the BEGONIAN

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The BEGONIAN

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AIMS AND PURPOSES OF THE AMERICAN BEGONIA SOCIETY, INC.

The purpose of this Society shall be to 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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★ ★ ★

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

NOT TOO LATE FOR JUDGING COURSE

Have you wondered why the judges awarded a ribbon to a begonia? Have you questioned the begonia's merit? Are you familiar with the grooming required for exhibiting specific begonias? These questions, and many others, have come to mind at shows.

The judging course, which we are presenting through correspondence, will benefit not only judges and persons desiring to learn to judge, but exhibitors and growers as well, resulting in better shows.

Begonia judges are needed in many areas. Through this course we hope to compile a roster of begonia judges, so that when requests are made for judges' names and addresses, we will have a wide range coverage.

Work-shops are encouraged in areas where groups may get together and use the judging course lessons for class work. Areas desiring to set up work-shops should inform the Director of the Judging Course, Sylvia B. Leatherman.

Final tests, which create numerous problems, will be avoided. Past judging experience and home work will be the factors taken into consideration in classifying judges. Advancement will be on the merits gained through the number of years and shows judged, and on the recommendations of advanced judges.

It will not be difficult to catch up on homework assigned to date. The twelve lessons will cost $4.00 ($5.00 for husband and wife) plus twelve business (legal) size envelopes, stamped and self-addressed. Make your check payable to the American Begonia Society and mail it to:

Mrs. Walter Pease, Jr.,
Judging Course Co-chairman,
8101 Vicksburg Avenue,
Los Angeles, Calif. 90045.

SYLVIA B. LEATHERMAN
Judging Course Director

THE BEGONIAN IS YOUR MAGAZINE

The Begonian is published for your benefit, whether you are an experienced authority or a beginner just learning the fundamentals of begonia culture.

In every issue we plan to have articles written by experts, those who experiment or do research, but we also want articles written by average growers who raise begonias just because they enjoy having them.

Perhaps you have an interesting experience to write about — a new method, a new planting mix — or you may have discovered a variety that is new in your area. Share your ideas with other members.

With your write-up, send a picture, if possible, to illustrate it. Send a clear picture of yourself, too, so readers will get to know you.

—TRU PETERSON
Editor

EASTERN CONVENTION ANNOUNCED

The Eastern Regional Begonia Convention will be held in Pittsburgh, Pennsylvania, on Friday and Saturday, July 29 and 30, 1966, as announced by the Western Pennsylvania Branch of the American Begonia Society.

A flower show and many special programs have been planned for this action-packed event. All begonia enthusists are invited and urged to reserve these dates and plan to attend.

Details and reservation blanks will be available soon.

Committee chairman is Mrs. Edna Stewart, R.D. No. 2, Box 491, Tarentum, Pennsylvania, 15084.

COVER PICTURE

Begonia 'Sophie Cecile' — grown by Mrs. George E. DeCoursey of Paoli, Pennsylvania.

—Photo by Hertha A. Benjamin

HYBRIDIZING– DOUBLE FLOWERS & MISMATCHED PARENTS

By CARRIE E. KAREGEANNES

Hybridizing—developing a new begonia! Or pollinating to reproduce or vary an existing theme in new plants. What a thrill for the plant grower!

But sometimes, despite the care in following all the instructions for pollinating and sowing, seed does not germinate, nothing seems to have been achieved. Why?

Many variations of cultural practices may cause fertile seed to fail, but mismatched parents may be the cause. Or, you may wish to cross double-flowered begonias and cannot find pollen.

Crossing Doubles

Ruth Zeman of Charlotte, North Carolina, states that, in crossing double semperflorens, she has to use pollen from a similar plant, because doubles do not have pollen. She found that her B. s. 'Cinderella' sets seed well, but that her one double (B. s. 'Joan Strong') is quite particular. Still, she did manage to get seed pods by using a similar dwarfed plant with single blooms for the pollen.

Such a practice may cut down the percentage of doubles in the resulting seed, as may the use of even a semi-double pollen plant.

Frederick J. Bedson, in his book, *Succesful Begonia Culture* (1954), describes a method that may be tried for forcing double-flowering plants to produce pollen. He suggests growing the plants vigorously to make them branch well and bear many flowers, giving them lots of light, and then gradually weakening them toward the end of the season by reducing water and stimulant, though not enough to make them wilt. He says that a few of the last flowers on side shoots then may be semi-double and have some pollen.

The seed-bearing plant should be a perfect double, which does not weaken, and the male flowers on the same spray should be pinched off.

Along this line, Charles Chevalier, in his *Les Begonias* (1938), translated by Alva Graham, refers to the tendency of tuberous begonias to be fully double without a trace of stamens in the early summer, and then at the end of the season, when they are "less well nourished," to start producing more nearly single flowers, with stamens. The gardener can use these for pollination.

Chevallier notes that male flowers of begonias are much more often double than are female flowers, and attributes this greater ease of doubling to the development of male stamens, "independent and separate from each other," as opposed to female pistils, "inseparable from the ovary." The stamens become the petals in double flowers, and therefore there is no pollen. Sometimes the doubling is not complete, leaving a few stamens. Most often the female flowers remain single. The hybridizer usually seeks to promote double flowers and, as a result of breeding, some varieties have a tendency to have more male than female flowers. In fact, Chevallier notes,

female flowers sometimes are almost entirely lacking, as in a group of *B. hiemalis* hybrids: B. 'elatier', B. 'Lucy,' B. 'Clibran', etc.

Crossing Unrelated Begonias

On the other hand, perhaps the flowers you want to use are single and pollen is plentiful, but attempt after attempt at crossing fails. Here the problem is a different one.

W. Grant McGregor of Ottawa, Canada, explains that undeveloped or sterile seed is common in crosses between plants that are not closely related, and it may not grow. The further apart the plants are botanically, the poorer the seed, or else no seed is set. He says that sometimes, however, "with a green thumb and some nutrient agar and very careful technique, these can be saved, even when there is only the germ but no endosperm tissue to feed the seedling."

Self-pollinated plants may set seed well, Mrs. Joan Lee of Roy, Utah, points out, because the chromosome count is the same in both the pollen and the ovule. Different varieties and different species may have different numbers of chromosomes — the parts of the cell that carry the genes, which transmit hereditary characteristics from parents to offspring.

Mrs. Lee gives an example of a hypothetical plant cross:

"Pod Parent, 44 chromosome x Pollen Parent, 40 chromosones

"Chromosomes come in pairs or sets. There would be 22 pairs in the pod parent and 20 pairs in the pollen parent. The pairs split and each parent will contribute one half of its total chromosome count to its offspring.

"So, 22 chromosomes from the pod parent pair with 20 chromosomes from the pollen parent. This pairing takes place after the sperm from the pollen meets the ovule in the pod. When you add these two sets together, you get a seed growing up to maturity with 42 chromosomes.

"This will not always be a fertile plant, able to reproduce through the process of pollinization. Something like a 'mule' plant. However, if the pod and pollen parents were both 40 chromosomes crossed with 40 chromosomes, the resulting seed would all contain 40 chromosomes. Therefore, new plants cross easily with themselves or either of the previous generation containing 40 chromosomes. Many new hybrids are so genetically complicated that they have unfertile pollen or no pollen at all, or unfertile eggs, or cannot develop the food necessary to sustain the seed during germination of the seed."

Chevallier cites G. Bellair (*Revue Horticole,* 1911) on this point. Bellair said that the chromosomes of the male plants may not find elements for pairing in the female plant and some remain unused, providing a strange hybrid with many problems. Chromosome counts are now being made of many plants. The Bailey Hortorium at Cornell University is publishing lists of numbers for many gesneriads, but not much work, apparently, is being done on begonias.

Chevallier notes that related species, belonging to the same botanical section or neighboring sections, have shown the greatest aptitude for crossing, and their offspring have been fertile. Hybrids of unrelated begonias may be completely sterile, according to the degree of relationship between parents; for instance, *B. dregei x B. socotrana* gave B. 'Gloire de Lorraine', entirely sterile. Sometimes the sterility is only partial; perhaps the female flower is normal, but the pollen is infertile or absent in the male flower. Sometimes the male flowers fall before they open. However, he notes that conditions of culture and environment often may make pollen appear on a plant considered infertile. Some begonias have at times been reported sterile by some growers, which other growers have reported using as parents of new hybrids.

Although he mentions some notable exceptions, Chevallier says that most frequently successful crosses are made between begonias with a common geogrophical origin. The farther apart the natural groups are, the more dif-

ficult the cross. Some hybrids of species of different origin have been successful, even superior to the parents; but often such hybrids may be weak and will not live, even if seed germinates.

Rex hybridizing includes some of the exceptions; begonia species from South Africa, Borneo, and China, as well as India, have combined to produce valuable offspring. But chances of success are much greater with species from the same or neighboring regions. Crosses between Andean tuberous species, between *B. semperflorens* and B. 'Schmidtiana' of Brazil, and *B. rex* and other Indian species—for example—produced vigorous, very fertile hybrids.

Even with these related plants, sometimes a cross will not take when pollen of one plant is used on the seed-flower of another, yet will succeed when the cross is reversed. Or sometimes the hybrid is fertile when the cross is made one way, but infertile when parents are reversed.

Pollinating

The actual method of pollinating is a full story in itself, treated before in the *Begonian.*

As has been often recommended, Bedson advises pollinating plants in the middle hours of the day, in sunshine and a warm, dry atmosphere. He says the male flower is ready as soon as the pollen is obtainable and the female about the second or third day after opening, or as soon as it is wide open. Others say to watch for the glistening of the pistils in the female flower. Mrs. Behrends, in her *Begonias Slanted Toward the Beginner,* says the male petals often reflex when the pollen is ripe. Test with a fingernail. Mrs. Behrends suggests that it is best to keep plants on the "dry side" when blooming for pollinating. Pollen may be transferred by a brush or by brushing the stamens of the male flower against the pistils of the female.

Mrs. Behrends and Bedson remind us always to label all attempts, attaching a note or number to the stem of the seed pod.

Bedson says that most seed is ready for harvesting in about six weeks. The pod should be dried up by this time, but the slits not yet open to expel the seed. "Watch for the crook in the neck of the seed pod which tells the cross has set, and watch for the right time to pick. Fertile seed is usually recognizable by its bright ginger color. Sterile seed looks lifeless, and may be either pale or dark brown." Experience proves some exceptions to this color rule, as well as to the general guide that fertile seed usually is round and will roll.

Earlier *Begonian* articles give additional information on pollinating, hybrids, naming new plants, registering names: Venture in Hybridizing", June 1962; "Hybrid Begonia Seedling", September 1962; "A Begonia Hybrid Is a Hybrid", December 1962; "Thrill of Hybridizing", April 1963; "To Register a Cultivar", June 1963; "What Can You Name It?" June 1963; "How To Hybridize Begonias", July 1963; "Name and Pubilicize Your Cultivar", September 1963.

KNOW YOUR INSECTS

Are insects your friends or enemies? Is an insect entitled to live, or should it be destroyed?

Some insects are man's greatest foes. Wood-chewing insects damage buildings, and others spread diseases of plants and animals.

But some insects are good. Without them we would have no honey, no natural silk, no shellac. And flowers-visiting insects pollinate blossoms, increasing fruit yields.

Do you know the good kinds and the bad kinds and how they live?

Pennsylvania State University offers a correspondence course for beginners in entomology. There are lessons on identification, classification, life cycles, characteristics of certain interesting insects, and control of pests.

To enroll, send your name and address with $2.25 to: Basic Insect Science, Box 5000, University Park, Pennsylvania, 16802.

HOW A HYBRID BECAME THE SPECIES B. LIMMINGHEIANA

By ROBERT L. SHATZER
A. B. S. Research Director

A century ago Edward Morren published in *La Belgique Horticole* XVI (1866) a description and colored plate dedicated and named for Comte Alfred de Limminghe and stated in the brief text that this was a species begonia. Strangely enough, for over ninety years since then, a controversy has raged concerning this plant. It seems that more attention was given to a colored plate and article which appeared in 1875 in *Revue de l'Horticulture.* This material, presented by Edward Pynaert, named the same plant B. 'Limminghei', thus giving many the impression that it was a hybrid. Some years later *Curtis Botanical Magazine* (1892) illustrated on tablet 7219 the identical plant, naming it B. *glaucophylla,* Hook, f.

During the first half of this century authorities made many speculations regarding the parentage of this assumed hybrid. Charles Chevalier believed B. *scandens,* Sw., had been crossed with B. *coccinea,* Hook. However, Morren and Dr. Regel agreed that B. *undulata* was the first parent, while Pynaert advocated *B. fagiola.*

Intense research in recent years has disclosed that the earliest known name for this plant was B. *Sandersii,* hort. Kew (1864). Dr. Irmscher, the German botanist, explained in his *Systematic Studies of Begonias from South America* why this name does not take precedence. Mrs. Sophie C. Filler has translated the following quotation from that work for this article:

"In the herbarium of Berlin was found this kind sterile as B. Sandersii Hort. Kew. along with the remark: From DC. as hy-brid by unknown parents produced h.b. 1874. This label is written by Alexander Braun and the material comes from his herbarium. This, therefore, is also the explanation why A. De Canolle in *Prodromus* listed only the name but it was never published with illustrations or descriptions and must therefore not be used for that reason."

B. limmingheiana showing male and female blossoms and a detail of the seed capsule.
—Drawing by G. A. Sausaman

Dr. Irmscher summarized the confused situation briefly and clearly in his article on South American Begonias which appeared in *Botanischer Jahrbucher,* Volume 76, page 28, 1953. Quoting Mrs. Filler's translation: "In more recent times Brade has introduced a B. Fritz-Mulleri and placed correctly in the section Solananthera. She also belongs into the scope of B. *limmingheiana* Morr. and presents hereby the proof that this group exists wild in Brazil. By no means is she therefore an artificial hy-brid, which had already been pointed out by Morren in his first, though generally ignored, message. If the previous authors had taken the trouble to make an exact study of the flowers, they

Begonia glaucophylla, Hooker. fils. as it appeared in Curtis Botanical Magazine in 1892, tablet 7219.

would have had to realize that this concerned a member of the Solananthera group. Growers and gardeners however have the deplorable habit of passing lightly over the description of the flowers and stress the beauty value much more, which is highly unsatisfactory from a botanical viewpoint. Brade is also the first who points out the deviate shape of the seed – pointed and spindle-shaped – and hereby a new group characteristic presents. The species of this group are mostly root climbers which climb high on the trunks of trees in the jungle. The leaf shape varies, depending on the position, which means that the upper leaves of the shoots are more narrow and longer than the lower ones."

Through the long years this species has been grown with a staggering variety of names: Sandersee, coccinea var. Comte Alfred de Limminghei

(Limmering), glaucophylla, glaucophylla scandens, glaucopylla splendens, and scandens. The Belgian Count Limminghe, in whose garden this plant arose in the 1860s, has been honored with the naming of a begonia for him. However, his unusual name has appeared in dozens of misspelled versions.

Begonia growers in England still retain the J. D. Hooker, fils. name, B. *glaucophylla*. T. Rochford and R. Gorer state in *The Rochford Book of House Plants* on page 115, "This glabrous-leaved begonia is one of those that possess a short rhizome, although in appearance they are fibrous-rooted. From this rhizome spring thin, rather weak stems bearing oval-shaped leaves some five inches long and two and a half inches across." The item of interest here is the mention of a rhizome in connection with this plant as I find it in no other reference.

B. *glaucophylla* was a poor choice for a name as it means "bluish-green leaves" or "leaves covered with whitish bloom." This inappropriate name will be evident when you examine this begonia.

This graceful plant can be grown as a rambling, hanging basket subject which reaches six feet in length or it may be planted outdoors on a mound of earth and be allowed to ramble. It is often found in its natural habitat as a low-growing shrub where there is nothing to climb upon. Wild specimens with vine-like branches twenty-five feet in length have been observed. It prefers fern trunks and rough bark in which to sink its adventitous roots.

Numerous stems are red-flushed at the nodes and near the tips. The young stems are noticeably flecked with white dashes along their slender, glassy length. Pinching the tips will force a bushier and more attractive specimen.

Windowsill and house plant growers in areas where winters are too cold for outdoor culture find that B. *limmingheiana* often is difficult to bring into bloom as it tends to drop

B. limmingheiana

its leaves and become somewhat dormant during its normal blooming season under these conditions. If this should happen, it should be cut back severely or stems may rot at soil level. Warmth and some sun are necessary and frequent mild applications of fertilizer are requirements. Roots should be kept moist at all times and a fairly high humidity is important. Rooting cuttings in water has proved unsatisfactory but success with layering is often possible.

The alternately positioned leaves unfold into wedge-shaped, pointed elipses four inches by two and a quarter inches. These delicate and shiny apple-green leaves mature to become smooth, bright grey-green with light-green veins. Slightly rippled edges reveal the paler undersides with raised venation. Leaf stems or petioles are short and intense bright-red at the apex of each leaf. Young leaves emerge from a pair of stipules which look like slender pencil points, and fall away readily. These stipules often appear as red as the blooms.

Close clusters of showy flowers are perhaps the most engaging characteristic of this species. Blossoms are coral-red, salmon-pink to near-orange, and have been described in such picturesque terms as "flesh to peach colored blossoms" or more realistically "tipped with fire." The winter blooming period begins with the first of the year and lasts until Easter.

(Continued on Page 39)

CLAYTON M. KELLY SEED FUND FLIGHT

No. 1 — B. goegoensis —

Sumatra. Growth bushy, compact, 25-30 cm high, with creeping rhizome, Petioles very fleshy, sharply tri-corned bare. Leaves almost round to egg-shaped, closed, saucer-like, wavy over the entire surface or rugose; upper sides of leaves olive-green with lighter shadings, silky gloss a little lighter at the margins; beneath reddish, both sides bare. Inflorescence sessile, surpassing the leaves very little in habit. Flowers medium-large, pink; male flowers have four petals, and female flowers have five petals. Time of blossoming is summer and fall.

This plant is a treasure for collectors and fanciers of beautiful foliage plants, but it is not suitable for commercial purposes. It thrives in pots or beds in a well regulated greenhouse.

It has taken many months to locate these seeds. They were expensive and few in number. Therefore, we suggest that, unless you can provide proper growing conditions, please do not attempt to grow them. *Begonia goegoensis* requires warmth and humidity at all times — it will not grow without these requirements.

Price $1.50 per pkt.

No. 2 — B. Brazil species —

From our friend in Brazil comes seed of a beautiful angel-wing type having velvety green leaves with red backs. Non-pendulous flowers.

50 cents per pkt.

No. 3 — B. Brazil species —

Another nice foliage plant with leaves that are hairy both top and bottom; red underneath. More or less peltate. Well worth growing. 50 cents per pkt.

No. 4 — B. Brazil species —

Hairy cane-stemmed to about fifteen inches; leaves reddish. White fringed female flowers. A good pot plant. 50 cents per pkt.

No. 5 — B. 'Erythrophilla' x B. 'Verde Grande' —

(No description.) 25 cents per pkt.

The multiflora type begonias we offered in December were so popular we decided to offer them again just in case someone failed to get them. They are as follows:

B. 'Helen Harms' —
Multiflora double, canary yellow.

B. 'Tasso' —
Multiflora double, pink.

B. 'Sweet Home' —
Multiflora double, red.

Any one of these three at 35 cents per pkt. All three for $1.00.

Multiflora begonias are unsurpassed for profuse bloom and impressive masses of color. They are outstandingly effective in window boxes, for edging garden beds, or planted in front of taller tuberhybrida. They are the most easily grown summer-flowering tuberous begonias. They will flourish with more sun and less water than the tuberhybrida, and seldom need staking or pinching. Soil should be light and humus-rich. Drainage should be good.

B. 'Illumination' —

Pendula. Novelty hanging type with masses of medium-sized, rose-shaped double blossoms, showing a variety of pretty, delicate colors. Impressive and highly valuable for hanging baskets and window boxes. 35 cents per pkt.

B. 'Sleeping Beauty' —

Semperflorens begonia. F_1. hybrid, bright carmine, extremely free-flowering. Sun-proof and rain-proof. Unequalled for bedding or pot culture. 25 cents per pkt.

B. 'Glory of Chatelaine' —

Six inches. Very compact semperflorens, extremely free-flowering. Suitable for both sunny and shady locations. Rose-pink. 25 cents per pkt.

* * *

Would you like to try something different and exotic from seed? Then try Sobralia leucoxantha, a pure white, large-flowered orchid from Brazil. 35 cents per pkt.

FERNS —

Some of the Seed Fund patrons like to grow ferns from spores. For your growing pleasure we have a large assortment of some of the best varieties. Some are from New Zealand and are unknown to us; therefore, we cannot give adequate descriptions of all of them. We hope you will try as many as you can. They will be well worth the effort.

Pteris cretica albo-lineata —

A very pretty, useful, variegated form of low habit, with small, clean-cut, leathery fronds, differing from the species only in the broad band of creamy white down the center of each linear lanceolate leaflet, which is toothed and wavy-margined. The fertile fronds are taller and more slender. Easily grown from spores. 35 cents per pkt.

Ptris cretica rivertoniana —

A bushy symmetrical form of wimsetti, with still erect fresh green fronds of firm texture. The brown stems are set with 4-5 pairs of lateral pinnae and terminals, the lower ones compound, all deeply cut almost to center into pointed, toothed lobes. 35 cents per pkt.

Pteris cretica wilsonii —

An excellent fern for a terrarium. Low, bushy habit, the fresh, green fronds of young plants spreading; the fertile segments tending to form a fan shape, and forking toward the tips into broad, dense crests. 35 cents per pkt.

Pteris wimsettii multiceps —

Form with the generally narrow, sparsely lobed segments tipped by fine crests. 35 cents per pkt.

Adiantum raddianum —

(Pacific Maid.) 35 cents per pkt.

Adiantum capillus-veneris —

(Venus Hair.) Creeping rhizomes produce an abundance of delicate 2-3-pinnate fronds, the variable segments deeply lobed, with veins leading into teeth. Half hardy. 35 cents per pkt.

Adiantum hispidulum —

Handsome fern with 2-3 pinnate fronds, forked at base, borne on long, wiry, hairy stalks, the leaflets almost stalkless, thin-leathery, arranged along axis, veins running into teeth. 35 cents per pkt.

Phyllitis scolopendrium cristatum —

Rhizomatous, hardy fern, with simple, oblong, lush, bright green fronds with undulate and crisped margins. 35 cents per pkt.

Clenitis glabella —

New Zealand. Fern for elevated containers. 35 cents per pkt.

Phymatodes diversifolium —

New Zealand. 35 cents per pkt.

Dicksonia squarosa —

New Zealand tree fern. Light green, soft fronds. A good plant for containers or used as specimen plants. Will tolerate more adverse weather than any other tree ferns. 35 cents per pkt.

Dicksonia fibrosa —

New Zealand tree fern. Trunk covered with brown, fibrous aerial rootlets. Fresh green fronds fairly still. Also grown in tubs or as specimen plants. 35 cents per pkt.

Athyrium japonicum —

From New Zealand. 35 cents per pkt.

Asplenium flaccidum —

New Zealand. 35 cents per pkt.

Polystichum richardii —

New Zealand. 35 cents per pkt.

Histiopteris incisa —

New Zealand. 35 cents per pkt.

Any three ferns for $1.00. The list will be continued next month.

Suggestions for sowing fern spores: Sow at any time of year. Use bottom heat of about seventy degrees. Soil mixture should be well rotted leaf mold and acid peat in equal proportions. Preferred pH range is 5.5 to 6.0.

Sow spores in shallow clay pans after soil has been moistened. Spores should be sown thinly. Cover containers with plastic and keep them from direct sun. Water only by setting pans in water until tiny drops form on the surface.

Germination occurs in high humidity within about three weeks. These

embryos should be watered carefully from above with a fine spray to encourage fertilization. Fertilization takes place in six to eight weeks; then small leaves begin to develop. After the leaves have grown about two weeks, plants are large enough to be pricked off in little bunches, not singly.

Plants can be transplanted later when they are large enough to be handled without damage. Place them in 2½-inch pots. Lower the temperature to about sixty degrees. Use the same soil mixture throughout. All that is recommended for good growth is high humidity and a shaded location.

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

A SUCCESSFUL SOIL-LESS MIX

Research Department Note: The following information concerning a modified U. C. compost for begonias was received from Mrs. Jane E. Neal of Worthing, Sussex, England, an active member of the American Begonia Society.

When I started to collect the fibrous-rooted begonias, about four years ago, I used the J. I. P. compost with added peat. It soon became evident that this became too easily waterlogged and was slow to drain. After reading the book on the U. C. compost and also Helen Krauss's *Begonias for American Homes and Gardens,* I decided to try the U. C. mix for my begonias.

I will give the "straight" U. C. mix first. I mix five bushels at a time to simplify the weighing of small amounts of fertilizer. A two gallon pail is the measure. Four pails to a bushel. The amounts of fertilizer are for one bushel.

3 parts of peat by volume
1 part of sand by volume

by weight:
1/5 ounce nitrate of potash
1/5 ounce sulphate of potash
2 ounces of superphosphate
4 ounces of ground limestone.

This mix keeps indefinitely and is for seeds and seedlings. If the mix is for established plants and is to *be used within seven days,* two ounces of hoof and horn are mixed in. All fertilizer should be weighed and then thoroughly mixed before sprinkling over the peat and sand. This mix must then be turned and mixed very thoroughly, water being added to moisten it during this process.

The peat must be a sphagnum moss peat and not a sedge peat; I use Irish Shamrock brand and, for the sand, Bedford Sand. This contains a small amount of grit and the sand content varies from coarse to fine and is closest to Kenneth F. Baker 0.5 m.m. to 0.05 m.m.

This left only one question in my mind. What about the trace elements that we are told are so important?

At the beginning of this year, 1965, I started to use a modified U. C. compost. I omitted the lime and hoof and horn entirely, making the mix only with nitrate of potash, sulphate of potash, and superphosphate. Then at the time of using I mixed 12 parts of the peat mix with one part of a treated compost of seaweed and animal manures. (This is marketed in this country as 'Exaltation of Flowers'.) This was followed by weekly feedings of Maxicrop. The all-around improvement became apparent very quickly and as a result I have shifted to this modified mix for all my greenhouse plants.

The root action in this mix or the straight U. C. mix is terrific, far more active than in the soil mixes.

The mix also seems to suit columneas, aeschynanthus, and regal and zonal pelargoniums. I have successfully grown and flowered African violets which until recently had defeated me.

The remark most frequently made about my plants is 'they look so healthy'. I think that this speaks volumes for the soil-less mixes.

BEGONIA GRACILIS OBSERVED

From a report by
THOMAS MACDOUGALL
to ROBERT L. SHATZER,
Research Director

Begonia gracilis, meaning slender and graceful, was discovered by Aime Bonpland, a French naturalist, and a friend, Alexander Von Humbolt, in Mexico. In 1825 Kunth named and described it. Since then it has been used as a parent for numerous hybrids and has often been referred to as the "hollyhock" begonia because of its tall stocks with closely-nestled, rosy flowers.

Thomas Mac Dougall, on a trip to Mexico in October of 1953, observed it and described its native habitat for us. It was found by him on Cerro Madrena, Qwechapa, Yautepec, Oaxaca, at an altitude of approximately 7,000 feet. The Cerro Madrena climbs on to about 8,000 feet. Mr. Mac Dougall says: "It pertains to the Zapotee villages of Quiechapa and Lachivia, but the top is in dispute and instead of fighting, both sides leave the top alone." The upper area has become a wilderness of tropical cloud forest.

The picture of *B. gracilis* shows it growing below the "cloud cap" and it is generally found there on steep and rocky slopes. Dry season for this area begins in November and Mr. Mac Dougall believes that this tuberous species begins to go dormant at that time. He sums up the habitat by reporting it as follows: "Well drained, poor soil with some humus; trees, chiefly pine and oak, may give part shade, but this begonia was not growing directly under the trees. Rainfall is abundant from May to November and scant thereafter; thus the climate is cool, or seldom hot, and there are spells of near-freezing temperatures chiefly during December and January."

He concludes his description of *B. gracilis'* habitat on Cerro Madrena by giving a list of herbaceous associates identified there at the same time. They are: the terrestrial orchid, bletia species; delphinium species; pentstemon species; succulent villadia species; sedum purpusi, which is a small shrub usually found growing on the rocks; and dahlia merchii which was with ripe seed and out of bloom at this time of the year in October.

B. gracilis on Cerro Madrena
—Photo by Thomas MacDougall

QUESTIONS AND ANSWERS

Since the birth of this page in December, there have been three letters. Not much, you say? No, not really—but three more than I let myself hope for. I hope the number will increase, as it will indicate that this is a page that you want, your soundingboard and source of help.

The first letter asked me to identify a disease. I sent a lengthy letter to the writer and a digest version is given below. Knickerbocker Branch's pest-and-disease expert, Toby Lothman, was of great help to me in identifying the illness.

Question: Can you diagnose what causes my rexes to develop brown spots during August and September? What can I try to prevent this condition?

Answer: This seems to be a good case of *Botrytis*, which is a fungus disease, and the use of Kelthane or Acidone PM is recommended. The use of Ferbam or Ferbate (they are the same) is also recommended, as a fungicide. Botrytis will occur frequently in greenhouses when the temperature falls below 60 or 65 degrees, as the cool air and humidity encourage this fungus growth.

The second letter asked for help I cannot supply, so it is being posed as an unanswered question and perhaps some kind readers will send the information to me and I will put it into my next column. It gave rise to the potentials of this page for those seeking information or sources they are unable to find in their community or Branch. If I cannot answer, I hope I may rely upon the unlimited resources of A.B.S. members to help a fellow-member.

Question: Where can I find Begonia 'Bijou de Jardin'? I am also looking for a "fairly robust-growing semp with fairly large pure white single flowers edged a clear red'.

Answer: Can anyone help this member?

The third letter asked about growing under lights, and in a private letter I told of my personal growing. I suggest that he and others interested join a Round Robin flight dealing with this subject.

Question: How far from the fluorescent tubes should plants be placed-

Answer: Actually, there is no absolute data on this, and I have noticed that many experts differ widely. Genrally speaking, rexes require about the least light and semps the most. It is between these extremes that disputes begin. I, myself, am only now discovering that two varieties, both rhizomatous, are doing extremely well receiving only the "edge" light from my fixtures. You are quite safe in placing plants even one-half inch from the tube without fear of burning leaves, but it is the reaction of your plants that well tell you whether this extreme is favored. If it is not, increase the distance or place the plants farther from the center of the tube.

If the light is the only accountable factor for a plant's growing poorly, keep experimenting in different areas until you find the happy spot—and keep it there! Experiment with "edge" light, which can increase the number of plants benefitting from your fixture. I know of NO absolutes even within my own various set-ups.

Can this column help YOU? If so, do not hesitate—write immediately.

MURRAY D. MORRISON,
2109 Matthews Avenue,
The Bronx, New York 10462

ROUND ROBIN NEWS

Two new flights were launched in December, and more are in the making. Number 26 is flying with Edna Stewart of Tarentum, Pennsylvania, as chairman. Flight 27. a new specialty flight on growing begonias from seed. is headed by Anita Sickman of Cheney, Kansas. If requests keep coming, another seed-growing group will fly soon. New requests have come for flights on hybridizing and on rare and odd begonias and for an all-men group. If you would like a part in any of these, send me a card.

How hardy? Norma Darragh (Flight 6) of Covington, Louisiana, did not heat her lean-to greenhouse this fall, to see how hardy certain plants are. Temperatures went to 32°. three nights, up to 50° days. The only plants to suffer were four pots of Columnea Vera Covert. All the other columneas were not affected. Smithianthas in bloom, Episcias *punctata* and *dianthiflora,* African Violet species, and begonias (canes, rexes, and semps)—all were fine. She believes "plants can stand cold if fully protected from wind and kept damp." Bob Shatzer of Albright, West Virginia, commented in this flight that his temperature dropped to a little below 50° when he had heating trouble. He lost some gesneriads, but no begonias.

Humidity: Dr. William Hitschler (Bill to Flight 18) of Philadephia, writes that it takes roughly a gallon of water a day per room to achieve even 35 per cent humidity in cold weather. Virginia Withee (Flight 4) Coventry, Rhode Island, grows humidity-loving *B. cathayana in* a pot set in a glass dish whose rim comes up around the pot, with damp cotton batting around the pot base. Bob Shatzer finds that a fish bowl or tank gives good humidity for *B. goegoensis* plantlets, and in Flight 3 he noted that a tube of silastic, from aquarium supply house or hardware store, will cement glass together for any size aquarium, Barbara Walker (Flight 20) of Niles, Illinois, finds *goegoensis* and *paulensis* do best in very light mix with all the humidity she gan give.

Propagation: Lily Fine (Flight 9) of Brooklyn, New York, learned something new when she was visiting Belva Kusler (who roots cuttings in water): even a leafless section of cane stem will root. Lily has several with minute leaf buds swelling while the base is forming roots. The canes should be fairly mature, and at least one node, preferably two, should be below water. Eleanor Slee (Flight 9) of Butler, Pennsylvania, says her friend who could not root cuttings in city water, finds rain water works. Eleanor would like tips on needs of bronze-leafed double-flowered semps.

Edna Stewart (Flight 20), Tarentum, Pennsylvania, finds *paulensis* and 'M.A.M. Crispa' hard to root. But her B. 'Kumwha' leaves are starting to root in water. The ends of the stem will "sort of callus and split and then you can be almost sure it will root."

Barbara Walker (Flight 20) was able to germinate all her Indian seed but *B. cathcarti.* Three successive sowings yielded nothing, even in three months. *B. andersoni* took six weeks. She believes seed must be very fresh for these.

Special Projects: Edna Stewart's Branch plant sale this fall raised $50 to send the A.B.S. to help with national expenses—from eighteen members and three guests. Alice Musy (Flight 3), Valrico, Florida, is collecting species begonias from all the countries she can, to see which grows best in her climate. Virginia Withee (Flight 4), Coventry, Rhode Island, is planning a thesis, "Fascinating, These Begonias"—hopes for informa-

tion from East Coast members on favorite begonias for their conditions, seed growing, cross pollination.

Identification: Herb Warrick of Seattle asked in Flight 18 for the true name of Begonia 'Crowsfoot'—rhizomatous, with large velvety leaves over one foot across, stems one and a half feet tall. A friend grows this one with leaves twenty inches across.

MRS. CARRIE E. KAREGEANNES,
Round Robin Director,
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RESEARCH REPORT

E. R. Honeywell, Extension Specialist in horticulture and floriculture at Purdue University, sent me a copy of his informative 43-page booklet, *House Plants.* Mr. Honeywell wrote this publication for Purdue University Cooperative Extension Service. It may be obtained by sending 10 cents and requesting Extension Bulletin #435 from the Agricultural Extension Service Mailing Room, Purdue University, West Lafayette, Indiana, 47907.

This interesting bulletin contains much material about the essentials of growth for our house plants and helpful suggestions for their care. This is followed by sections dealing with the different flowering and foliage plants, with pictures and information about them. The begonia section deals with both fibrous-rooted and tuberous-rooted groups.

A further follow-up on the B. *nitida* feature came from Mrs. Ernest C. Drew of Narberth, Pennsylvania. She says, "I have read your article on the *B. nitida-odorata* mess and am dizzier than ever, having been thoroughly confused for years. I re-checked the plate in *Curtis* (#4046) and verified my memory that it is marked *B. nitida,* with *B. minor* as a synonym. Nowhere do I see anything about the smaller plant that both Mr. Ziesenhenne and Logee sell as *B. nitida.* Mrs. Krauss was very emphatic that the plant was misnamed. It is much smaller in all its parts, sends up many stems from the ground, the leaves are noticeably convex, it is not so free-blooming as the odorata group, and the small flowers have very little, if any, fragrance.

The New York Botanical Garden, in its publication on Begonias in 1940, emphasized that there were in circulation two forms of *odorata,* one with and one without bracts. I have bought three plants called "*nitida*" (one very pink) and two called "odorata alba." All, except perhaps the very small one, had bracts on the pistillate flowers. My original *odorata* is very like the *Curtis* plate of *nitida.* It blooms almost constantly and is very fragrant. The very pink flowered plant bought as *nitida rosea* bloomed less freely, most in summer."

During the past month I have received two requests for monthly features and I hope the membership will contribute any information available to help make these features as complete and informative as possible.

When Mrs. Jane Cullen of Hinsdale, Illinois, sent me information concerning the B. *listida/listada* plants she had raised, she also suggested a feature centering around *B. pilifera.* She says that this upright, rhizomatous begonia has been "of the tried and true kind, which has been handed down from the generations before us."

Grant McGregor, a good grower and an active member from Ottawa, Ontario, Canada, wrote, "There is one, B. 'Superba-Azella', I would like to add to the list. It grows into a lovely plant but I wish I knew how to get it to bloom."

Who can help us with this cane-stemmed seedling of B. *aconitifolia* that was raised by Mrs. Eva Gray?

There have been some interesting comments concerning the rooting of rexes in some of our Robins that seem to merit being included in the Research Report.

Mrs. Konrad Johannesson of Winnipeg, Manitoba, Canada, wrote: "Here is my shout for help. A friend gave me ten leaves of beautiful rexes. I

put them in orchid tubes without using the rubber tops and stood the tubes on water in a three-inch layer of vermiculite, kept them soaking wet and covered with plastic sheet. In the tubes, the leaves didn't come in contact with anything.

"I had had trouble with spoiling of the leaf-edges in a tumbler. Is that little bit of water surface sufficient? I didn't encounter any difficulty whatever, and now have them all put down in sphagnum moss after waiting until the lateral roots formed before I removed them from water. Was I outrageously fortunate or do you think this was good procedure?"

Mrs. Lily Fine, a member of the Knickerbocker Branch, reported: "I started some rex leaves a couple of weeks ago and noticed what seems to be a peculiar phenomenon. Although the leaves are not rooting, the plantlets are forming as usual. This is happening with B. 'American Beauty' and 'Can Can'. They have been under water for at least three weeks and nary a root. Usually within two weeks at most the roots show and the plantlets appear only after the stems have rooted. I am wondering if the time of year plays a part in this peculiar behavior, as I usually root in the spring. I am foliar-feeding the plantlets to keep them alive in a rootless state."

Please send me *your* ideas, suggestions, or questions.

ROBERT L. SHATZER,
Research Director,
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Albright, W. Va. 26519.

BEGONIA-MINDED LEADERS OF WESTERN PENNSYLVANIA BRANCH

By DAISY AUSTIN

The Western Pennsylvania Branch of the American Begonia Society came to life in October, 1949. Its founder, Mrs. L. D. Perry, tells of her early interest in begonias and the circumstances that led to her starting the Branch:

"My earliest recollection of begonias was in our home near Utica, New York, when I was a small child. A window box in a south window at the head of the stairs was always filled with begonias, which bloomed all winter. As I recall them, they might have been 'Metallica' and *scharffi*. The house was heated with wood stoves, so this hall window probably was quite cold.

"I remember thinking then that, if ever I had a home of my own, I would have every variety of begonias there was. Imagine such a dream now, with the thousands of varieties we have!

"I found my first *Begonian* in the early 1940s. Reading it kindled anew my love of these beautiful plants.

"There was no place near Pittsburgh then where more than a few of the common varieties were sold, mostly semps, so I shopped by catalogs until I had over two hundred varieties and they almost took over our home. I remember my first order, received from Mr. Rudolph Ziesenhenne, and the thrill when I opened the box. It had come by special delivery in five days from California, and the plants looked as though they had just been taken from the bench—not a leaf was broken.

"At that time I was giving lectures on horticultural subjects to clubs throughout this area, since I was horticultural chairman for the Garden Club Federation of Pennsylvania. I often took nearly a hundred varieties of begonias to illustrate a lecture. As I gave these talks, I found many listeners who were genuinely interested in begonias, so I called them together at the Pittsburgh Garden Center in the fall of 1949 — and the Western Pennsylvania Branch of the American Begonia Society was born."

Another begonia-minded leader of this Branch is Mrs. Mark Stewart, its president. She explains how she became interested in begonias:

"I acquired my liking for begonias from my mother and, were she alive today, she would certainly be amazed at the many varieties I have. Mother's begonias were 'Beefsteak', 'Green Star', 'Lucerna', 'Thurstoni', and 'Weltoniensis pink'. They were kept in the east window of the dining room in winter and on the front porch in summer. I have often wondered how she got them, for I have no recollection of any ever coming by mail. We were market gardeners and she must have gotten them from customers on her route.

"I grew pretty much the same begonias until November, 1957, when I read a notice in the *Pittsburgh Press* of a meeting of the Western Pennsylvania Branch of the A.B.S. I got in touch with the hostess of that meeting and so subscribed to *The Begonian*.

"So it was through publicity that I joined. I think publicity is what we need to make the Society grow."

I wish all the Branches were as publicity-minded as this group. At least four times each year they submit to the *Pittsburgh Press*, a leading newspaper, a comprehensive and informative begonia article, complete with pictures of various members and their begonias. The local paper of Tarentum carries current news of Branch activities and meeting notices.

Members conduct their own programs, with members assigned to

various subjects. The subject of begonias, history, origin, description, and culture, predominates as the theme for their meetings.

Publicity and good programs has brought new members to this Branch and to the Society. One single published begonia article brought twenty new members to the American Begonia Society.

These people are truly begonia-minded.

CALENDAR

Feb. 10 — Orange County Branch: Guest speaker will be Pat Scouten, who will talk about tuberous begonias.

Feb. 11 — San Gabriel Valley Branch: Guest speaker will be John H. Van Barneveld. His talk will be on roses, their varieties and culture.

If you want your Branch meetings or other special events brought to the attention of members, send your notices so they will be received by the Editor before the first of the month preceding the month of publication; for example, notices for the April issue should be received before March 1.

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HOW A HYBRID . . .

(Continued from Page 29)

Blooms are borne on short, red peduncles which come from below new leaves at the node. Two sets of brick-red bracts appear first. Male flowers show as red buds on slender pedicels and subtend each pair of bracts. The heart-shaped male bud is white where it joins to the pedicel and flame-orange at the tip, with a narrow white border on the petals, in contrast to the two oval and two narrow red petals. The inner petals are soft coral pink sprinkled with diamond-like dust, and surround the pale lemon stamen.

Female flowers appear after the male. The ovaries have red-orange wings fading to pearly-white seed-bearing centers. Ovaries measure one inch across. Four oval-pointed petals with a fifth narrower one are centered around four pairs of pale velvet-like stigma, slightly twisted. The sepals are white-edged.

Through the years this handsome begonia has become the proud parent of many of our favorite hybrids. No truly definitive discussion of B. *limmingheiana* could be concluded without a discussion of these also and the characteristics they have inherited from this parent. Since our space is limited we will list a few from each of the three distinctly different types of hybrids.

Our grandmothers raised B. 'Majorie Daw' with pride and our mothers B. 'Glaucoppola' and B. 'Glacdaw' with equal delight. More recently three "touchy" hybrids appeared, each having a different tuberous species for the other parent: B. 'Ivy Ever', B. 'Pauline', and B. 'Elsie M. Frey'. Since the late forties we have been given the more hardy hybrids B. 'Shippy's Garland', B. 'Ellen Dee', B. 'E. O. Orpet', B. 'Bob-o-link', and B. 'Florence Carrell.'

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