The personal

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AIMS AND PURPOSES OF THE AMERICAN BEGONIA SOCIETY, INC.

The purpose of this Society shall be: To stimulate and promote interest in Begonias and other shade-loving plants; To encourage the introduction and development of new types of these plants; To standardize the nomenclature of Begonias; To gather and publish information in regard to kinds, propagation and culture of Begonias and companion plants; To issue a bulletin which will be mailed to all members of the Society; and To bring into friendly contact all who love and grow Begonias.

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* *

National Board meets 4th Monday, 7:30 p.m. South Gate City Auditorium 4900 Southern Avenue, South Gate, Calif.

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Views expressed in this magazine are not necessarily those of the Editor, the Society, or its officers.

RESEARCH REPORT

At a panel discussion at the Eastern Conference that was held in Lexington, Massachusetts on August 4 and 5, 1967, a question was asked concerning the flowering of tuberous Begonias during the winter months. No one seemed to know just what the procedure would be. I knew that Professor H. Gilbert Harlow of the Civil Engineering Department at Union College in Schenectady, New York, had been working with tuberous Begonias and that he would have the answer. I was going to write to him about it. However, in looking over some back issues of The Begonian, I found articles written by Professor Harlow in the March and April issues of this year.

In these articles, Professor Harlow states that tuberous Begonias flower all winter with fourteen hours of day length under greenhouse conditions at a temperature of 60° to 65° , and that he is never without flowering plants at any time of the year. He states that if you have grown gloxinias or fibrous Begonias from seed successfully, the same system should work with tuberous Begonias. Superb Begonias have been grown in approximately six months time from sowing.

I would assume that even though you grow under lights that you should be able to produce a good flowering plant since gloxinias and fibrous Begonias flower well under lights.

Why not get some tuberous Begonia seed now and get started so you have some early flowering plants? Possibly, our Seed Fund Administrator can be of assistance in helping you locate some good quality tuberous Begonia seed.

As your Research Director, this is my first attempt to help Begonia lovers find answers to their problems. I need to know what YOU want to

COVER PICTURE

A close look at B. 'Bunchii' (pink sport of B. 'Erythrophylla') grown by James Diegnan, Patricia Murphy Greenhouses.

Photo by Hertha A. Benjamin

FROM THE PRESIDENT

Last month this space was used to remind our members that we must all work together if the A.B.S. is going to be a successful organization.

At the September meeting of the Board of Directors, the appointments were made for nearly all the board positions, and the names of those appointed are published on the facing page.

Many of our members have no idea what is available and are not making use of the services they could be enjoying regularly. Please read the list of positions and those appointed to fill them. It is obvious after the meeting that these board members are rarin' to go. In fact, several major projects are already being planned.

YOU can help! How? Write to these officers. Find out what they do. If you are interested in that type of work, then offer your services. If you can't help them, maybe they can help you.

All of us on the Board of Directors are always open for suggestions and ideas. Please don't spend your time complaining that you're getting nothing from the A.B.S. The best way to get the most from us is to give of yourself. The next best way is to ask for the services you want if they are not already provided.

Chuck Tagg

know in order to have this Department function properly. I welcome any questions, suggestions, and information that you will send to me.

I plan to present an article in *The Begonian* whenever I have information which I think is of importance to the A.B.S. members. I hope that my work will assist you, as an individual, and the Society, as a whole.

Kindly send your requests and information to me.

> M. Carleton L'Hommedieu Research Director 370 Locust Avenue Oakdale, Long Island, New York 11769



Photo by Ralph Corwin

WHAT IS THE pH OF BEGONIA SAP?

By Donna Sanchini

I am proud to introduce our readers to Miss Donna Sanchini, age 13. This is one of three hundred fifty entries selected from 125,000 science projects exhibited in the Los Angeles County Science Fair. I am sure many of our readers will be interested in the work of this young lady. After you have read this article, I'm sure you will agree with me that Donna has explained her procedure in such a way that any of us may check our specific plants and potting media in like manner. Editor

EXPLANATION OF PROJECT

Every plant is a chemical factory. It converts inorganic compounds and carbon dioxide into organic compounds by a chemical reaction known as photosynthesis.

In the daytime, when there is plenty of light, water and carbon dioxide combine chemically, in the presence of chlorophyll, and use energy in the form of light to trigger off the reaction. This synthetic process, using these basic inorganic materials and light energy, is known as photosynthesis. The chemical formula $6CO_2 + 6H_2O>C_6H_{12}O_6 + 6O_2$ expresses this reaction. In other words, six molecules of carbon dioxide ($6CO_2$) are added to another six molecules of water ($6H_2O$) to make one molecule of glucose $(C_6H_{12}O_6)$. In this process, six molecules of pure oxygen gas are also formed $(6O_2)$ and escape into the atmosphere. In the green plant cells, the glucose molecules combine to form starch, which is stored in the plant cells.

The transportation of water and minerals up to the leaves, and of manufactured food and starch back to all parts of the plant requires two transport systems, each with its own type of cells. Xylem cells in roots, stem, and leaf veins carry salts and water up to the leaves. As these xvlem cells are joined one above the other, they form a continuous pipe, or vessel, reaching from roots to leaves. Phloem cells make up the tissues of the second transport system which carries food made in the leaves to all parts of the plant. They also form a continuous pipe through which the food particles move.

After traveling through the phloem, distributing the valuable plant food, the remainder passes down to the root tips. As the root tips grow, carbon dioxide is released which dissolves in the water present to form carbonic acid (H_2CO_3) which assists in breaking down the mineral particles. The root tips also exude an acid substance which dissolves the mineral particles surrounding it to form water-soluble compounds. This opens a path for it to grow and provides water-soluble mineral compounds which the root hairs absorb to be carried back to the leaves.

For this acid to perform its expected function in the soil, its strength must be greater than that of the soil. This requires that the pH, or hydrogen-ion concentration, of the plant sap must be lower than that of the soil. The difference between the two directly effects the rate of plant growth.

The sap of most plants grown as farm crops has a pH of approximately 5.2 and they are grown in soils having a pH of 6 to 8. A pH of 7 is considered neutral.

Certain plants are known to prefer acid conditions and other plants are known to prefer alkaline soil conditions. Shade plants, such as Begonias, Fuchsias, ferns, azaleas and rhododendron, grow best under acid conditions. There is, however, considerable question and dispute as to the best pH of the soil for each of these plants.

The purpose of this project is to determine the pH of *Begonias* and the pH of various potting mixes and materials in which they can be grown. This information will be useful in selecting the type of potting mix best suited for the growing of Begonias.

Experiment I

To determine the pH of Begonia sap, I first selected eight different types of Begonias for testing:

- 1. Two types of semperflorens (a-red and b-green leaf)
- 2. Hairy fibrous Begonia
- 3. Rhizomatous (spring-blooming type)
- 4. B. hispida cucullifera
- 5. Hairy fibrous (different type)
- 6. Cane-type
- 7. Rex
- 8. Non-hairy

1. The first test involved the two semperflorens Begonias. These were removed from their containers and the roots were carefully cleaned of potting mix. Each plant (root included) was cut into small pieces and placed in a blender with a small amount of distilled water to further the liquidizing process and reduced to liquid phase. The resultant liquid phase was filtered and the filtrate tested for pH using two types of pH test paper (Hydrion type).

a. The filtrate from the red leaf Begonia was colored a deep red and tested 2.7 pH with one type of test paper and between 2.0 and 3.0 with the less exact type of test paper.

When a small portion of the filtrate was diluted four times its volume with distilled water the same results were obtained.

b. The filtrate obtained from the green leaf Begonia was colored green and when tested showed the same pH as the red leaf filtrate, even when diluted to four times its volume.

c. Then I tested leaves of each type of semperflorens a and b (including its leaf stem). These were liquefied separately with small amounts of distilled water as above described and were tested for pH with the same results.

It was concluded that the following tests could be made on leaves, instead of destroying the entire plant, with reasonably accurate results.

2. Leaves of the hairy fibrous were liquefied and tested for pH with identical pH results as in test 1.

3. Leaves of two different springblooming types of rhizomatous Begonias were liquefied and tested with like pH results as in tests 1 and 2.

Rather than go into a detailed description of each test made, I will state that I used the same procedure for all others. Table I is a complete list of all the plants and their respective pH's.

(Continued on Page 207)

Volume 34 • November, 1967

205

Table I

Name

1.	red leaf semperflorens	.2.7
2.	green leaf semperflorens	.2.7
3.	hairy fibrous	.2.7
4.	spring blooming rhizomatous	2.7
5.	B. hispida cuculliferaapprox.	3.0
6.	hairy fibrousapprox.	3.0
7.	non-hairy fibrousapprox.	3.0
8.	rexapprox.	3.0
9.	cane-typeapprox.	3.0

Table II

Results after Several Hours

Controls

Name

	Acetic Acid	2.0
	Ammonia	.1.0
1.	American Peat	5.0
2.	German Peat	4.0
3.	Canada Peat	4.2
*4.	A-Planter mix	7.0
*5.	B-Planter mix	6.0
*6.	C-Planter mix	6.0
7.	Garden Loam	7.0
8.	Compost	6.0
9.	Oak leaf mold	5.0
+10.	Begonia potting mix-R	6.0
+11.	Begonia potting mix-W	4.0
+12.	Begonia potting mix-J	6.0
*Con	nmercial products	

+Private-individually made

Table of pH Values

 \mathbf{pH}

Extremely acid	4.5 or less
Very strongly acid	4.5 - 5.0
Strongly acid	5.1 - 5.5
Medium acid	5.5 - 6.0
Slightly acid	6.1 - 6.5
Neutral	6.6 - 7.3
Mildly alkaline	
Moderately alkaline	
Strongly alkaline	8.5 - 9.0
Very strongly alkaline	9.1 and over
206	The Begonian

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WHAT IS THE pH

(Continued from Page 205)

Conclusion

On the basis of these tests, I conclude that the pH of the sap of Begonias approximates 2.7.

This explains its tolerance of acid soil conditions but does not indicate the best soil pH to employ in potting mixes.

Experiment II

Different types of potting mix materials were gathered and tested for pH to determine the range of acid pH represented by the materials.

The procedure in testing these various potting mixes was as follows:

A small amount of the material was placed in some distilled water and allowed to stand for several hours, then tested for pH. Four days later, they were again tested for pH and no changes were recorded. Table II lists the potting mix materials and their respective pH's. A Table of pH Values is also given for comparison.

Conclusion

1. The pH of Begonia sap approximates 2.7.

2. The pH of a Begonia potting mix should lie in the range of pH 3 to pH

3. The greater the difference between the pH of the sap and the pH of the potting mix used, the better the plant growth. We, therefore, can conclude that a pH range of 6 to 7 would be most desirable in a potting mix.

4. The above stated conclusions can be subjected to further tests for accuracy.

LIST OF ALL SOURCES OF INFORMATION

Van Nostrand's Chemical Encyclopedia Science of Life by Lois and Louis Darling. Plant Physiology (?) Smithsonian Series Volume 11 by

Agnes Chase

Pictures, plants for testing, potting mixes, and other specific information about Begonias from my grandfather, Malcolm Rich.

Volume 34 • November, 1967

FERN NOTES

Dora Lee Dorsey of Tampa sows fern spores in small plastic containers in an old aquarium, thus taking care of several varieties at once. Some use a clean brick on a covered trav of water. Others use a clay pot with sterilized soil set into a tray or dish of water, covered with glass or saran and kept warm and in good light.

Some varieties seem to prefer one method over another. The Polypodiaceae do well in osmunda fern root used for potting orchids.

In sowing fern spores, Dora Lee reminds, it is not necessary to sow as thinly as with Begonia seed. In fact, the prothallium grow for months and months without producing a frond, because no other is in reach of it. She has moved them closer together when she had poor germination and then had fronds to grow-so she tries to sow thickly in the beginning.

Elaine Wilkerson of Baton Rouge has heard that one should never turn a pot of fern spores. It has something to do with the formation of the prothallia, she understood. She marks the east side when she picks up a pot, so she can be sure of the position.

Dora Lee notes that Adiantum (maidenhair) *capillis veneris* takes an annual rest, but will come back if not over-watered while resting. The adiantums like some lime in the soil -oyster shell, dolomite, or crushed limestone in any form that does not burn roots. She uses spent African Violet soil for ferns often; the perlite helps keep soil loose and porous.

Nephrolepis (or Boston ferns) like a top dressing of chicken fertilizer. Dora Lee notes. And loose, friable compost containing leafmold and dairy fertilizer is good for most wood ferns, except the epiphytes (tree growers), which like a basket of osmunda or tree ferns slabs or baskets. Her platy*cerium* is growing on a tree fern basket turned sideways and stuffed with sphagnum moss. Her Polypodium subauriculatum is in a wire basket filled with osmunda. Both seem to do well as long as they get enough water.

207

HOW TO GROW HEALTHY BEGONIAS

By JEANETTE R. KINCSBURY

Mrs. Kingsbury is our new Vice-President. It is good to have this opportunity to become better acquainted. Editor

Do mealybugs bother you or does mildew depress you? As a Begonia fancier, what is your reaction to plant pests? If these problems beset you and trigger a reaction to reach automatically for the spray gun, resist this temptation and take stock of your practices.

Chances are good that you have been giving 'tender loving care' with good watering practices and concern for favorable conditions of light and temperature. BUT, have you paid enough attention to your potting soil? Do you know what it contains? Have you done everything possible for favorable conditions for Begonia health and vigor to resist diseases and insects, which can be done from the soil?

Let's take a closer look at this aspect. Begonias thrive best in a neutral soil—one not too acid, nor too alkaline. Yet many chemical fertilizers are acid and speed up the rate at which



Photo by Hertha A. Benjamin

humus is exhausted. Both these qualities can throw the balance off.

You can provide a neutral soil, rich in humus, by supplying ample organic matter. I find that my Begonias thrive with leaf mold, as well as greensand, which is a greenish sea marl silicate of iron and potassium. Sometimes I use other organic materials. Many are readily available.

All plants need nitrogen, but when this element is oversupplied, as is apt to happen with chemical fertilizers, watery tissues develop in the plant that are weak and susceptible to disease. The margin is very slight between too much and too little nitrogen. When nitrogen is supplied from organic materials, it is long lasting, slowly released into the soil, and taken up gradually with benefit to the plant.

Unfortunately, this is not duplicated by man-made combinations. The inorganic chemical nitrate fertilizers dissolve quickly. While this may produce quick lush growth in the plant, it does so at the expense of imbalancing the soil and disturbing the cell metabolism of the plant. This results in lowered resistance of the plant to withstand the onslaught of diseases and insect pests.

Plants require more than a mere blending of a few major elements. Nutrients in the soil antagonize or stimulate each other. Heavy application of one element can result in a marked depression of the availability of another, thus upsetting a delicate balance. The level of one nutrient in the soil can not be changed without influencing the others. For example, the chemical fertilizers, which have a high level of nitrogen, can induce copper deficiency in the plant. We know that copper is necessary to give plants resistance to withstand certain fungal diseases. If the soil is imbalanced sufficiently, the copper may be *present* but made unavailable to the plant. In

(Continued on Page 216)

NORTHEAST BEGONIAS IN NOVEMBER

By Elda Haring

In the Northeast, November brings many dark days which grow shorter as the winter season advances. When to water and when to feed often puzzle the inexperienced and I must admit that those of us, who have been growing Begonias for years, cannot always find the answers to these questions. Many authorities assert that Begonias which are in a resting or dormant state should be watered very lightly and not fed at this season of the year. There is a great difference between a resting plant and a dormant one. Most rhizomatous and cane Begonias rest at this time of year. That is, they stop growing and no new leaves or tip shoots appear. A dormant plant loses most of its leaves and stems, or all of them. Usually these are the tuberous or semi-tuberous kinds like the maple-leaved varieties, B. sutherlandi and B. evansiana. B. sutherlandi goes completely dormant. losing all leaves and stems, and does not grow again until April, while the maple-leaved varieties might keep a few leaves and some of the stems. Rex Begonias will often drop all of their leaves.

When my Begonia plants start to go dormant, I remove them from my display plants, placing them in a cellar window. They are watered lightly every other week until new growth begins in the spring, when they are again brought back into the warmth of the living room, watered regularly and fed every other week.

Cane and rhizomatous Begonias, which are resting, are kept in their places in the display window during the winter. They are watered often enough to keep them green and crisp but not fed until January when they usually start to grow as the days of winter lengthen. For proper watering during November, it is necessary to inspect Begonia plants daily. If the soil is dry, water the plant thoroughly so as to moisten all the soil in the pot, then do not water again until the soil approaches dryness. If the days are dark and gloomy, the plants will not dry out quickly and little watering will be needed. However, if we are fortunate enough to have a number of bright, sunny days, it is very essential to see to it that your Begonias do not dry out to the point of wilting.

Young plants grown from cuttings during the summer may be showing new leaves or tip growth or may be in bud or bloom. These should be kept properly moist and can be fed regularly as long as they seem to be growing vigorously. Other Begonias, should they be in bloom, can naturally be watered and fed.

ROUND ROBIN NOTES

The A.B.S. Round Robin program starts its new year with fifty robin flights carrying four hundred filled memberships. As more requests come in, more flights will study the many facets of Begonias and other shade plants.

New Co-directors: Three new Codirectors have been appointed, to total five now working with the Director and the robin chairmen, and the growing number of robin flights have been reassigned into six groups for smoother flying. We are grateful to have Edna Stewart of Tarentum. Pennsylvania, and Anita Sickmon of Cheney, Kansas, continue as Co-directors of Groups 1 and 2-and delighted to welcome Dora Lee Dorsey of Tampa for new Group 4; Helen Matsubu of Fruitland, Idaho, for new Group 5; and Muriel Perz of Long Beach, California, for new Group 6. The Director will continue with Group 3.

All flights will be routed through one of these officers, who will take notes for the Research Department and the Round Robin column in *The Begonian* as well as supervising flights through their chairmen. Requests for

(Continued on Page 214)

CLAYTON M. KELLY SEED FUND FLIGHT

No. 1—B. sudjanae, Jans.—

This Begonia belongs to the Asiatic section Reichenheimi comprising about a dozen species from India to Malaya. It has a thick, short stem more or less creeping. The petioles are erect or suberect, four to seven inches long, round and densely pilose. The entirely light-green leaves are asymmetrically peltate, ovate and acuminate to cuspidate. Both the leaf surfaces are covered with stiff hairs, below more concentrated to the nerves. The lamina is concentrically wrinkled round the navel, from which the nerves extend in all directions and reach the margin in distinct teeth somewhat bent downwards.

The white and rather small flowers are arranged in cymes and have a varying number of tepals (petals and sepals), in male flowers from two to four and in female flowers, from two to three. The yellow stamens of the male flower are united in one group by connation of their filaments. As already mentioned, B. sudjanae belongs to the section Reichenheimi. Though well separated from *B. goegoensis*, N. E. Browne, of the same section, it shows in many respects near relationship with this species. It does not require especially humid conditions and shows a good growth in ordinary, central-heated rooms. The best vegetative development is in rather shaded conditions but when exposed to intense sunshine, the leaves get clear signs of chlorosis. Properly grown, it seems to flower independent of the season.

B. sudjanae is beautifully shaped and attractive though not of the same decorative quality as *B. goegoensis* and its particularly high value lies in its ease of cultivation. Price \$1.00 per pkt.

No. 2—B. dichroa, Sprague—

Growth shrubby, might be called low, twelve to twenty inches high and slightly squarrose. Leaves grow on short petioles, oblong-elliptic, tapered toward a point. Glossy dark-green on top, with regular, distinctly delineated, silver-white spots, wavy and lobed on the margins. Inflorescence axillary, large, raceme-like, hanging down. Flowers brilliant salmonorange; male flowers four petals, female flowers six petals. As soon as buds appear, the newly formed leaves become dark green, while the older ones retain their silver spots; thus the plants have leaves of two colors. One of the most beautiful Begonias in cultivation and requires rich, welldrained soil that does not contain too much nitrogen. It tolerates dry air fairly well but should have sufficient light and sun to bring out the true color of its blooms. Price 50 cents per pkt.

No. 3—B. dayi—

Mexico. Large, thick, shiny leaves, more yellow than green, the veins heavily penciled with dark mahogany on top, dark red underneath. Flowers are ivory and fragrant. Likes to keep warm and dry. Price 50 cents per pkt.

No. 4—B. mazae—

Mexico. Dark variety. Round with point, dark, bronzy-green with dark stitches around the edges. Deep red underneath. Small, light pink, redspotted flowers. Grow in a warm, protected, fairly dry place. It requires perfect drainage. Price 50 cents per pkt.

No. 5— B. heracleifolia nigricans

Medium; rhizomes procumbent, thick; leaves long-petioled, to a foot across, handsomely variegated with bright, black-green, seven to nine finger-like lobes, taffeta-like in appearance. White flowers in tall panicles. Handsome foliage plant also favored for its flowers. Price 50 cents per pkt.

No. 6-B. boliviensis-

Bolivia. Medium: stems succulent, smooth, green, tinged with red or brown; leaves lanceolate, broad at the base and tapering to a slender point, glossy dark green, doubly toothed; flowers orange-red, nodding, petals long. Tuberous. Price 50 cents per pkt.

No. 7—B. rotundifolia—

Haiti. Round-leaved, pygmy creeper stays terrarium-sized. Penny-shaped leaves, yellowish-green; flowers pink. A charming subject for the window garden or terrarium. Price 50 cents per pkt.

No. 8—B. kellermanni—

Guatemala. Deeply cupped green leaves, thick and completely covered with sheer white felt; angel-wing-like clusters of white flowers in winter or spring. Easy from seed. Price 50 cents per pkt.

No. 9-B. 'Kallaking'---

From crosses made by Chester Nave, California. Seed will not produce all Calla lily type but a packet of seed can produce from four to six plants of Calla type. The balance will be green and can be grown in pots to give to friends or outdoors in beds. Price 50 cents per pkt.

No. 10-B. rex-

India species. Creeping rhizome which is subterraneous. The leaf stalk is round, red in color, and setose. Leaves are about ten to twelve inches broad, and their surface is rugose or bullate with a metallic luster, having a broad silvery band running all around the leaves about one inch away from the margin. Flowers are borne in erect branching cymes, large of pale rose color. This magnificent species is believed to be the progenitor of numerous ornamental foliage Begonias. Price 50 cents per pkt.

No. 11-B. 'Bow-nigra'-

(B. boweri x B. heracleifolia nigricans). Has star-shaped leaves with much lighter veins. This is a hybrid and variations do occur. Price 35 cents per pkt.

The following two varieties came from a member who lives in another country. We have no idea as to what the seed will produce, however there are many members who like this type of seed and do not wish to be bothered with the technicalities of the origin of each cross. We cannot always supply the information on crosses used to produce some of the seed we offer but it is always fun to see what appears.

No. 12—B. coccinea x B. unnamed

The unnamed Begonia is a tall grower with dark, dull green wavy leaf when young, large bunches of white flowers. Price 25 cents per pkt.

No. 13—B. 'President Carnot' (cane) x B. 'Argentea-guttata'

Price 25 cents per pkt.

Multiflora type tuberous—

These compact, twelve to eighteen inch plants are unsurpassed for profuse bloom and impressive masses of brilliant color. They are very effective for edging garden beds and produce masses of color. They do not need staking as the larger types of tuberous Begonias and will flower in from five to six months from seed.

B. 'Helene Harms'----

Double, canary-yellow flowers produced in great abundance on dwarf, bushy plants. Sunproof and good summer bedding plants, also nice in pots. Price 50 cents per pkt.

B. 'Sweet Home'----

Fl hybrid. Bright salmon-orange flowers. Very free flowering, sun and rain proof. Price 50 cents per pkt.

B. 'Tasso'-

Fl hybrid. All double, medium sized, deep blood-red flowers are produced freely on dwarf, bushy plants. Price 50 cents per pkt.

GREENHOUSE PLANTS

Streptocarpus—'Wiesmoor hybrids'—

New hybrids which represent something exceptional, beautiful blooms, rich in form and color resemble orchids. Very showy in pots and excellent for cutting. Price 50 cents per pkt.

(Continued on Page 212)

POLLEN AND THE MAGNIFYING GLASS

By THELMA O'REILLY

In the spring of 1966, I discovered a new world of beauty and excitement through the use of a magnifying glass. As I carefully scrutinized each different Begonia, I became more and more amazed and fascinated at the detail of pattern and color in the foliage and flowers. Even the "Plain Janes" revealed heretofore hidden, wondrous sheens. So much of the beauty of our Begonias is not visible under ordinary observation.

During this examination of my plants, I found that I could detect pollen on many male blooms when it was not visible to the naked eye. First, I remove a male bloom and fold back the two large petals between the thumb and forefinger of my right hand. I support the magnifying glass (or hand lens) between the thumb and forefinger of my left hand. Carefully watching for pollen, I rub the stamens with the third finger of my left hand using a back and forth motion (see illustration). Sometimes it

CLAYTON M. KELLY SEED FUND

(Continued from Page 211)

Veltheimia—Liliaceae—

So. Africa. Bulbous plant having broad lance-shaped bright green leaves with undulate margins, and arching, long tubular, nodding flowers yellowish green shading to dusty-red, and spotted, tipped green, on long red-spotted stalks; winter blooming. Price 50 cents per pkt.

Onychium japonicum— Polypodiaceae—

('Carrot fern'). Short creeping rhizome bearing dainty, waxy green fronds, lacily divided into very small segments, the ultimate leaflets with shapely pointed lobes. Beautiful fern. Price 50 cents per pkt.

> Mrs. Florence Gee Seed Fund Administrator 234 Birch Street Roseville, Calif. 95678



Drawing by Maureen O'Reil

is necessary to shift the position of the hands and body so that the angle of light comes from a different direction. I have detected pollen by this method on approximately 50% of the male blooms that showed no pollen using the fingernail test. Sometimes the pollen appears in large amounts. Other times, it is barely visible.

My first successful hybridizing effort using pollen detected by this method was applying the male bloom of beautiful B. 'Gloire de Sceaux' to *B. dayi*. To my knowledge, the blooms of B. 'Gloire de Sceaux' are staminate only. After searching unsuccessfully for more than a year for pollen on this plant (my plant blooms July through March), imagine my excitement when I detected a fine cloud of pollen under the glass. As a result of this cross, I have eight interesting seedlings in various stages of growth.

I recently had a new experience. B. 'Lulu Bower' was covered with staminate blooms that revealed no pollen to the fingernail test. A very faint trace was visible with the glass method. Reflexing the two large petals of a male bloom, I applied the stamens to the stigma of the female bloom of B. 'Norah Bedson'. I always try to com-

(Continued on Page 217)

A GADGET

By Mrs. Sidney Keith

One of the most useful gadgets in the greenhouse for basket growers is a nylon cord strung through a pulley, attached to ceiling and securely anchored to the wall on an awning cleat with an S-hook attached to the loose end. Obviously this must be hung in a situation allowing plenty of room in all directions to prevent damage when turning the basket.

The purpose of the gadget is to facilitate the grooming of hanging baskets—an almost impossible task when one must climb a ladder and lean over the bench. The cord may be raised or lowered to the desired height for convenience of reaching both top and lower parts of the plants when picking off unsightly or damaged



Photo by Hertha A. Benjamin Volume 34 • November, 1967 leaves and dead flowers.

With a large tub of water placed under the basket, it may be lowered for a thorough soaking then raised for excess water to run off. This prevents the back-breaking job of lifting a soaking wet basket. The cord may be pulled high, when spraying, to assure spraying the hard-to-get undersides of the foliage.

Gadgets are not always the outcome of laziness but a means to more competent work.



213

ROUND ROBIN NOTES

(Continued from Page 209)

robins will continue to be processed by the Director.

Goodbye and Welcome: Robin members around the world express appreciation to outgoing Research Director Robert Shatzer for his untiring and invaluable contributions to the many robins flying through his hands the past two years. We also welcome new Research Director M. Carleton L'Hommedieu with anticipation of a good year.

What Are Robins? Groups of eight members exchange cultural ideas and experiences by mail. A flight chairman writes the first letter, and each member adds his in turn, mailing the flight to the next member. Questions and answers, study projects, and much good talk among friends fly across the nation and to other countries. All that is required to join is interest in the subject and desire to learn and to share.

In addition to seventeen on general Begonia culture, robin flights now include thirty-three specialties – rexes, semperflorens, tuberous, miniatures, ferns, Gesneriads, terrariums, greenhouses, artificial lights, cuttings, seed, hybridizing, species, nomenclature and botanical classification, and growing in Florida. New robins on rhizomatous and hirsute Begonias have been requested.

Light Growing: Mary Enfinger of Jefferson, Maryland, notes that rexes really are low-light-intensity plants. One sitting beyond her light fixture was leaning into the light area, but she was still amazed that it had enough light to flower. Lily Fine of Brooklyn points out that there is no definitive information on any lights yet and that it is only from persons like robin members that a body of reliable data will be built up.

Esther Latting of Warner, New Hampshire, suggests hanging lights with chains and hooks to permit raising and lowering. She makes chains long enough to reach within a few inches of the shelf and can raise them to the shelf above.

Gesneriads: Gerald Sausaman of Albright, West Virginia, shared notes from the American Gloxinia and Gesneriad Convention. Dr. R. E. Lee, retiring from Cornell University, introduced *Nematanthus* 'Stop Light,' the first hybrid in that genus, Gerald believes. He also introduced *Episcia* 'Cygnet', a difficult cross of *E. dianthaflora* and *E. punctata*.

Dr. Carl Clayberg, who lectured on work with Sinningias and Rechsteinerias, has plants of all the cultivated species of these two genera, plus some new ones to be introduced, and is now cross-hybridizing them in all possible ways—some eight hundred and more possible crosses. He should provide new information on genetics of these genera.

Some Sinningias will self-pollinate by themselves, Gerald noted, and some will not. Slipper and florist Gloxinias often will self-pollinate, but most growers use a brush to transfer pollen. Complex hybrids will not come true, but progeny may be more interesting than the originals.

Episcia 'Star of Bethlehem' at Peterson's Greenhouse on the convention tour was lovely, but showed great variations in the flowers—some light yellow and large, others all pink, most pale yellow with pink specks and streaks forming a star in the center. This *Episcia* is difficult, however. Frances Batchelor, at the convention, said she had tried freezing Ramonda seed and had no germination, so tried the usual way for Gesneriad seed—and did get some seedlings.

Sunlight: Geraldine Daly of Coventry, Rhode Island, finds that, although yellow-variegated leaves of B. 'Charm' turn pink in much sun, its cuttings root better after it has had some sunshine. In fact, she finds most plants root better when grown in all the sun they can take. She starts cuttings in the shade, moves them to the sun as soon as possible. And she believes Begonias respond to fresh air as well as sun.

Alberta Ross of Vienna, Ohio, also thinks there is more to the health of Begonias outside than just the extra light. Hers were growing very well and large, tiered on shelves under a maple tree that permitted direct sun only for a short while in late afternoon.

Elaine Wilkerson moved her B. 'Sophie Cecile'-so often difficult to bring into flower-to full sun and by July it was ready to bloom.

Adventitious Growth: Geraldine Daly's two-vear-old B. rex c. 'Green Gold' suddenly started to grow plants at the sinuses of many of its oldest leaves. It was a large plant in a ten-inch pot at an east window. Several leaves developed plantlets with two leaves before she cut them to put into rooting medium. She gave away several leaves and set many others. Now a new crop is forming. This wholesale desire to multiply has been unusual for Geraldine's rexes in the past.

Congratulations: Robins report Dorothy Behrends of Encinitas, California, won the blue ribbon for a beautifully landscaped four-hundredfifty square-foot entry in the Tropical Gardens Class of San Diego County Fair.

To join a round robin, write:

Mrs. Carrie E. Karegeannes Round Robin Director 3916 Lake Boulevard Annandale, Virginia 22003

LATE BULLETIN

Redondo Area Branch: New meeting place, Perry Park, 2300 Rockefeller Lane, North Redondo.

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HOW TO GROW HEALTHY BEGONIAS

(Continued from Page 208) a similar way, if the plant is overdosed with fertilizers high in phosphorus, zinc deficiency may result. Potash fertilizers may induce boron deficiency.

Fortunately, if you rely on ample amounts of quite neutral organic matter, you do not have to worry about imbalancing your soil. Nature has a great sense of proportion and has already worked this problem out for you. Once you come to appreciate the prime importance of organic matter for the health of your plants, be they Begonias or others, you will be surprised to learn how easy it is to control plant pests. You can dispense with poisonous sprays.

For the occasional mealybug problem, apt to occur in a rarefied atmosphere such as a greenhouse, non-damaging ladybugs may be set out. These helpful creatures can be purchased by the pound through the mail.* They will devour the mealybugs without damaging the Begonias. You can use the simple expediency of hand-picking mealybugs on the point of a fine paint brush, moistened in denatured alcohol. But, by all means, remember to look first to the soil. It will pay big dividends in Begonia beauty which results from plant health.

> *Eastern Biological Control 104 Hackensack Street Wood Ridge, New Jersey



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Photo by Ralph Corwin

A display of Begonias from around the world presented at the A.B.S. Show by Harold and Edith Howard, Inglewood, California.

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THANK YOU

The Long Beach Parent Branch of the A.B.S. wishes to thank all who participated in bidding on the book *Begonias And How To Grow Them* by Bessie Buxton. The book, which belonged to the late Mary Gillingwator, has been sold to the San Gabriel Valley Branch for \$35 and is to be a part of their library.

Congratulations to the San Gabriel Valley Branch and those members fortunate enough to have the use of this fine book.

> Floyd Neff President Long Beach Parent

POLLEN AND THE MAGNIFYING GLASS

(Continued from Page 212)

pletely cover all parts of the stigma with pollen and this necessitates several back and forth rubbing motions. As I started to apply the same staminate bloom to the second pistilate bloom, I was amazed to see clouds of pollen flying in every direction. The rubbing motion obviously caused the release of enough pollen to make it visible to the naked eye.

It is my personal opinion, as a result of my observations and experiments with numerous Begonia blooms, that it is possible to assist the anthers of the stamens to release pollen under certain circumstances. This assistance being an agitation to the proper degree as necessary to release pollen without causing the stamens to drop off the bloom.

A small monetary investment in a magnifying glass can lead growers along the path to a new world of Begonia beauty and assist hybridizers in the creation of different and outstanding cultivars.

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A.B.S. BOARD MEETING

The regular meeting of the A.B.S. was called to order by President Tagg at 7:50 p.m. The Pledge of Allegiance was led by Muriel Perz. Wilbur Olson read the Aims and Purposes.

Four elected officers and 11 Branch Representatives answered the roll call, constituting a quorum.

President Tagg listed most of his appointed officers. The appointments left open will be made at a later meeting. Anne Rose made a motion, seconded by Vera Naumann, that the appointments be accepted. Carried. (See appointed officers on page 202.)

The minutes of the annual meeting were read and approved.

The treasurer reported receipts of \$1,-652.74, disbursements of \$1,913.47, leaving a balance of \$824.22.

The membership secretary, Pearl Benell, reported 231 new members and renewals, with a total of 2,631 *Begonians* dispersed.

Carrie Karegeannes, Round Robin Director, reported that three new Co-directors have been named for the new year. (See Round Robin Notes page 209).

Public Relations Director, Vera Naumann, reported that Humboldt County Branch has disbanded and returned \$27.16 balance left in their treasury. Vera made a motion, seconded by Floyd Neff, to return the money to them if they reorganize. Carried.

The Editor reported things were fine in her department and work was going on to make the magazine better.

Anne Rose, Advertising Manager, reported ads were coming in, and that unpaid accounts were the lowest they had been for some time.

The Judges Course report was given by Ruth Pease. She requested that the books be audited, and Muriel Perz and Edna Burkett were appointed to take care of this.

The former editor, Tru Peterson, sent a bill for the past years' expenses in the amount of \$55.00. Floyd Neff made a motion, seconded by John Martin, to pay the bill. Carried.

Margaret Lee made a motion, seconded by Muriel Perz, to pay \$165.00 for the ad in Flower and Garden for six months. Carried.

Floyd Neff, plant table chairman for the National Show, reported a total of \$592.05 gross in plant sales. Also, \$108.00 more plants were sold to branches, making a total of \$700.05. He thanked all who helped with the plant table. There are still some plants available according to word received from Everett Wright.

A card from Belva Kusler was read by Lucille Williams,

Following the Branch reports, the meeting adjourned at 9:05 p.m.

Virginia Barnett Secretary

A WORD OF ADVICE

To all of the proud trophy winners in our organization, we give a word of advice. When cleaning your prize, use a soft clean cloth. Do not use tissue paper as it will scratch and most cleaning solutions will remove the protective coating. Stick with a soft clean cloth and keep your trophy bright and shining during the coming year. Until show time next year...

> BERT SLATTER Show Chairman



The Begonian

CHARLOTTE M. HOAK

By Alva Graham

Charlotte Hoak's death closed a career of almost ninety years as a ranking horticulturist. She could remember the plants on her mother's porch when she was three years old, and at five, she was watering and caring for them. Among them were two Begonias brought from the East before she was born. She maintained this interest all her life and even in the hospital, she kept the latest *Begonian* at her bedside, and was happy to be an honorary member of the Whittier Branch.

Writing for many horticulture magazines and lecturing before clubs or evening classes of U.C.L.A., kept her busy when she was not on the job as a teacher in the Los Angeles schools. For many years she was the Garden Editor of the Pasadena newspaper. She was one of the founders of California Garden Clubs, Inc., and was the first editor of Golden Gardens. During this time, she made a trip East and was named runner-up to the Horticulture Woman of the Year. She was Miss Horticulture at the International Flower Show when it was held in Los Angeles. She was proud of her Eva Kenworthy Grav award and of B. 'Charlotte Hoak', a Mary Gillingwator's cultivar.

Charlotte will be missed not only for her great knowledge but for her enthusiasm and interest in assisting others to learn about plants. She was indeed a great person.

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CALENDAR

- November 2–Westchester Branch: Installation of officers and meeting at 7:30 p.m. Speaker will be Gene Daniels, a member of the Theodosia Burr Shepherd Branch, who will show slides of Begonias and explain how to take professional pictures of plants.
- November 8–Inglewood Branch: Speaker will be Mrs. Marie Turner, well-known Begonia lover who is well versed in hybridization of plants.
- November 9–Orange County Branch: Mrs. Opal Ahern will speak on Begonias under lights. Thanksgiving potluck at 6:30 p.m.
- November 10 San Gabriel Valley Branch: Mrs. Holtz, Whittier, will show the latest in Christmas decor. Meeting 8 p.m.
- November 14-Glendale Branch: Bee and Wilbur Olson will show and tell of collecting ferns in Peru and Ecuador. Thanksgiving Dinner at 6:30 p.m. Charge 75c.
- November 16–Foothill Branch: Steve Talnadge will show slides and talk on ferns. Potluck 7 p.m.
- November 27–Redondo Area Branch: Mrs. Alice Martin will show new Christmas decorations. Meeting 7:30 p.m. (See note on page 215).
- December 1–DEADLINE for all material for the January issue of *The Begonian*. PLEASE OBSERVE THIS DEADLINE.

Happy Thanksgiving



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