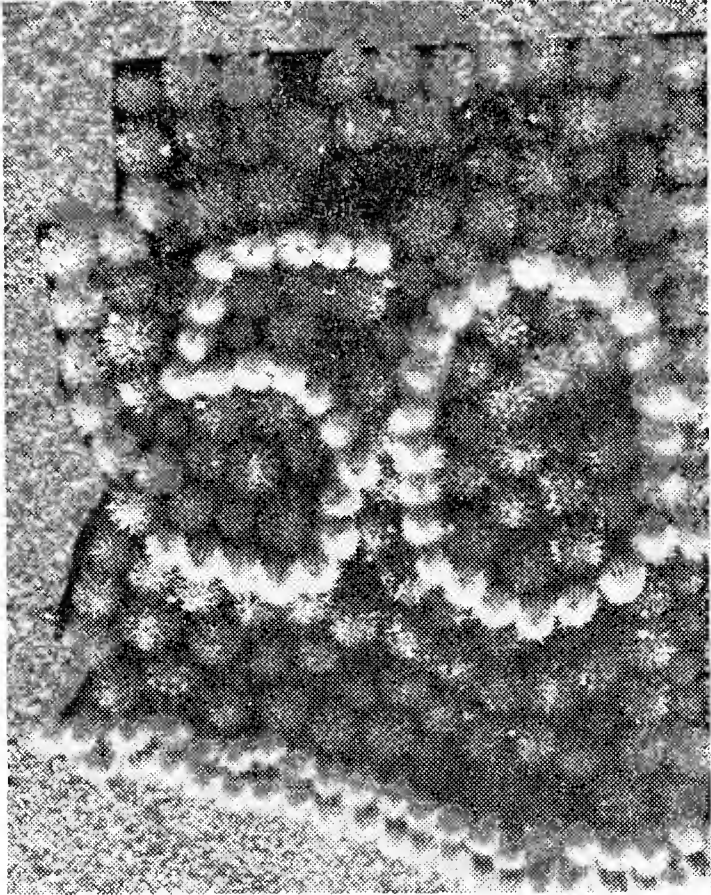
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TO BE CONTINUED IN JANUARY BULLETIN



WILDFLOWER SEED

Is available at the Garden Bookstore at twenty-five cents for a good size packet of 20 or more species. Now is the time to plant them, in the Valley of the Sun, for spring flowers.



A 24" x 30" display used in the Nov. Arizona State Fair Floriculture Show, made up of Golden Barrels (*Echinocactus grusonii*) and Golden Cholla (*Cylindropuntia chrysantha*).

GARDEN ACTIVITIES FOR DECEMBER

- 3rd—7 P.M.—Congregational Church Men's Club (There).
 4th—8 P.M.—CACTOMANIACS Christmas Meeting.
 5th—3 P.M.—Class, "Culture of Desert Trees."
 6th—3 P.M.—Lecture, "Succulent Other Than Cacti."
 12th—9:30 A.M.—Class all-day desert field trip.
 13th—3 P.M.—Lecture, "Collecting Plants in Mexico."
 20th—3 P.M.—Lecture, "Arizona Cacti in Bloom."
 21st—12 noon—Executive Board lunch, courtesy of Mrs. Mildred May, Valley National Bank.
 27th—3 P.M.—Lecture, "Arizona Wildflowers."

JANUARY

- 3rd—3 P.M.—Lecture, "Arizona Cacti in Bloom."
 8th—8 P.M.—CACTOMANIACS meeting.
 9th—3 P.M.—Class, "Deserts and Their Plants."
 10th—11 A.M.—Y.W.C.A., lecture (there)
 3 P.M.—Lecture, "Arizona Wildflowers."
 8 P.M.—Desert Crest Home—lecture (there).
 16th—3 P.M.—Class, "Desert Succulent Plants."
 17th—3 P.M.—Lecture, "Arizona Trees & Shrubs."
 23rd—3 P.M.—Class, "Culture of Succulent Plants."
 24th—2 P.M.—Senior Citizens Safari, Phoenix City Park Dept.
 3 P.M.—Lecture, "Arizona Birds & Animals."
 30th—3 P.M.—Class, "Identification of Desert Trees."
 31st—3 P.M.—Lecture, "Arizona Scenics."