

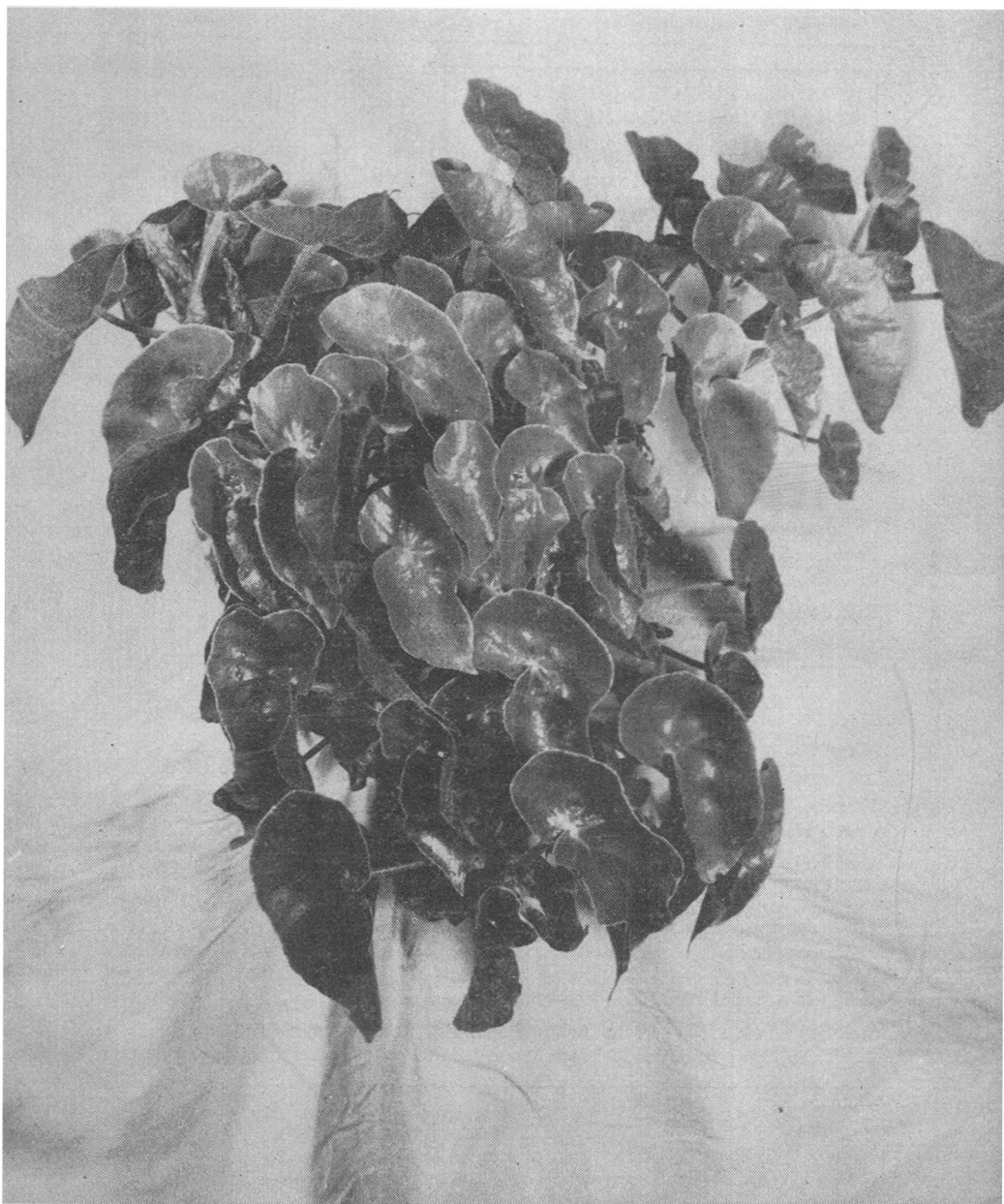
The Begonian

DEVOTED TO THE SHELTERED GARDENS

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AIMS AND PURPOSES OF THE AMERICAN BEGONIA SOCIETY, INC.

This Society shall be conducted on a non-profit basis, and its purpose shall be to stimulate interest in begonias and shade-loving plants; to encourage the introduction and development of new types of begonias and related plants; to gather and publish information in regard to the kinds, propagation and culture of begonias and other shade-loving plants, and to issue a bulletin which shall be mailed to all members in good standing.

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Cinerarias for Showy Spring Blooms

By JOE LITTLEFIELD, Red Star Garden Consultant



YOU CAN have cyclamens, English daisies, primroses, and bedding begonias blooming lustily in the shade garden area and be quite pleased with the colorful planting. Just tuck a few blooming cinerarias in among other plants, and presto—that garden lights up as if a beautiful gypsy lassie just stepped into the garden!

There's something about those cinerarias that makes them stand apart from the rest of the spring blooming shade loving plants. Maybe it's the single daisy-like flowers that attract some folks, possibly the unusual heart shaped foliage catches others' eyes. Personally, we think it's because cinerarias furnish some of the colors the other plants lack. The flowers are larger, more massed, and present a bold color effect.

For instance, the various shades of blue from rich velvety purple color to delicate lavender, rich maroon to the daintiest rose, rich clear pink to almost blush pink, the whites, and bi-color combination of lavender, or rose, or purple and white, furnishes a distinctly different range of tones contrasting against the various shades of pink, and rose, or white of the other kinds of plants. Then too, cinerarias have several off color pastel tones producing additional color delight to the shade garden.

Stellata type cineraria blooms are small and star-like. Grandiflora type blossoms are much larger and more showy. The plants themselves grow to a foot and more in height.

Just because cinerarias grow easily doesn't

mean they don't need much attention or care. Don't let that ease of growth fool you! The soft, hairy foliage is a succulent source of food for aphids. Plants, whether in pots or in the garden, are merrily growing on. Suddenly the leaves wilt. You hastily give plants more water, because you think they are thirsty. Additional watering doesn't clear up that condition. Your mind races on and you think, "Possibly they need a feeding" . . . maybe they've been overfed," . . . "possibly . . ."; finally you're stumped as to cause of foliage wilt. At last it dawns on you that m-a-y-b-e there are pests at work. You look at the leaves. Nope, no bugs. Casually, you turn over a leaf and look on the underside. Yipes! what a colony of aphids! Looks like they're holding a convention. You inspect other leaves and find the same problem. You get out the insecticide spray and with murderous intent, spray the plants.

You may have to spray again a few days later. Once the aphids are gone, plants perk up and grow to maturity and bloom. That is, unless they have been stunted by the aphid damage.

Don't wait till aphids attack cinerarias. Inspect underside of leaves frequently. At first sign of the pests, spray.

Cinerarias grow best in a light loamy soil, because the fine roots like that type of soil whether grown in ground or in pots. One of the ways to provide that loose type of soil is to mix one part of leaf mold, one part of well moistened peat moss, and two parts of garden soil.

Even a half dozen plants massed in a group, spaced about ten inches apart, furnishes striking spots of color. If space permits, plant a mass of a dozen or more plants. Tuck them in between camellias, azaleas, fuchsias, or other evergreen ornamental shrubs.

Combine them with *Primula malacoides* and *Primula obconica*, and you have a flower show in your own garden.

Once the plants have become established and you notice new growth, begin a mild feeding program. One may use a balanced complete plant food. Some cineraria growers prefer to use a fertilizer higher in nitrogen content at

(Continued on Page 277)

Missouri Botanical Test Garden Report

By HELMUT TUTASS, Missouri Botanical Garden

THANK you so much for the nice collection of begonias you sent to us. As Dr. Anderson wrote you, I am the man who takes care of these plants. I am pleased to tell you that most of the plants have done well, but some are more promising to stand our hot summers. They are grown in a very humid greenhouse with other tropicals like gesneriaceae and ferns. At the moment they are only lightly shaded. Some, as *B. "Joe Hayden,"* are in a shadier place and the leaves and color are good. Some, such as *B. "Bow-Nigra,"* show the full splendor of their color, which is very pretty indeed.

I would like to give you a more detailed report about the varieties. *Begonia "Bow-Nigra"* is a very strong grower, which seems to have all the vigor of *B. heracleifolia nigricans*. So far it has done very well. *B. "Bow-Chancee"* and *B. "Bow-Arriola"* are a little slower, especially the last named, but it picks up under the cooler conditions we have now. *B. "Helen Krauss"* has not grown too fast, so far. It is now building a lot of new shoots, which indicates that it prefers to stay a little cooler, too.

Of *Begonia "Joe Hayden"* we have an old plant which has proved to be a good variety for this district and produces plenty of flowers in the early spring. The plant you sent us is picking up speedily, even if it is not too fast.

A very good bloomer is *Begonia "Preussen."* It grows steadily and stands the heat very well. Dr. Anderson took one plant in his house to find out about its value as a house plant. I suggested a sunny spot.

Begonia "Thurstoni" and *B. metallica* did not make much progress during the hot weather, but since it is cooler they have started to break into new growth. They do much better in Central Europe, where they are quite common along with *B. "Credneri."* If we get them up to a good size during the summer, we will be very happy. *B. scharffi* and *B. "Mrs. Fred Scripps"* are doing much better than those two mentioned before, but like more cool weather too.

Begonia "Silver Star" and *B. "Green Star"* have been very slow so far. They should be more vigorous. I got a big unrooted piece of *B. "Silver Star"* from Mr. Teuscher, Montreal Botanical Gardens, potted it in sphagnum moss and put it under fog for two weeks. Now, as three weeks have gone without fog, the plant is well rooted and shows good growth.

It seems that these two plants (*Silver and Green Star*) prefer a very fibrous potting medium.

Begonia "Ricky Minter" is the strongest grower of all you sent us, for our climate. It stands the heat very well and needs to be potted in a 5 or 6 inch pot soon. Almost of the same growth is *B. "Erythrophylla Helix"* and we are sure this will be a good house plant.

A delicate grower is *Begonia "Stitched Leaf."* We have it nicely trained in sphagnum in a 6 in. fern pan. This is a cutting we made at the arrival of the collection. The mother plant is in more ordinary soil and by far not as happy.

I brought cuttings of some twenty varieties of rex begonias from Montreal. I have good luck with rex begonias here in St. Louis. So for the details of the plants you sent us.

I would like to give you some details of my way of cultivating begonias. For most of the begonias I use even parts of loam, peat moss and sand for the full grown plants. If they are young I prefer less loam. In addition fertilizers of various organics. I do much experimenting. Since last spring I use more sphagnum moss. I learned it from Mr. Teuscher, Montreal Botanical Gardens, and started here with *hippeastrum*, *hoya*, *episcea* and other plants. This I have found is a very good way to grow many of the begonias. Mr. Teuscher has most of his big rex begonia collection in sphagnum and they do exceedingly well; grown in this manner. When I visited him six weeks ago, he had a rex begonia grown in this medium that was being exhibited at the Montreal City Hall and this rex begonia had one hundred and twenty leaves.

Some months ago I started to build a mixture of fire-clay and peat moss. I do not know if you have ever heard about it. I brought this idea from Germany, where Prof. Johndorfer developed a soil from a special kind of fire-clay and peat moss. This is patented and in the trade under the name "Einheiterde" (standard soil). It is excellent and most scientific institutions as well as the majority of the commercial growers use this soil. Almost everything can be grown in it, even *paphiopedilum*.

I got some samples from a local clay pit, broke it to pieces of about this size and sifted it free of any fine parts. I mixed even parts of "clay-grains" with peat moss (Cana-

Begonia D'Artagnon

By JEAN KERLIN

BRED to be the "Queen of Begonia Baskets," *B. "D'Artagnon,"* an offspring of *B. scharffiana* and *B. epipsila*, outperforms all begonias of its type. Both parents are strong natural trailers and this second generation starts to trail after the third set of leaves are well formed. This seems incredible considering the heavy texture of its leaves and stems. However the weight only indicates its strength. The root system, too, is extremely virile as it needs ample underground feeders to support this freely branching basket type.

If grown in ample sunlight daily during the winter months and not less than three hours in summer, the foliage becomes almost coarse due to the hairs closely distributed over the entire leaf and petiole surface.

A mature leaf measures 5" from sinus to tip, 2 $\frac{3}{4}$ " from sinus to top of leaf curve. The ovate leaf is 4 inches at its widest section just below the sinus. The leaf surface is a dark true green, sometimes called "forest green." Upon close inspection, or viewed with the leaf aslant, one notices the very soft short upstanding hair growing close together. These hairs are so short and so soft the leaf color is in no

dian) and planted rooted rex begonia cuttings in it. In the five months they have now been in this mixture, they have done very well. I fertilize frequently and give them plenty of water. The grains of the clay still have the same size and you can imagine how well aerated the soil is. You never can over water the plants. The surplus water runs rapidly through. On the other hand the clay and peat moss keep enough moisture to supply the roots. The only problem is that you frequently have to fertilize (once a week), but it would make no difference if you have the equipment to fertilize while watering. This is very promising. As soon as I have more time, I shall do more about it.

Note: The collection of begonias Mr. Tutass speaks of were contributed by the American Begonia Society on June 8, 1956, for testing for the benefit of growers living in a district with growing conditions similar to St. Louis, Mo. We appreciate the help and interest Dr. Anderson and Mr. Tutass of the Missouri Botanical Garden have taken in our project, the Test Gardens.

way affected. The underleaf surface is the most attractive feature as the color nearly defies description. It might be termed "satsuma plum red" for lack of better color term.

This magnificent color is further enhanced by close matted white hair resembling "hoary frost." This hair is double the length of the surface leaf hair and sometimes long enough to curl around each other. The edge of the leaf is almost entire—there are no indentations and the edges are as heavy as the leaf center. The petioles shade from deep red to pale yellow green at base of sinus. The veining on the surface is not noticeable and is prominent on the underside only as they flare from the sinus. Auxiliary veining is lost in the color and coating of the leaf. The underneath hairs extend outward past the rim of the leaf.

Because of the size and heaviness of the leaf, the sheath or stipule carrying the new arrival must be unusually large. They have a broad base sometimes an inch and one-half wide, gracefully tapering to a sharp point. Their color is the plants accent as it is translucent bright clear green. As the leaf unrolls the stipules begin to dry and brown, remaining firm on the stalk even when they wither.

—B—

COVER PICTURE

BEGONIA D'Artagnon, well grown by Mrs. Irene Brummel, San Gabriel, appearing on the front cover, was photographed by Bill Givens, Mrs. Brummel is comparatively new in growing begonias. I really have to visit other gardens to see how well my hybrids behave when not under constant experimentation. This begonia will do its best as a hanging basket as it likes quite a lot of light and not too much water. If grown in the shade, the leaves will stay flat. In light, the leaves curl up to show the dark, almost blood red back with white hair which distinguishes the plant from others of its kind. The curled up olive green leaf resembles the red hat with furry brim of the Fourth Musketeer, hence the name.

MARIE TURNER

—B—

Due to the serious illness of our Secretary, Arline Stoddard, we have not had the minutes for publication.



Begonia Froebeli

By H. TEUSCHER, *Curator*, Montreal Botanical Garden

OBSERVING a plant in its native habitat is generally believed to provide the most valuable clues for its treatment in cultivation. To a certain extent this is true, but only insofar as the observer is able to evaluate what he sees. The type of soil, for instance, in which a plant grows in nature, can be completely misleading, because this may be suitable only under the specific and complex conditions of the natural habitat. Especially when a tender plant is concerned which in cultivation cannot be accommodated out of doors, the very fact that it has to be confined in a pot may necessitate a completely different soil treatment. Exposure and moisture conditions of the habitat may be revealing, provided one considers these factors in their entirety, including their rhythmic changes throughout the seasons of the year and even through the hours of the day. The momentary conditions under which one may happen to find a plant mean very little.

Begonia froebeli, which it has been my privilege to observe in its wild state and to collect in Ecuador in the spring of 1956 has taught me many valuable lessons. I first saw this handsome and rather large-flowered begonia from the "Ferrocarril"—a strange contraction which might be called an omnibus on rails—on the trip from Riobamba to Tampa. The line on this stretch runs between 8,000 and 9,000 ft. high up in the Andes. Usually, as is the manner of all roads in Ecuador, it follows the outline of the mountains in frequent curves and often provides magnificent views into large, beautiful valleys. On the inside or mountain-face of the rail line is usually a steep cut, and this bank is gay with calceolarias, fuchsias and other flowers. Here is where I first saw in certain places whole drifts of *Begonia froebeli*, the rather short-stalked, almost circular leaves lying flat on the ground and the partly nodding, scarlet flowers glistening in the sun. Yes, the begonias appeared to be growing in full sun, but actually they were not. In the first place, they always occupied only South or Southwest facing banks, which below the equator represent the shady side. Besides, as these mountain slopes are nearly always veiled I later found out, during the height of the day in cool mists. I was passing there in the late afternoon. A warning to me at the time that some such condition must exist was the low,

dark-green adiantum fern which clothed the ground between the begonias, setting them off most admirably.

I badly wanted plants of this begonia which looked so different from any others I had ever seen, but we were near the end of a very uncomfortable 2 days trip from Quito to Cuenca, and evening was close at hand. The Ferrocarril travels only once a day in either direction, and to leave it at this spot would have meant that by nightfall we would have found ourselves hours away from even the most primitive shelter. Therefore, I decided to return, but, by the time I was ready to do so, the Ferrocarril line was blocked by a landslide which is a common occurrence in this region.

Traveling by bus, my companion and I reached the small village of Gun, where the roads part and where we hoped to be taken along by a truck or car for another hour or so to get as close as possible to the begonias along the Ferrocarril line. In the meantime we stepped into a small inn by the roadside to refresh ourselves with an exceptionally good cup of coffee. My companion, who spoke Spanish fluently, talked to the proprietor, an Indian woman, who like many natives turned out to be a great flower lover. When asked about the begonia, she said that we need only go along the road for about half a mile and then down the slope to the left where we would find many of them. She even came with us to show us the place, and there the begonias were again, sure enough. They grew mostly under low shrubs or in the shelter of rocks, and the companion adiantum fern was present also. The altitude which I established with my altimeter was 8,400 feet above sea level. The soil was a heavy, though somewhat stony clay in which one would hardly expect begonias to thrive, though the adiantum fern also grew in this soil which had no humus cover at all. Grass growth was only very sparse on this slope and other flowers present were a golden yellow calceolaria, a gentian-blue sage and purple-violet scrophulariaceae which looked like a pentstemon.

From its habit of growth I had right away suspected that this must be a tuberous begonia which I now was able to confirm. The tubers were from 4 to 6 inches deep in the soil. This

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Scientific Hybridizing, Part IV

Problems of Seed Setting

By MERLE NELSON, *Taxonomist*

ONE OF the problems which confront the plant breeder from time to time is the failure of seed set. In all respect the parent plants may be quite healthy and normal and pollination may be made over and over again with all due care and yet little or no viable seed is obtained. Or further work with a promising hybrid that has been raised to maturity is impossible owing to the fact it will not set seed when pollinated with its parents or self-pollinated.

The failure to set seed may be due to one, two or three main causes. First as a rule cross-pollinations between two extremely differing species will fail because the pollen grains are not able to germinate and carry on fertilization in the normal way. The pollen tube, as a rule, will not grow down a style except of its own species or genus. The more different two plants are, the less likely that cross-pollination will occur. In some instances cross-fertilization will take place and yield seeds which grow into normal plants but these offspring might be sterile because the two parental chromosome sets cannot work together in harmony. When two species have different chromosome numbers, it does not infrequently happen that while a cross between plants A and B fails, a reciprocal cross between B and A will yield a few seed for one reason or another. Therefore, crosses should be made reciprocally.

If a cross is desired of a plant which is a poor seed setter, it will be, as a rule, best to employ the plant as the pollen parent, usually a better set of seed is obtained. The reason being there is always a large excess of pollen and a few good grains should be present to fertilize the ovules.

A second cause of sterility is the improper development of the reproductive parts of the plant. In the case of defective pollen, or where little or no pollen is produced, a change in the cultural conditions such as a lower temperature or starvation will in some instances result in the production of good pollen. Starvation and drought will sometimes bring a double flowering plant, where the additional petals have been derived from the stamens, to produce a less double flower bearing a few anthers with good pollen.

A third cause of seed set failure is incompatibility. Incompatibility is due to the action of genes carried by the pollen which inhibits it from growing a pollen tube down the style of a plant carrying an inhibiting gene. Sterility of this type can be overcome only by experimentation with as many different pollens as is needed to get a seed set, plus the applied use of the Mendelian Laws.

Sterility in some species-hybrids may be due to the fact it is the only plant of its kind with the chromosome number to cross it to. A species-hybrid failure to set seed is usually due to a failure of chromosome pairing. The doubling of the chromosome number in a sterile hybrid of this kind will restore fertility, this is in a great many instances true. The regularity of cell-division can be upset by certain treatments which will increase the chances of chromosome doubling. One treatment which has been used successfully with some plants to bring about chromosome doubling is to subject the plant to a sudden increase of temperature in the very early bud stage when the germ-cells are being formed. A second method employed with some degree of success is treatment with colchicine. Growth for a time is considerably checked and distorted by the poison. Some of the tissue that recovers will have the normal diploid constitution, while other tissue will be tetraploid. It is not always easy to distinguish the one from the other. The tetraploid plant may be found to have larger stomata on leaves or the tetraploid flower may be found to have larger pollen grains than the diploid flower.

Irregularities in germ-cell divisions have been induced by watering plants with dilute poisons, by fumigation and by mutilation of the young bud with a needle. Prolonged drought at flowering time might also lead to doubling of the chromosomes. All seed, with no exception, produced from a sterile hybrid should be planted. If only one seed should germinate, that plant may give rise to a whole new strain of plants.

Fertility and sterility are intimately bound with the number and behavior of the chromosomes. In the great majority of cases only those species will cross which have the same

Vanda Orchids

By GLENN HIATT, Orchid Research, La Canada

VANDAS are possibly best known by the greatest number of women as the small orchid corsage received as a gift at a market opening or the festivities at conventions or banquets. These vandas are the so-called Terete type and are grown by the millions in the Hawaiian Islands and flown to the United States. The plants are reed-like and are grown in fields in much the same manner as we grow corn. The climate in Hawaii is so much like that region to which the plants are native, that no special

number and approximately the same kind of chromosomes. If a hybrid plant is to develop normally, the chromosomes must work together harmoniously. If the two sets of chromosomes are dissimilar, the fertilized cell may never divide or if so, growth may proceed, but abnormally. The reason being that for regular chromosome pairing at the reduction division stage the chromosomes must be identical or nearly so. Chromosomes which are quite dissimilar will not pair at all. Chromosomes which do not pair will not move to the ends of the cells in the normal way and their ultimate fate is a matter of chance; in this way some germ cells will have too many while others too few.

In some cases the cell division mechanism goes wrong and cell wall fails to develop between the dividing chromosomes then twice the normal number of chromosomes will be found in the cell (polyploidy). If this should happen in a sterile species-hybrid, then that portion of the plant will be fertile and produce seed. In this way polyploid series are developed from a basic number. For example the basic number of a genus will be 9 pairs of chromosomes. Within the genus will be found species having 9, 18, 27, 36, etc., which are all multiples of the basic number 9. Improvements brought about by chromosome doubling lies in the fact there is a much greater degree of variability in the expression of the characters.

In a final look at chromosome mechanics, one should see hybridization bringing together in one individual the results of the above changes in separate individuals, and in so doing providing new and more complex sets of genes for natural selection to work upon thus leading to more and more new types.

extra care is necessary. These plants, however, do not flower well in the United States, even in a greenhouse.

This discussion will include only the strap leafed vandas that are grown mostly by commercial growers and hobbyists for the beauty of flowers and smaller size of plants. They are indigenous to Southern India and the Malay islands, thus the cultural requirements are well within the normal conditions given to cattleya orchids and similar genera usually grown in greenhouses.

Vandas require as much light in a greenhouse as it is possible to give without increasing the temperature appreciably. If it is possible, hang the plants from the rafters under the glass or plastic roof at all times except when in flower. Flower production is directly dependent on this abundance of light. The above necessity for high light intensity in turn makes other factors in the growth of vandas very important. Quantities of water should be given at fairly frequent intervals. This can only be accomplished successfully if the compost is very loose and drains rapidly and well. Coarse fir chips, coarse osmunda, chunks of Hawaiian tree fern fiber, or any other comparable material will suffice for potting medium. A redwood slatted basket is good, but must be watched for too rapid drying out. If clay pots are used, a few small chunks of charcoal will help to keep the material loose and well aerated. With the constant watering and resultant leaching, any good commercial plant food generally used for indoor plants may be added about every third to sixth watering.

The minimum night temperature should be near the range of sixty degrees Fahrenheit during summer and winter. A large amount of heat is required to maintain the temperature in a greenhouse during extreme cold weather. This heat can cause much damage to plants due to the drying of the air if added moisture is not given. An automatic spray or fog system controlled by a humidistat is almost a necessity to retain the forty-five to seventy per cent humidity in the plant environment. Dampening of floors in the evening on cold nights will help to alleviate this problem also.

There have been a great many new vanda hybrids available during the past ten years.

Begonias in Descanso Gardens

IN APRIL of this year the American Begonia Society held ceremonies heralding the beginning of an extensive begonia planting in Descanso Gardens. Membership of the Society donated approximately a hundred plants of many species and varieties of begonias considered to be adaptable in this area.

The Descanso Gardens' staff immediately planted them in different areas of the gardens in conjunction with the regular plantings of *Begonia* "Catalina" and other fibrous begonias. Beds were prepared by incorporating large quantities of Tule Reed peat and leaf mold with the basic good quality soil.

Many plants tripled and quadrupled in size. Cuttings of all types were made of these plants were made of these plants as they grew and developed to increase the stock for future plantings.

During the course of the season certain types emerged as outstanding and it is anticipated that intensive propagation of those outstanding

types will greatly increase the plantings in the garden. Approximately 250 plants have been propagated from these outstanding varieties during the summer season which will be included in the plantings next spring.

It is our desire to report to the Society our findings on these various types of begonias and how they adapt to our situation. A Check List follows which will indicate our findings during the first season. It should be noted that in all cases it is extremely difficult to give a diagnosis in just one season's time. It is anticipated as time goes on that further reports will be made and possibly newer varieties added to the collection, while those that prove unsatisfactory will be removed from the list.

As a note to the members at large, the Descanso Gardens' staff would be pleased to test any new varieties which members may have for a comparative report.

JOHN L. THRELKELD

CHECK LIST OF BEGONIAS DONATED TO DESCANSO GARDENS BY A.B.S.

<p>OUTSTANDING</p> <p>Mrs. Fred D. Scripps Richmondensis Richland Thurstoni</p>	<p>Mrs. W. A. Wallow Scandinavia Sir Percy Susie Zug Verschaffelti</p>	<p>Houghtoni Indian Maid Indra Lawrence Fewkes Lucerna Luwalter <i>manicata</i> Margaritae <i>metallica</i> Modesty Nelly Bly N.Y. Botanical Gardens 25227 Prunifolia Ricinifolia Ricky Minter Rola-Y Rubra Silver Star Superb-Mentone Tuberous Vedderi Ventura Verschaffeltiana</p>
STANDARD		
<p>ABOVE STANDARD</p> <p>Fisher's Ricinifolia Freddie Joe Hayden N.Y. Botanical Gardens 76227 Pink Camellia <i>scharffi</i> <i>scharffiana</i>—Procumbent</p>	<p><i>acutangularis</i> Alta Scharff Alta Scharff—Procumbent Alta Maiden <i>angularis</i> Bayerne <i>barkeri</i> Calla Lily Carmen Catalina Dorothy Grant Druryi Erythrophylla Erythrophylla Helix <i>evansiana</i></p>	
<p>BELOW STANDARD</p> <p><i>acuminata</i> Argentea-guttata Loma Alta Manda's Woolly Bear <i>manicata aureo-maculata</i></p>		

Calendar

Dec. 19—Hollywood Branch—Potluck dinner, 6:30 P.M. "Christmas Decorations" illustrated by Mrs. Pruella Abbott.

Dec. 28—Redondo Beach Area Branch—New Year's Party.

Jan. 23, 1957—San Gabriel Valley—Peggy Sullivan at Annual Birthday Dinner.

Roscoe's Surcuma

By JAMES GRIDLIAN, Oakhurst Gardens

RECENTLY I was presented with a real treasure of a plant in bloom, of the "Terra-Cotta Curcuma," *Curcuma roscoeana*, by one of my most generous friends, Mr. Cecil Holdyshel of La Verne, Calif.; he in turn having obtained the tuber of the plant from Wyndham Hayward of Florida. Even though I have been growing exotic flowering plants for many years I had never seen this plant in bloom, and was instantly struck by its unusual structure and beauty when I saw it in the glasshouse. I must have made a spectacle of myself with my admiration and enthusiasm because even though he had only two plants, he gave me one. Can you imagine such generosity?

I brought the plant and placed it at the entrance to my own glasshouse, and now I know just how I must have sounded because everyone else who sees it is also instantly carried away with enthusiastic exclamations. The whole thing is so unbelievable in its structure and coloring. And such a long-lasting flower! It is now nearly seven weeks old and it is still going strong.

It grows from a corm-like rhizome which is about the size of a small walnut, and is said to be a sure bloomer either under lath or glasshouse in half shade, or will make a very good plant for the window garden. I do not know if it is hardy to frost, but being deciduous, it can be stored in a warm place over winter when it is naturally dormant. This should make it a very popular plant with our Begonians except that it is still rare and nearly unobtainable.

It belongs to the Ginger Family and is one of the forty-two known species of Curcumas which are native to Asia and Africa. This one comes from India. There are half a dozen species to be found in collections, and I was fortunate enough in locating four species including the subject of this article and expect to have them on hand about the first of the year.

The plant produces four leaves about a foot long and stands about two feet tall. The leaves are large, green and ribbed and good enough to have even if the plant never bloomed. It is said that the blooming season varies according to locality and growing conditions. It blooms earlier in the ground and later in pots. Mine is in a 7" pot and started to bloom about the middle of September and is still going strong at the time of this writing, Nov. 14. The flowering part stands about



eighteen inches high with the inflorescence a foot long. For a description please look at the illustration. What you see is a series of bracts shaped like a half cone and arranged spirally around a central column. The bracts are stiff and fleshy and feel almost like a wood carving. The color is apricot-orange. Each cone bears three flowers in succession at different intervals, and at no time have I seen more than four flowers open at one time. The flowers are yellow and lie flat on the cone.

A close examination of the illustration will show two flowers open. The individual flower lasts only a few hours. What a stunning flower for our flower arrangers to use! The flower may be cut with two or three leaves if desired without injuring the plant since by that time the leaves are almost ready to die back anyway.

Plant in a well drained pot using a light compost of peat, leaf mold, sand and soil, and keep barely moist until growth starts in the spring. From then on it may be liberally watered and occasionally given liquid food. Perfect drainage and acid soil seem to be imperative. When the plant becomes dormant in the winter, dry it off gradually and give just enough water to prevent the soil from becoming powder dry, else the rhizome may shrivel.

Cattleya Questions and Answers

Inasmuch as orchid growing consists of repeating a great many simple procedures, there are a number of questions we are asked repeatedly each year. With the belief that listing some of these questions and their answers will be of benefit the following is submitted.

Q. Where can I grow Cattleyas?

A. Theoretically any place where approximate temperature range of from 60° F. to around 80° to 90° F. can be maintained and with a relative humidity of from 60° to 80°. A sunshiny window, sun porch, solarium or wardian case is satisfactory, though we do recommend a conventional glass house for maximum results.

Q. What are the best ways to get good stock?

A. There are two ways. The first is by purchasing divisions of proved stock or by getting plants in bloom; this understandably is the most expensive. The second is through purchasing seedlings of good breeding. This is the best way if orchid funds are limited. If the purchaser is careful to select plants only from reputable growers and avoids bargain counter stock, the average value of seedlings on flowering will prove a satisfactory investment.

Q. How often shall I water?

A. This is determined by a number of things. On the average a mature plant will take water about once a week during the active growing season. This frequency will vary according to the weather. A plant in a 7" pot may only need water about once a month during the winter or during a cloudy period. The new potting medium "Fir Bark" may be kept rather dry directly after potting to encourage rapid growth. Frequent spraying of water overhead keeps them from shriveling their bulbs. After rooting out, this mix may be kept "damp" at all times.

Q. How can I tell if a plant has lost its roots?

A. There are several conditions to look for. The first is an excessive shriveling of the bulbs and leaves with accompanying yellowing of the foliage. The leaves of plants that have lost their roots have a shriveled corrugated appearance. Do not bend them at this time for unlike healthy leaves large brown areas will develop where they are bent. Another sign of lost roots is progressively smaller or aborted growths or flowers far below normal quality.

Q. What should I do to plants that have lost their roots?

A. The best practice is to repot in fresh Fir Bark and give the same treatment as newly potted plants.

Q. To what pests may my Cattleyas be subject?

A. Cattleyas and allied hybrids are relatively pest free. Scale and thrip are the two common enemies and they both can be controlled by regular monthly sprayings with DDT.

Q. How can I tell when a plant needs water?

A. Familiarity with specific plants will show that a pot is lighter when dry. Inspection of the surface will show that it is brown and brittle when dry and light, or black and flexible when wet. Look at the surface roots; they are white when dry and a mossy green when wet. Examine the crotch in the bottom of the pot. If it is moist it indicates that the bark in the middle of the pot is still wet. Pushing a pencil or small stick into the pot will further indicate the degree of dryness.

Q. I have quite a number of new growths that have developed without sheaths and are not flowering. What is the cause of this?

A. This is generally the result of not giving the plants enough light. It is suggested that the grower examine his shading and see how much he can take off without excessive yellowing of the foliage.

Q. What is the cause of brown sheaths?

A. In Mossiae and Mossiae hybrids it is a normal condition for the sheaths to turn paper dry several months before the buds come up. Attention is necessary especially in the case of plants producing succulent sheaths when the sheath commences to turn brown. This is usually the result of too high humidity. Sheaths of this type should be cut off at the tip or slit down so as to let air in and let the moisture escape.

Q. What does sunburn look like?

A. Generally this shows up as large black spots on the foliage which dry up and do not spread. This is usually caused by the shading being washed off the glass by rains and the plant being suddenly subjected to unfiltered high light intensities.

Fred A. Stewart Orchids
Temple City, Calif.

Growing Begonias in British Columbia, Canada

BEGONIAS do well here in the North Okeanagan and I have quite a variety in my small greenhouse, such as *B. "Orange Supreme," B. "Lucerne," B. "Diculata," B. "Lady Mac," B. "Calla Lily,"* rex, *B. mazae* and many others, some of which I cannot name. I also have a few tuberous begonias among them: *B. martiana, B. evansiana, B. picta* (grown from seed from the Seed Fund), *B. "Multiflora Flamboyant"* and other unnamed red, pink and white plants.

My greenhouse opens off the kitchen so I can spend many odd moments enjoying my plants. It is heated by large electric heat lamps controlled by a thermostat. There is also an electric fan in the wall which carries heat in from the kitchen. In addition I have a small portable coal oil heater for use on very cold winter nights. The temperature in January and February often drops to as low as 20° below zero. On the other hand the summers are quite hot, so we do have rather extreme



B. evansiana and white double rose tuberous

weather conditions to cope with. In the summertime when the thermometer hovers around the eighties and nineties, I move my plants out to a sheltered northeast corner of the house where they get a few hours morning sunshine but are shaded during the heat of the day.

For potting soil I use 2 parts leaf mold, 1 part peat moss, ½ part well rotted cow manure, one 4-inch pot of bone meal (to a barrow load of soil mix) and a sprinkle of wood ashes and Scotch soot. I use very little additional fertilizer.

Other plants in my greenhouse are the hoya carnososa, a variegated hoya, mimosa, ti-plants, crossandra, ferns and others. I have recently acquired a very handsome plant, the gynura or purple velvet plant, which has, as its name implies, a lovely shading of purple on its leaves and stems. It is a very nice contrast to my begonias.

It is nearing the Christmas season again and I would like to send Best Wishes to readers of *The Begonian*.

GLADYS DAY, British Columbia

—B—

Cinerarias . . .

(Continued From Page 267)

the beginning of the active plant growth, then switch to the balanced plant food later.

Growing cinerarias in pots is a wise idea, whether you grow them indoors in the East, or for porch or patio display outdoors in the milder areas of Southern California. Plants are susceptible to frost damage, consequently need to be grown in frost free areas, or protected from frost.

In Memoriam

We are deeply grieved at the irreparable loss of greenhouse director Otto Kuhnt, who died suddenly on August 20, 1956, at the age of 52.

State Institute of General Botany
and the Botanical Garden
Hamburg, Germany
Dr. W. Mevius, Director

The Orange County Branch and the Los Angeles Branch would like to take this opportunity to thank each Branch for its generous donation of plants to the Seed Fund Booth at the 1956 Convention.

Thank you again for your wonderful support.

LOUIS SCALLEY, *Chrmn.*, Orange County Br.
MRS. FLORENCE GEE, *Chrmn.*, Los Angeles Br.

PRESIDENT'S CHRISTMAS GREETING

Greetings to all officers, members and friends of the American Begonia Society. It is my sincere desire that all have a cheery Christmas and a bright, prosperous New Year.

CAL TROWBRIDGE

Begonia Kumwha

ONE OF the finest of the many new begonia hybrids is *Begonia* "Kumwha." Unfortunately, little has been written about this plant even though it was introduced in 1953. The cross was made in 1952 by Don Horton shortly before he went into the army. He chose the beautiful hybrid *Begonia* "Reichenheimi" as the seed parent and the pretty, but somewhat



difficult, begonia species *B. kenworthyi* as the pollen parent.

The cross took, the seed was harvested and planted, and then Uncle Sam whisked the hybridizer off to the service. Two plants grew from this cross and Don's mother turned them over to Susie Zug for observation and growing on. Although the plants were similar, one was superior to the other and proved to be so good that Susie wanted to enter it in the 1953 National Convention Begonia Show. She wrote

Don for permission to enter it in his name and to ask him what he wanted to call it. At that time Don was stationed in Korea in the beautiful, but formerly bloody, Kumwha valley. The name was a natural. The begonia won first place in its seedling class and duplicated the feat the following year.

Mrs. Zug had propagated a few plants and these were released to the public in 1953. A few have been available since, but this plant has neither received the distribution nor publicity it deserves.

Begonia "Kumwha" is moderately large. The leaves will reach a diameter of 14 to 15 inches and the petioles a length of eighteen. The leaves are lobed back about half the distance of their radius. The color of the leaf is a greyed blue-green with lighter veins. The reverse of the leaf is red with green along the veins. The reverse coloring of the leaf shows through the face giving it a slightly mottled effect. The petiole is covered with white tipped red hairs and has a collar of these where the petiole attaches to the leaf itself. This begonia blooms in the spring; and like both of its parents, has pink blossoms which it holds well above its foliage. It grows well the year around in California and is truly a desirable plant to have in any begonia collection. And in California where tropical landscaping is enjoying great favor, *Begonia* "Kumwha" is seen to have a great use as its gray blue-green leaves give a color contrast hard to duplicate.

Christmas Rose: Helleborus

By ANN EVANS

WANT a fine all season plant for your shade garden? Helleborus is the answer. Having crisp green foliage, a rose type flower coming into bloom at or near the Christmas season, it is often called the "Christmas Rose." Its blooming period extends two or three months, at a time when color is needed in shaded areas.

Helleborus leaves are slashed fanwise into leaflets, making a pattern of most attractive foliage in garden clumps.

The one generally known as "Christmas Rose" (*Helleborus niger*) starts to bloom as early as November continuing on into February. Flowers range in color from white through pink to lavender. One may choose from four

species differing somewhat in growth habit and color of blooms. Any one of them is a worthy subject of conversation, and a fine companion for camellias and other shade plants.

Helleborus niger, *H. orientalis* (Lenten Rose), *H. corsican*, *H. lividus*, *H. foetidus*, *H. Bears Foot*, all require shade and well drained soil. When new growth starts, give well balanced fertilizer two or three times to keep them healthy and happy. Keep all old leaves cut off after new growth starts. Clumps may be divided after two or three years when blooming period is past. Divisions should have soil full of humus whether potted or planted directly in ground.

Tuberous Begonia Culture

THE FINEST quality, young tuberous begonias are full of vitality and will grow vigorously and bloom freely. *Always plant them with the hollow side up.* When the weather warms up, you can plant them outside, but it is safer to start the bulbs inside first.

Use a mixture of sand, peat and loam, covering the bulbs not over $\frac{1}{4}$ to $\frac{1}{2}$ inch. Keep the pots in a warm place, covering them with an old carpet or similar material. Water sparingly until growth has started, but be sure that the bulbs are kept moist and not allowed to dry out. As soon as the growth shows above the soil, take off the covering material and give them light, keeping them warm and moist. When the weather outside is settled and warm, you can transfer them from the pots to the actual location, setting them 2 inches deeper in the bed than they were in the pots. Be sure to plant them in a shady location, also give them protection from the wind. Plant them in a well-drained location in a soil which has ample humus and fertility. Keep them well watered but not soaked.

If you plant the bulbs outdoors without starting them inside, be sure that you do not plant until the weather is warm, and also be sure, whether you plant outdoors or in pots, that you plant the tubers with the hollow side up. If you plant the bulbs directly outdoors, cover them $1\frac{1}{2}$ inches and place the bulbs approximately 12 inches apart. At intervals of six weeks, an application of well-rotted cow manure will be beneficial. When we say plant in the shade, that does not mean to plant under a big tree, but rather on the shady side of shrubs or north side of house.

In the fall after the first light frost, lift the plants, but be careful not to break the tubers from the stems. Leave the foliage intact and put the plants with balls of earth into flats and leave them in a dry, frost-proof place until all foliage has withered. Then clean the tubers and replant in fresh soil, in 6-inch pots for winter bloom.

Courtesy: Inter-State Nurseries
Hamburg, Iowa

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The Term 'Hirsute'

THE TERM "hirsute" is of Latin origin from the word *Hirsutus*, meaning rough, hairy or shaggy.

The term as defined when used in Taxonomy, "Hirsuti; with rather rough or coarse hair,"* and is not restricted to any particular organ of the plant, i.e., leaf, stem, inflorescence or fruit.

The term can be found to describe the type of pubescence of any or all organs of a plant. Such examples as follows can be found in Jepson, Willis Linn, *Flowering Plants of California*, University of California Press, Berkeley, Calif., page 629, genus *Sedalcea* of the family *Malvaceae*:

"3. *S. hirsuta* gray stem erect 1 to 2 feet high, its branches ending in dense spikes; herbage more or less hirsute-pubescent

"6. *S. eximia* Greene, stems stout, erect decumbent at base, paniculately branched above, 2 to 3 ft. high; herbage, especially the stems markedly hirsute;

"7. *S. spicata* Greene, stems slender, often paniculately branched above 1 to 4 ft. high; pubescence hirsute on the stem, petioles and particularly on the calyx."

MERLE NELSON

After much correspondence with botanists and persons of authority in the field of taxonomy, the A.B.S. goes on record as not using the botanical word "Hirsute" in classification of begonias in show schedules, to use the word "Hairy" instead. The hairs to be on the vegetative parts of the plant.†

†Minutes, National Board, June 25, 1956.

*George H. M. Lawrence, *Taxonomy of Vascular Plants*, The Macmillan Co., New York, 1951

Ainsworth, *English-Latin Dictionary* by Thomas Morel, Wriah Huxton and Sons, Philadelphia, 1856.

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B u l b P l a n t i n g

BULB planting is of great importance to the spring garden. In planning your bulb planting you should take into consideration the use or purpose of the bloom. Do you want them only for cut flowers? Then plant in a bed in that part of the garden where they will not be visible from the living area while the tops are dying back. Do you want bold showy spots in your garden? Then plant in clumps, not in rows, for color effect. Plan your color combinations in group planting of three, five or seven bulbs, using one color in masses, not mixed colors.

No other class of flowering plants gives us as much beauty and if properly planned, you may have flowers from bulbs practically the whole year around. Bulbs need only simple cultural requirements. You are always sure of success with them. They are economical in cost and time required for their care. They increase in size and number with few exceptions, such as the tulip.

Botanically speaking a bulb is a modified underground stem which stores food for future use. The food is not taken directly from the roots as in many other plants but from stems and leaves above the ground. Therefore you can readily see that unless the leaves are allowed to complete their normal cycle of growth, the bulb will not develop to its full capacity. So never cut the leaves for decoration; in fact do not remove them until completely dry and they fall off naturally. However, unless you are hybridizing, you should cut the flowers as soon as they begin to fade so that their strength is not wasted in forming seeds.

The most important cultural fact to know about bulbs is that they require the best of drainage. They will not tolerate wet feet either in winter or summer. Most bulbs require plenty of water and the ground should be kept well moistened all through the growing season and until one month after blooming, but be sure the drainage is good.

Any bulbs left in the ground need, at this time, to have all weeds taken from the bed, the surface thoroughly scraped and given a good soaking, enough to penetrate for a foot, at least. Scatter a generous amount of bone-meal over the surface of the bed and water it in well.

If you are planning to plant narcissus or daffodil bulbs in a new place, soak the soil well, lay aside a six or eight inch layer of the

top soil, add plenty of well rotted manure or alfalfa meal to the remaining soil and spade in deeply. Let it mellow for at least a week before planting. The mellowed soil should then be leveled. Add two inches of sand and set your bulbs on this sand. Setting the bulbs on sand prevents the new roots from coming in contact with the manure or alfalfa meal too soon. Now replace the top soil which should be lightened with leaf mold or peat moss if it is heavy, scatter a generous amount of bone meal over all, tamp it down well and soak again. Perhaps you have been in the habit of putting your bone meal under or around the bulbs and while bone meal will not burn, you really lose the value of it if done in this way, for as explained above, bulbs feed through the stems and leaves more than through the roots. Theoretically a bulb does not need fertilizer, as it has within it the bloom and next year's growth. However, we must fertilize our bulbs now to produce the following year's bloom.

As a general rule it is better to plant bulbs at least two inches deeper than the bulb charts show. You will find that deep planting of bulbs will give you more bloom and better color.

When transplanting bulbs do not pull them apart. If they fall apart naturally during the process of washing, etc., it is time for them to be divided. Wash, dry and store bulbs in a cool place until they are to be planted. The amateur should not leave bulbs out of the ground too long. Discard and burn all diseased bulbs. Buy bulbs from California or Pacific Coast growers, for these bulbs are better adapted to our climate. When buying bulbs, judge them by their firmness rather than size. Different varieties are of different sizes. A small firm bulb may produce a large flower.

The above culture is primarily for narcissus or daffodils, although much will apply to lilies.

When planting lily bulbs you must know if they are stem-rooting lilies; that is, if a second series of roots appear above the bulb after planting. If so, those stem-rooting bulbs must be planted deep. Lily bulbs should remain undisturbed for many years, narcissus or daffodils for four years. Lilies are best planted from September to October, however there are some to be planted at all times of the year. They need leaf mold soil, peatmoss, sand and partial shade. Hyacinths and tulips are not as long lived as the other bulbs, however when planted deeply and not disturbed they will perform

Dregie x Woolly Bear Semperflorens

THIS is a cross made by Leora Calmese and is admired by everyone. It has felted, small, crinkled leaves, very colorful—deep wine on back and brilliant olive green on top with bright red, rough edges. The leaves cup. The plant is a very low growing procumbent type with pencil thin rhizomes, many branching from the crown of the plant. The rhizome stems are smooth and very closely jointed—hardly $\frac{1}{2}$ " between each division. Short petioles on leaves give a very bushy growth. Blooms are many on short branches from each leaf axis and it blooms during the winter months. These flowers are very small, white three petal blossoms with yellow stamens.

My plant is about three years old. Just last month it started to fall apart—joint by joint drops off. They are not dead or rotten as they fall off. I am letting both plants go completely dry and it seems that now the rhizome is staying put—no more pieces coming off. I wonder if all of a sudden the *Begonia dregei* in the cross has shown up and the plant is going dormant now. The pot is full of roots and there is no sign of nematodes on roots or any kind of insect in the soil. Can anyone give a suggestion?

It is nice to have a club large enough to put on a show. We can exhibit only in our local Fair. The permitted begonias are very limited as so many bring diseased and bug infested plants that the Fair Committee throws out of exhibition about half of the entries because of this. It is a shame plants are not better taken care of.

IRENE RIGHTER, Mason City, Iowa
From Beginners' Round Robin

Ed.: In California bulbs and begonias often are planted together to assure longer blooming periods in shade gardens.

much better the second or third year than is usual with shallow planting. Tulips are best planted in November or December when the ground is cold. Lily and daffodil bulbs multiply by forming new bulbs when the ground is cold. Lily and daffodil bulbs multiply by forming new bulbs beside the old one, thus increasing your supply from year to year. Hyacinths and tulips multiply by breaking up into several smaller bulbs which decreases the size and quality of bloom.

RUTHANNE WILLIAMS
Sacramento *Begonia Leaf*

Garden Bed-Time

IT'S TIME to get the garden ready for bed and it's somewhat sad because if we have a cold winter, the plants will get burnt by frost. The trees are shedding their leaves and winter is right at the door. The leaves will come in handy to cover the begonias that are growing in the ground. By mulching with leaves, if we get a cold winter, the tops of the begonias will be burnt, but the rhizomes and roots will be protected.

It is also sad to see a plant in full bloom in the evening and in the morning all frozen, but that also has some compensation in our dry air climate. Lucky gardeners are those who have moist air all the time because it seems that moist air makes the begonias bloom more readily; that is the cane type.

I have several cane type begonias that I have had about 15 years and while they were in pots, I never got a bloom. Then I planted them in the ground and have had blooms all summer. If the winter is mild, they will bloom throughout the year.

M.

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Clayton M. Kelly Seed Fund Flight

No 1. B Frosty-semperflorens—(Formerly listed as *B. Karin semperflorens*). New. Bronze foliage, large pure white single flowers with yellow stamens. A nice addition to any *semperflorens* collection. Sow seeds now for beautiful profuse blooming plants for next spring. 35c per packet.

From India—**No. 1. B. roxburghi**—Large, broad-ovate, glossy bright green leaves, margins toothed and ciliate, flowers large, white and fragrant. **No. 2. B. josephi-species**—Small, ovate-orbicular leaves, sometimes lobed, usually stemless; flowers small, rose-pink. **No. 3. B. cathcarti**—Large, shiny, dark green leaves. Flowers are deep yellow on long stems. Not easy to grow. Should have warm, moist air. **No. 4. B. megaptera**—Rhizomatous. Leaves are dark, satiny, green, silver-blotched in some cases. The underside is dark reddish purple. Flowers vary. **No. 5. B. Bhotan species**—Leaves deeply lobed, dark olive-green, heavily gray-spotted, red beneath; flowers large, pink. The above are 50c per packet but if you wish the entire collection, you may purchase them all for \$2.00.

B. Unnamed-mixed—25c per packet. From two large and beautiful collections you may start a nice collection of choice begonias from a package of these seed. We wish to refer you to our iden-

tification director whose name and address appear on page 266 of *The Begonian*. Mr. Thieben will be glad to identify your plants. Follow directions on page 15, January, 1956, *The Begonian*, when sending a cutting. **B. sceptrum**. Brazilian species. Choice plant with deeply four-lobed leaves with one lobe longer than the others. Lobes are twice divided; green with silver streaks and spots, lighter green beneath and rosy tinged. Flowers are large, white, tinged with pink. See picture in Krauss book on begonias. Best propagated by seed. Packet 50c.

New seed just received: **No. 1. B. Alba-picta rosea**—Derived from *Alba-picta*, but larger and more vigorous than the species. The flowers are pink, large and pendulous. **No. 2. B. heracleifolia pyramidalis**—Mexico—Rhizomatous. Leaves large, deeply lobed, bristly hairy and dark green. Flowers pink on tall, erect panicles. **No. 3. B. Mrs. Townsend**—Sometimes known as *B. Heracleicotyle*. Rhizomatous. Small, green leaves, flowers deep pink. **No. 4. B. Sunderbruchi seedling**. **No. 5. B. Bessie Buxton seedling**, selfed and crossed with *B. Bessie Buxton*. **No. 6. B. maculata x B. maculata Wighti**—A hybrid by John Cole, South Africa. Above 25c per packet.

The tuberous begonia seeds offered in November "The Begonian" will be available through February. Also, the *semperflorens* listed in September and October at prices quoted. Speaking of *semperflorens*, this summer we grew Colombia *semperflorens* in the foreground of the camellia bed. They have been the brightest spot in the garden for many months and are still full of blooms. We are collecting seeds from some of the best colors and are passing them on to you at 25c per packet. The colors are coral with green foliage edged with red, beautiful clear pink. Brilliant red with foliage red beneath, and white edged with pink. Flowers and foliage are very large and plants are medium height and much branched.

From a member in Washington state: "I would like to grow a lot of the newer plants—enjoy trying them. The seed fund has been a great joy to me and all the seeds I have gotten from you are growing very well, making nice plants." We appreciate receiving favorable comments.

Greenhouse plants. Saintpaulias-African violets mixed. Choice seed of some of the best varieties: namely, Sailor Girl, Spring Bonnet, Dupont's Lavender Pink, Sailor's Delight and Holly. These all have been crossed on double pinks

and should produce some interesting plants (maybe a double pink). Ideal plants for the kitchen windowsills and apartment dwellers', where space is limited. Freshly collected, 50c per packet. From the Canal Zone—**Episcia-choco-**

late soldier.—No description available. **25c per packet. Gloxinia**—1) silver gilt mixed, 2) slipper type dark red, 3) slipper type white ruffled, 4) slipper type Reed's purple with spotted throat and 5) deep purple edged white. All gloxinias 25c per packet. **Streptocarpus wendlandi**. Cape primrose. South Africa. We have just received fresh seed of this beautiful plant which is considered one of the finest species in cultivation. Has many violet-blue or white flowers borne in the inflorescence with long tubes. Scapes are forked 2 to 2½ ft. high. Small packet, 25c. Seeds are slow to germinate. **Streptocarpus eylesi**. From South Africa. 25c per packet. **Crossandra undulaefolia**. Rare everblooming plant with glossy attractive foliage and flower spikes of bright salmon florets. 5 seeds for 25c.

We wish to extend our best wishes for a bright and happy holiday season and to express our sincere thanks for your generous and loyal support.

Mrs. Florence Gee, Seed Fund Administrator
4316 Berryman Avenue, Los Angeles 66, California

Begonia Froebeli

(Continued From Page 271)

was at the end of April, and the plants were evidently nearing the end of their growing period, though they were still in flower. They would die down to the ground in June and then rest for at least three months. The Ecuadorian winter, as far as there is any—there is not frost in these altitudes—extends from July to September. I still did not know what species this was, but I dug out half a dozen tubers which I sent by air to Montreal. And now came a surprise. The tubers were potted on arrival at Montreal, and, by the time I returned six weeks later, they had made new roots and had started to produce new shoots. Now, in October, they are in flower.

Apparently, they were able to accomplish a sudden switch-over to a reversal of their growth rhythm, and they undoubtedly will now be at rest in spring which is their normal flowering period in Ecuador. The tubers which my friend took along at the same time, and which he potted up on his return home at Cuenca, Ecuador, are still completely at rest now (in October).

This behavior of *Begonia froebeli* in cultivation north of the equator seems to be common because all horticultural literature as far as I have seen it gives the flowering period of this species as fall. The whole appearance of the plant has greatly changed also. The leaf-

Other genera. Regal lily. Ivory white trumpet with yellow throat flushed purple-rose without. Hardy, beautiful and easy to grow. **Passiflora platyloba**. Brazil. Passion vine with edible fruit. **Passiflora edulis**. Brazil. Purple granadilla. Flowers white, the crown white and purple. Fruit edible, dark purple and nearly three inches long. **Cortez Blanco**. El Salvador. Bignoniaceae family. Yellow flowers. Above 25c per packet.

Choice fern. Dryopteris Filix-mas (crispum cristata, Martindale's variety syn. Lastrea. A beautiful crested form of English fern. Every frond is crested at the pinna tips, end of frond splits and tassels. Rare. Hardy in mild climates. Greenhouse elsewhere. 50c per small packet. Spores should be started in sterile soil in a wide mouth jar with a tight cover.

stalks which are longer than under natural conditions are upright now, with the leaf blades spreading horizontally well above the soil. In addition, the same plants which in Ecuador had only 3 or 4 leaves now have a dozen or more and look so different that it is hard to believe they are still the same. However, the illustration in "Begonias" by B. R. Buxton shows exactly the same habit as our plants do now. The spelling of the name, by the way, is not "Froebelli" as given there.

The here illustrated plant was grown in sphagnum moss and has a diameter of 24 inches. The almost circular leaves reach a diameter of as much as 9 inches. The male flowers have a diameter of 4 inches. The female flowers remain tightly closed as small buds until all the male flowers of the panicle have fallen. Only then do they commence to grow and finally to open. The peduncles and pedicels are red and are covered with fuzzy white hairs. The sepals also are fuzzy white hairy outside. We shall make every attempt to obtain seeds and, if we succeed, we shall be glad to send seeds to the Begonia Society. So far, *Begonia froebeli* does not seem to have been used for crossing with other tuberous species, but in the right combination it may well be able to contribute very worth while characteristics to a new tuberous hybrid.

Leaves From Our Begonia Branches

GLENDALE

Held their annual Begonia and Shade Plant show, awarding ribbons to the winning plants. There were classes for semperflorens, fibrous, rex and rhizomatous begonias; and ferns, foliage plants and African violets. We all learned something from the Judges' comments about the plants and enjoyed seeing plants and begonias that can be grown successfully in this area. Mrs. Mabel Anderson, Slide Librarian, also showed slides from the A.B.S. Slide Library.

—B—

MARGARET C. GRUENBAUM

Met at the home of Mrs. Adolph Belser with Mrs. Ernest Jones, co-hostess, to celebrate the 17th birthday of this Branch. With guests from the William Penn Branch, they enjoyed and wished they owned the lovely begonias shown on the slides from the A.B.S. Library. These two Branches put in a lovely display of begonias in the Swarthmore College Chrysanthemum Show.

—B—

REDONDO BEACH AREA

FERNS in history go back to even prehistoric times. They are propagated from spores on the leaves. Never cut off the dead, or old leaves in the fall of the year, unless they are already broken, as they protect the "Crosiers," as the new tender uncurled fronds are called. In landscaping it is best not to use ferns in with the flowers, or if you want flowers too, use columbines or something similar. Ferns are best used in landscaping in ferneries or rock gardens, as the fronds and leaves on ferns can even turn brown if they touch other plants or are planted where they touch a building. When tree fern spores are ripe, they will pop so loudly that they sound like shots, and throw their seed 35 or 40 feet, but 99 times out of 100 they won't germinate as the soil must be absolutely sterile for germination.

To sterilize the planting mixture and the container before starting ferns from seed, put them in a 400° oven for an hour. A good potting mix for ferns is: 1 part leaf mold, 1 part peat moss, 1 part good black loam and 1 part coarse sand.

Moisten the mix well before putting the very fine dust like seed spores on it. Use a

tightly sealed jar for your starting container and never loosen the lid or open it until the seeds have not only germinated but are a few inches high and then let only a little air in at a time. It will take 4 to 6 months for the seed to germinate. In transplanting the new ferns out of their original container, never try to pick them out one at a time. Take them out in little blocks and then when they're larger they can be divided and transplanted with safety. Always soak your pots good and clean them before planting your ferns. Ferns should be transplanted in the early spring. There are more than 7,000 varieties of ferns left even after the Glacier Age destroyed many.

Tie up your full ferns to protect them from wind damage in the winter time. Two good fertilizers are blood meal and liquid fish. Alternate these fertilizers on them for best results. Spray them with either Hexotone or Tender Leaf sprays, and really to protect your ferns, put a "hands off" sign on them as some people have enough acid in their fingers to turn the fronds and leaves black or brown.

Synopsis of Talk by LeRoy Borchardt

—B—

SACRAMENTO

Mr. Robert Saxe spoke on "Rock Gardens and Primulas." The following advice was given members before they exhibited in the California State Fair:

Have begonias well groomed and ready. If you have not already done so, please cut off all old leaves now so that the remaining stems will have time to fall off before the judges see them. For plants that require staking, use inconspicuous dark green stakes, tie neatly with small green twisters and hide the ties. Spray your plants with 50% Malathion and protect them and the other members' plants. Carefully wash the leaves of your plants just before the Fair. I do not recommend using Leaf Shine because the dust tends to collect more on the leaves when it is used.

Dr. Robert Raab, plant pathologist from the University of California at Berkeley, spoke on "Diseases of Plants and Controls" at the October meeting.

Mr. C. C. Miller, owner of Orchido Ferneries in Fairfax and recognized throughout the State for his knowledge of ferns and orchids, presented a very interesting and educational discussion on these plants.

SAN GABRIEL VALLEY

"Modern Trends in Gardening" was discussed by Bert Slatter, speaker of note and garden hobbyist for thirty years. He stated that chlorosis was one of the most detrimental things to plant life. Chlorosis is iron deficiency in plants indicated by lack of chlorophyll in a leaf and prominent green veins in a yellowish area. Until recently there was no cure for this condition alkaline induced by lime or sodium. A plant has the same reaction to iron as blood in the human body. The sulfates, chlorides and oxides of copper and iron were used fifteen years ago to help eliminate this condition. Now we have the chelated materials which act as catalytic agents to accelerate within the molecule to make iron 100 per cent available. Previously azaleas and camellias were grown in peat to get an acid pH; now they may be grown in any medium providing a chelating material is used so there will be mineral absorption by the plant.

The effects of foliar feeding were illustrated by the lush deep green, heavy substanced, gigantic leaves of his begonia plants. It has been found that the stomates or pores on the surface of the leaves as well as those on the underside can assimilate sprayed plant food. By X-ray photography with C₁₄ it is shown that sprayed on fertilizer travels 1" in the leaf system in 5 minutes.

He propagates his leaves in a fir bark mixture. In his potting mix he uses dolomite lime which will not burn, granular hoof and horn meal for nitrogen because it is consistent and slow in breaking down. For a carbon source he uses Scotch Soot (chimney soot from soft coal) which intensifies the color.

When the new plantlets of a rooted leaf have roots of their own, remove and pot up, and reset the parent leaf which will again produce new plantlets in about seven weeks.

Light is one of the most important factors in the growth of a plant and he uses 800 to 1000 foot candles of light.

Plants are identical to mankind in the respect that they are organic, but the plant has it all over man because it manufactures its own food.

Trophy Award Winners

ABS NATIONAL FLOWER SHOW

PRESIDENT'S CHALLENGE TROPHY
(Best Begonia in the Show)

JOHN R. WILLIAMS TROPHY
(Best Rhizomatous Begonia)

Both trophies were awarded to *B. boweri* exhibited by Mrs. Darrell Bath of Orange County Branch. Mrs. Bath also received "The Award for Culture Certificate."

GONDA HARTWELL CUP
(Best Rex Begonia in Show)

Mrs. Darrell Bath exhibited *B. "American Beauty"* and received also "The Award for Culture Certificate."

PALOS VERDES BEGONIA FARM
CHALLENGE TROPHY
(Best Tuberos Begonia)

John Thieben, Inglewood Branch, for rosebud type tuberos begonia; also "The Award for Culture Certificate."

EFFIE CHAPMAN CUP
(Best Fibrous Begonia in the Show)

Mexican species *semperflorens* begonia exhibited by Mrs. Margaret Buell, Redondo Beach Area Branch.

CONNIE LEIGH HENDRIX CUP
(Best Amateur Flower Arrangement)

Mrs. Christine Brown for a lovely begonia arrangement.

NATIONAL BOARD EDUCATIONAL DISPLAY

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Mrs. Sylvia Leatherman won the award for her fine exhibit on how to grow begonias.

EDNA KORTS, *Chairman*
Awards Committee, 1956

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F. J. Bedson, Secy.
Kent, England

CENTRAL FLORIDA BRANCH

4th Thursday, 8:00 p.m.
Homes of Members
Mrs. Leo Spengler, Cor. Secy.
15 West Preston Ave., Orlando, Fla.

DALLAS COUNTY BRANCH, TEXAS

1st Thursday, 7:00 p.m.
Members' Residences
Mrs. Ruth Cook
923 S. Edgefield, Dallas 8, Texas

EAST BAY BRANCH

2nd Thursday, 7:45 p.m.
Willard School, Telegraph at Ward,
Berkeley, California
Mr. Stuart C. Smith, Secy.
3147 Stanley Blvd., Lafayette, Calif.

EL MONTE COMMUNITY BRANCH

3rd Friday
Lions Clubhouse, 225 W. Garvey Blvd.
Monterey Park, Calif.
William Edwards, Cor. Secy.
1886 San Pasqual, Pasadena, Calif.

FOOTHILL BRANCH

3rd Thursday, 8:00 p.m.
La Verne Community Bldg.
2039 Third St., La Verne
Mrs. C. W. Hall, Cor. Secy.
358 E. Arrow Hwy., Upland, Calif.

FORT, ELSA BRANCH

1st Saturday, 2:30 p.m.
Miss Lola Price, Secy.
628 Beech Ave., Laurel Springs, N.J.

GLENDALE BRANCH

4th Wednesday, 8:00 p.m.
Tuesday Afternoon Club, 400 N. Central
Mr. and Mrs. Frank Coe, Cor. Secy.
28904 Cliffside Dr., Malibu, Calif.

GRAY, EVA KENWORTHY BRANCH

3rd Monday, 7:30 p.m.
Community House, La Jolla
Mrs. Charles Calloway
1311 Torrey Pines Rd., La Jolla, Calif.

GRAY'S HARBOR BRANCH

2nd Monday, 8:00 p.m.
Hoquiam Public Library, or
Messingale and Rosenear Music Store
Aberdeen, Washington
Mrs. Jessie B. Hoyt, Secy.
1013 Harding Road, Aberdeen, Wash.

GRUENBAUM, MARGARET BRANCH

4th Tuesday, 10:30 a.m.
Homes of Members
Mrs. Adolph Belser, Cor. Secy.
Welsh and Veree Rd., Philadelphia, Pa.

HAWKEYE STATE BRANCH

3rd Friday, Members' Homes
Ruth Anderson, Secy.
Underwood, Iowa

HOLLYWOOD BRANCH

3rd Wednesday, 7:30 p.m.
Plummer Park, 7377 Santa Monica Blvd.
Mrs. Mary Hazel Drummond, Cor. Secy.
1246 N. Kings Rd., Los Angeles 46, Calif.

HOUSTON, TEXAS BRANCH

2nd Friday, 10:00 a.m.
Garden Center, Herman Park
Mrs. Grant Herzog, Secy.
12601 Broken Bough, Houston 24, Texas

HUB CITY BRANCH

3rd Wednesday, 7:30 p.m.
Mrs. L. R. Kellogg, Secy.
1120 E. 71st St., Long Beach 5, Calif.

HUMBOLDT COUNTY BRANCH

2nd Monday, 8:00 p.m.
Los Amigos Club, Loleta, Calif.
Miss Margaret Smith, Secy.
P.O. Box 635, Ferndale, Calif.

INGLEWOOD BRANCH

2nd Thursday, 7:45 p.m.
Inglewood Women's Club
325 North Hillcrest, Inglewood, Calif.
Mrs. Hattie Bradford, Secy.
1825 W. 73rd St., Los Angeles 47, Calif.

LONE STAR BRANCH

3rd Monday, members' homes
Mrs. Chester Terry, Secy.
5511 Richmond Ave., Dallas, Texas

LONG BEACH PARENT CHAPTER

1st Thursday, 7:30 p.m.
1925 Maine Ave., Long Beach 6, Calif.
Mrs. Alice Waldow, Secy.
2175 Cedar Ave., Long Beach 6, Calif.

LOS ANGELES BRANCH

4th Wednesday, Homes of Members
Mrs. Glenn Morrow, Secy.
2821 N. Musgrove Ave., El Monte, Calif.

LOUISIANA CAPITAL BRANCH

2nd Friday
Mrs. H. E. Dorris
3213 Eaton St., Baton Rouge, La.

MIAMI, FLORIDA BRANCH

4th Tuesday, 8:00 p.m.
Simpson Memorial Garden Center
Mrs. W. C. Gorman, Secy.
2296 Coral Way, Miami, Fla.

MISSOURI BRANCH

3rd Tuesday, 7:00 p.m.
Mrs. Hattie Taylor, Secy.
P.O. Box 25, Raytown, Mo.

NEW ENGLAND BRANCH

3rd Saturday, Homes of Members
Mrs. Lester H. Fox, Secy.
170 Marsh Hill Road, Dracut, Mass.

OCEAN COUNTY, NEW JERSEY BRANCH

1st Tuesday, 12:30 p.m., members' homes
Mrs. Anna Peck, Secy.
23 So. Gateway, Toms River, N.J.

ORANGE COUNTY BRANCH

2nd Thursday, 7:30 p.m.
Garden Grove Grange Hall
Century and Taft Streets
Garden Grove, Calif.
Mrs. Maybelle Woods, Secy.
604 South Helena St., Anaheim, Calif.

PASADENA BRANCH

Meetings on call.
Homes of Members
Col. C. M. Gale, Secy.
40 N. San Rafael, Pasadena 2, Calif.

PHILOBEGONIA BRANCH

2nd Friday, Members' Homes
Mrs. Robert York, Secy.
3311 Fremont St., Camden, New Jersey

PORTLAND, OREGON BRANCH

4th Friday, 8:00 p.m.
Members' Homes
Mrs. Helen Parrott, Secy.
3955 S.E. Kelly, Portland 2, Oregon

RAYTOWN, MISSOURI BRANCH

4th Tuesday, 7:30 p.m.
Homes of Members
Mrs. Mildred Schorr, Secy.-Treas.

EDONDO BEACH AREA BRANCH

4th Friday each month
2308 Rockefeller, Redondo Beach, Calif.
Opal Murray Ahern, Secy.
1304 Poinsettia Ave.
Manhattan Beach, Calif.

RIVERSIDE BRANCH

2nd Wednesday, 7:30 p.m.
Shamel Park, 3650 Arlington,
Riverside, California
Mrs. Olive Thaller, Secy.
7195 Orchard St., Riverside, Calif.

ROBINSON, ALFRED D. BRANCH

3rd Friday, 10:30 a.m.
Homes of Members
Mrs. Harlie Brown
3233 Tennyson, San Diego 6, Calif.

SACRAMENTO BRANCH

3rd Tuesday, 8:00 p.m.
Mrs. Gordon Long, Secy.
5416 Dana Way, Sacramento, Calif.

SAN DIEGO BRANCH

4th Monday
Hard of Hearing Hall,
Herbert & University
Mrs. Maurice P. Mitchell, Secy.
2329 Bancroft St., San Diego 4, Calif.

SAN FRANCISCO BRANCH

1st Wednesday, 8:00 p.m.
Forest Lodge, 266 Laguna Honda Blvd.
Mrs. Louise Allmacher
1963 45th Ave., San Francisco, Calif.

SAN GABRIEL VALLEY BRANCH

4th Wednesday, 8:00 p.m.
Masonic Temple, 506 S. Santa Anita Ave.
Arcadia, California
Mrs. Marilyn Jewett, Secy.
461 E. Mariposa St., Altadena, Calif.

SAN MIGUEL BRANCH

2nd Monday
V.F.W. Hall at Imperial and Lincoln,
Lemon Grove, Calif.
Ida M. Barker, Secy.
7591 Central Ave., Lemon Grove, Calif.

SANTA BARBARA BRANCH

2nd Thursday, 7:30 p.m.
Girl Scout Clubhouse,
1838 San Andres St.
Mrs. Maria Sanchez, Secy.
1753 Glen Oaks Dr., Santa Barbara, Calif.

SEATTLE BRANCH

3rd Tuesday, 7:45 p.m.
Trinity Parish House, 609 Eighth Ave.
Mrs. Carl Starks, Secy.
6116 Greenwood, Seattle 3, Wash.

SHEPHERD, THEODOSIA BURR BR.

1st Tuesday, 7:30 p.m.
Alice Bartlett C.H., 902 E. Main,
Ventura, Calif.
Mrs. Don Claypool
104 Fobes Lane, Ventura, Calif.

SMOKEY VALLEY BRANCH

3rd Thursday of each month
Mrs. A. L. Romeiser, Secy.
1104 South Ninth St., Salina, Kansas

SOUTHERN ALAMEDA COUNTY BR.

3rd Thursday, 8:00 p.m.
Strowbridge School Multi-Purpose Rm.
21400 Bedford Dr., Hayward, Calif.
Theodore Vierra, Cor. Secy.
341 Redbud Lane, Hayward, Calif.

TALL CORN STATE BRANCH

Mrs. Edna Monson, Secy.
South Taylor, Mason City, Iowa

TEXAS STATE BRANCH

1st Tuesday night in members' homes
Mrs. William Demland, Secy.
2400 19th St., Port Arthur, Texas

TREASURE ISLAND BRANCH

4th Monday, 7:30 p.m.
Homes of Members
Miss Isabelle, Sievert, Secy.
3912 Ave. "S," Galveston, Texas

WESTERN PENNSYLVANIA BRANCH

2nd Wednesday, 11:00 a.m.
Homes of Members
Mrs. Albert S. Lash, Cor. Secy.
1228 Oklahoma Ave., Pittsburgh 16, Pa.

WHITTIER BRANCH

1st Thursday, 7:30 p.m.
Palm Park Community Center,
1643 Floral Drive
Mrs. Rebecca Olson
714 N. Palm Ave., Whittier, Calif.

WILLIAM PENN BRANCH

3rd Tuesday, 2:00 p.m.
Homes of Members, Wallingford, Pa.
Mrs. Albert S. Lash, Cor. Secy.
1228 Oklahoma Ave., Pittsburgh 16, Pa.

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