

# REX BEGONIAS

AND OTHER RHIZOMATOUS FORMS

Their Propagation and Culture

AMERICAN BEGONIA SOCIETY

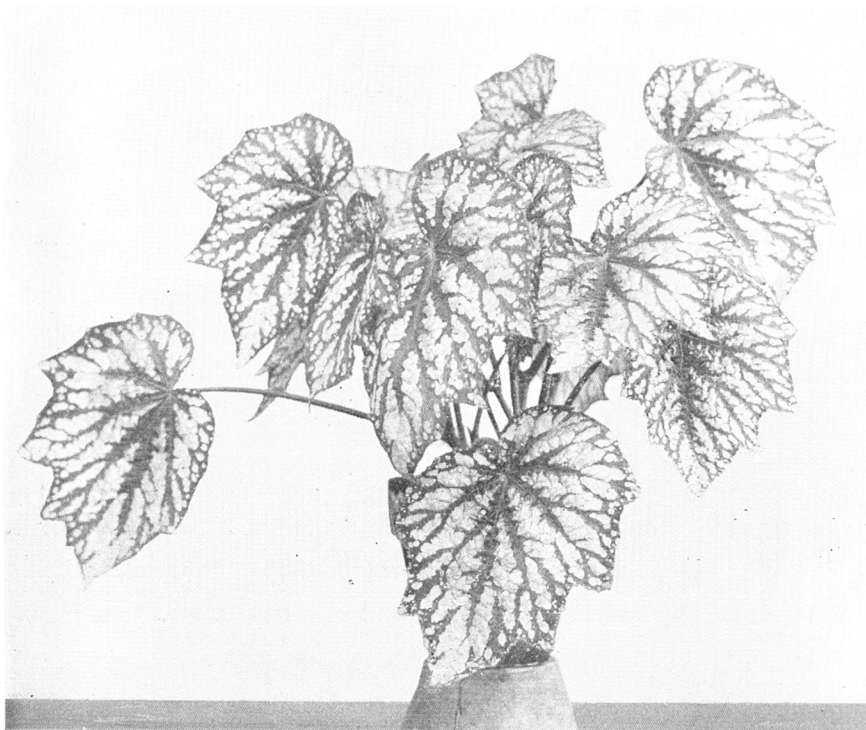
RESEARCH DEPARTMENT

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Prepared by

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(Second Revision)



REX BEGONIA — ADRIEN SCHMIDT OR PEARL HUME



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## AMERICAN BEGONIA SOCIETY

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The author wishes to express his appreciation to those members of the Society who have made definite contribution in the preparation of this bulletin. Alfred D. Robinson, Margaret C. Gruenbaum, Mrs. W. H. Rodenburg, Mrs. H. H. Buxton, and H. P. Dyckman.

These cultural methods are not necessarily the only ones to follow, but are used by successful growers, and should provide a working base for the average amateur. They must often be altered to suit varying conditions of soil and climate.

The monthly bulletin of the American Begonia Society, *The Begonian*, will keep you informed of the latest developments in begonias and their culture. It is only one dollar a year. The *Begonian* also contains advertisements of many growers who can supply Rex and other rhizomatous begonias at moderate prices. The corresponding secretary can also furnish the names of other dealers who cater to local trade only.

## RHIZOMATOUS BEGONIAS

Rhizomatous begonias are characterized by having a very thick, short, condensed stem, most of which lies on the surface of the ground or partially embedded in it. The leaves and flowers stalks thus appear to spring directly from the ground. This ground stem, root stalk, or rhizome, as it may variously be called, bears fine fibrous roots along the lower surface. The rhizome, like a tuber, may store enough food and water to carry the plant over an unfavorable season. In some species the rhizome turns upward at the growing tips so that the plant appears to have short heavy branches. In other cases there has been crossing with other types of begonias so that rather definite branching stems grow out from a thickened base. These are included with the rhizomatous forms because of their general habit and their ancestry. Rhizomatous begonias are divided into three rather indefinite classes; the trailing kinds, like *B. glaucophylla*; the Rex forms, with colored or zoned leaves; and the groups that are commonly called the rhizomatous begonias, those with plain leaves, which may be either peltate, ovate, or much divided. Those of the past group with lobed or divided leaves are often called "Star" begonias.

## REX BEGONIAS

The name Rex is a general term that has been applied to the horticultural hybrids of the colored or zoned leaf types. The Rex begonias form one of the most brilliant and regal of all foliage plants. This class has almost an infinite variety of forms, and it is difficult to believe that these have, in the main, descended from a small group of closely related species. These original species have been recrossed with a large number of other begonias, giving to this class its present rich variety of form and color.

Because of the rather exacting requirements of humidity and filtered light, Rex begonias have not been grown so extensively in the past. With the advent of the "Sheltered Garden" they are coming to a new period of well deserved popularity. While their cultural requirements are rather exacting, when these basic requirements have been met, they are very easy to grow, and their propagation is the easiest of all the begonias.

The original species that were undoubtedly the progenitors of our present Rex group included: *B. laciniata*, from Bhotan in 1830; *B. xanthina*, from Assam and Bhotan in 1850; *B. griffithii* (*B. picta*) from Bengal in 1856; and *B. rex*, from Assam in 1857.

Other closely related forms that may or may not be in our present strain are: *B. rubrovenia*, *B. albococcinea*, *B. argyrocoelis*, *B. fischeri*, *B. geraniifolia*, *B. amabilis*, *B. argentea*, *B. bowringiana*, *B. eximia*, *B. poecila*, *B. roylei*, *B. splendida*, *B. stelznerii*, *B. victoria*, and *B. zeylanica*.

The species included in the colored leaf section of the rhizomatous begonias are: Large leaved forms, leaves 4x7 inches or larger.

Leaves with distinct zones.

*B. rex*, Assam, green with silver gray zone.

*B. griffithii*, Bengal, olive-green, with zones of gray and purple.

Leaves colored underneath.

*B. xanthia*, Assam and Bhotan, purplish beneath.

*B. daedalea*, Mexico, green with a network of reddish-brown.

Small leaved forms.

*B. rajah*, Malaya, brownish mottled with green veins.

*B. augustinei*, China, green with red hairs.

*B. decora*, Perak, reddish-brownish with green veins.

*B. imperialis*, Mexico, brownish-green with bright green veins.

Leaves peltate.

*B. modica*, Africa, pale green with pink margins.

*B. gogoensis*, Sumatra, green peltate with dark bronzy blotches.

The original Rexes have been crossed with the following closely related forms: *B. imperialis*, *B. beddomei*, *B. decora*, and *B. smaragdina*; with the plain-leaved rhizomatous *B. subpeltata*; with the tuberous *B. discolor* (*B. evansiana*); with the fibrous *B. diadema*, *B. incarnata*, and *B. cathayana*; and probably with others. Hybridists are still working with the Rex group, principally in an attempt to give us taller plants and larger blossoms.

Rex begonias in general have thick, succulent ground stems or rhizomes, which lie on the surface of the ground, with masses of very fine fibrous roots given off from the lower surface. The

leaves and flower stems spring directly from this rhizome. The leaf stems are long, erect, succulent, and more or less hairy. The large, oblique, colored, and usually zoned leaves are borne at a sharp angle with the stem, thus displaying their magnificence most effectively. Rexes usually blossom in the late fall or winter, and the flowers are somewhat larger than the flowers of the fibrous begonias, and quite waxy in texture.

The first branching types of Rexes were mostly the result of hybridizing with *B. diadema*. Recently some very interesting hybrids have appeared as a result of crossing with *B. discolor* (*evansiana*). Another very interesting variant are the Rexes with their leaves curled spirally at the base.

When viewed in strong reflected artificial light the darker colors or darker zones may be seen to glow with intense glowing emerald green, which is both startling and beautiful.

So many hundreds of Rexes have been named that the whole subject of names is very confusing and entirely too large a subject for the limitations of this simple cultural bulletin. Rather than be indefinite or inaccurate no names for the thousands of horticultural hybrids will be mentioned.

## Habitat

Rex begonias originated in a tropical region of dense forests and heavy rainfall. Therefore, they must have a diffused light, moist warm atmosphere, and a porous soil largely organic in origin. While many of the Rex will recover from a light frost they should be kept at a winter temperature of from 40° to 60° F. Few of them can be kept in the average living room as the air there cannot be kept sufficiently humid.

They do not have a completely dormant rest period like the tuberous begonias, yet little growth can be expected of them in the winter if the temperature is allowed to fall much below 60° F. When a uniform temperature cannot be maintained during the winter months it is best to put the plants away in a weak light, but a moist atmosphere, and water very lightly. When they show signs of growth in the spring they should be brought out into a stronger light, and watered lightly. Watering at this time with manure water will tend to stimulate the new growth. Be careful not to overwater at this time.

The soil should be largely leaf mold and must be kept slightly acid. While the

soil must always be kept moist, it must, at all times, have perfect drainage. A "sour" soil is fatal to any begonia.

## Propagating by Cuttings

The favorite and by far the simplest way in which to propagate the Rex is by leaf or rhizome cuttings. They come true to type by this method. When the rhizomes have become elongated they may be cut into short sections and embedded in leaf mold. If roots have formed the entire length of the rhizome the growth will proceed without interruption.

The usual and more prolific method is, however, to grow them from leaf cuttings. There are many systems for doing this. If the entire leaves are laid on the surface of leaf mold in a warm, moist, shaded corner they will usually start from one to a dozen plants, but it is better to trim away most of the outer parts of the leaf. The leaves used should be mature but thoroughly vigorous leaves from a healthy plant. If the large veins on the under side of the leaf are first cut through, the number of new plants will be greatly increased. If the leaf stems are placed from one half to one inch below the surface of the leaf mold, plants will often start along most of its length, especially if the stem is partly cut through at short intervals. If wedgeshaped pieces of the leaf are cut out, including at least one of the principal veins, its lower end may be planted one half to one inch deep in leaf mold. If the cuttings are started in a flat, it had best be covered with glass until the new growth starts. Usually, however, a bed of leaf mold is prepared on the ground under a bench in the lath house or greenhouse. Here uniformity of temperature, freedom from draft and a high humidity seem to afford the best results. The largest number of new plants from a single leaf is said to be eighty-three.

The early spring is the best time to start cuttings because they then develop rapidly during the warm weather, and acquire the strength and vitality necessary to withstand the comparative aridity of late summer and the cold of winter months. As soon as two or three leaves have developed stems from four to five inches long the plants may be potted and can now be given some fertilizer. Separate the individual plants with care as the leaves will be much smaller if two or more plants are potted in a clump.

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## Propagation by Seed

Propagation by seed is the only way to obtain new varieties, and while it is an exacting and slow process many amateurs have been quite successful. It is well to know that all begonia seed is highly susceptible to moisture and must be kept perfectly dry until planted. Seed may be started on a moist brick placed in shallow water, in a sterilized dish of nutrient agar, or in a leaf mold seed bed. The latter method is the one in most general use.

Prepare a seed pan or flat by placing first a layer of broken crockery or gravel, covering this with an inch or two of coarse leaf mold, or leaf mold and peat moss, and then sifting over this a layer of finely sifted, well-rotten leaf mold. Set this in a pan of water for several hours until thoroughly soaked, then let it drain for several minutes and plant the seed, scattering it evenly over the surface. Seme-san or a 5% solution of clorox may be sprinkled over the flat to prevent damping off. Now cover the seed pan with a sheet of paper and another sheet of glass, and place in a warm, shaded place. The temperature should never be permitted to fall below 65°F. and should average around 70°F.

The seeds should germinate in from 10 days to four weeks, but they occasionally may not germinate for a much longer period. As soon as the seeds have germinated remove the paper. At this stage the temperature may be allowed to gradually drop a few degrees. At this time it is desirable to sift some fine soil over the bed to cover the roots and give support to the young plants. If the seed bed tends to become dry on the surface, water again from the bottom or from the top by using a spray nozzle. Never expose the seed beds to direct sunlight. After the plants have developed several leaves they may be pricked out and set further apart in a flat of leaf mold. When they reach a height of several inches they may be safely potted. The soil may now have a little well rotted compost or manure or bone meal mixed in. One should be careful not to overwater at this stage.

## Housing of Rexes

Rex begonias are usually grown in pots or boxes but they do very well in the ground in the lathhouse or conservatory, and even do well out of doors in a sheltered spot in warm localities with a uni-

form high humidity. One must, however, always provide proper soil and good drainage. Lathhouses are only successful in a region free from drying winds or heavy frosts. In regions with light frosts and moderate or low humidity the house should be enclosed with cloth, a light weight of muslin seeming preferable. In colder region, they must be grown under glass, with heat.

The light must always be diffused. A light weight of muslin gives good diffusion. If lath is spaced the width of a lath apart additional shade must be secured by vines or by interspersing with taller plants. Lath alone may be used if spaced from one half to one inch apart, depending upon the relative intensity of the sun. A double roof of staggered lath with the two layers about three fourths of an inch apart gives much better protection from both frost and sun than a single layer. Overhead lath should run north and south. The best development of Rexes, however is achieved with the protection of muslin. In any region some heat should be provided during frost weather.

## Soil

A soil composed largely or even exclusively of leaf mold is favored by most growers, but granitic sand, compost, well decayed manure and peat can be added in varying proportions with success. Leaf molds and composts vary so in texture that some experimentation is usually necessary before the best results can be expected.

Perhaps an ideal soil would be roughly about one sixth granitic sand, one sixth rich but well rotted compost, one sixth German or Swedish peat, and one half oak leaf mold, with a little bone meal or other organic fertilizer added. On the other hand, some of our more successful growers use straight leaf mold, while others go to the opposite extreme and use considerable loam with their mixture. Any light friable mixture, porous, acid, in reaction, rich in organic matter and well drained will give good results if a warm moist air is maintained. The acid reaction, measured by the hydrogen ion concentration should be from 6.0 to 7.0.

Although the organic matter in the soil supplies much of the food material, a reasonable amount of fertilizer must be used to secure the finest results. If manure is

used it should be thoroughly rotted. Watering once a week with manure water will give gratifying results. Dried blood is good if mixed sparingly with the soil. Any well balanced commercial fertilizer can be used with good results if used moderately. Feeding frequently, but lightly, is much superior to an occasional overdose.

## Water

Hard water should never be used with Rex. Such water should be acidified by adding aluminum sulphate or common alum, at the rate of one half ounce of a supersaturated solution of alum to a gallon of water, but this amount depends upon the alkalinity of the water. The best procedure with hard water is to have a tank or a barrel which can be treated and the mineral precipitate allowed to settle out.

Watering should be done daily as the soil must be kept moist at all times, but never soggy wet, as too much water is a common mistake. The leaves should also be moistened with a fine spray of water, in dry weather twice a day. In warm weather, when the nights are also warm, watering is best done in the late afternoon, as a high humidity is thus maintained for the night. In cooler weather or when the nights are cool, however, it is preferable to water in the morning so that the plants will not be chilled. Rain water is ideal for watering, but any soft or softened water will do.

## General Care

Old leaves should be kept off, both for aesthetic consideration as well as for the health of the plant. In old plants the rhizomes often become elongated and unsightly. If these are rooted on the under side the last inch or so may be cut off and transferred to a new pot. Growth is in this way little interrupted and the plant will gain new vigor. Some of the branching types will need staking.

Rexes do not need large or very deep pots, but they do need repotting from time to time. This is especially the case when the leaf mold disintegrates and a heavy, less porous residue is left. In this case wash the old soil out and carefully work new soil around the fine hair-like roots. Do not however, repot late in the fall or during the winter, unless the plants

are to have heat enough for normal growing conditions. Rexes do very well and present an attractive appearance in sphagnum or moss covered wire baskets or wall pockets. Keep well in mind that the best soil and the best location will fail with Rex unless there is a uniformly moist atmosphere about the plant.

## Pests and Diseases

Fortunately the Rex in this country is relatively free from disease. In fact diseases are so rare that should a plant become infected it is best to destroy it at once. Even the ordinary garden pests such as mealy bugs, aphids, thrips, and red spiders are not much bother as they do not like the high humidity and the daily spraying with water. Such occasional marauders can be dealt with by hand.

The soil often becomes infected with small worms of various sorts. Those like the organic matter in the soil, but some will eat the fine roots of the Rex. A little arsenate of lead mixed in the soil will kill those, or a little vaporite mixed with the soil will discourage their activities for a time.

The principal pests are the leaf-eating snails and slugs—their work is so glaringly evident. These can be kept to a minimum by the occasional use of any of the prepared snail or slug poisons, particularly those containing metaldehyde. They can also be trapped by scattering lettuce or cabbage leaves about in the evening. The slugs gather on these leaves and can be destroyed in the morning.

Once the requirements of Rex have been mastered they are easy to raise, easy to propagate and make the most satisfactory of foliage plants.

## PLAIN-LEAVED RHIZOMATOUS BEGONIAS

While the colored-leaved sorts of begonias mostly come from southern Asia, the plain-leaved rhizomatous forms come mostly from Mexico, with a few from Central and South America. The leaves arise directly from a short, thick root-stalk or rhizome usually growing on the surface of the ground, but in some varieties this rhizome grows more or less erect. They send up large trusses of bloom held

high above the foliage by a succulent flower stalk.

While there is a great variety of forms they are usually arranged in three more or less distinct groups.

(1) Those with rather definitely divided or lobed leaves. *B. heracleifolia*, *Sunderbruckii*, etc., are often known as "Star" begonias due to regular radiating nature of their lobes. *B. platanifolia*, *Ricinifolia*, *Verschaffeltiana* have less regular lobes. Others in this group are *B. crassicaulis*, *B. fuscumaculata*, *B. dichotoma*, *Palomar*, *Mrs. Pease*, etc.

(2) Those with the leaves very little or not at all lobed, and the leaves more or less rounded. *Feastii*, known in France as *Erythrophylla*, is commonly known as the "Beef-steak" begonia. *B. hydrocotylifolia*, or *hydrocotylifolia*, has small leaves less than two inches across. *B. manicata* has the leaves more pointed and the margins more indented, while *Bunchii* is a form of *Feastii* with ruffled edges to its leaves. Others in this group are *B. peponifolia* (*B. macrophylla*), *B. maxima*, etc.

(3) Those whose leaves are peltate, or shield-shaped, that is, with the leaf-stem apparently attached to the central portion of the leaf. *B. nelumbifolia* has very large leaves, often as much as eighteen inches across, while *B. conchaefolia* has leaves scarcely two inches in diameter. Others in this group are *B. subnelumbifolia* (*robusta*), *B. albo-coccinea*, *B. gentilii*, *Bi-noti*, etc.

The culture of these begonias is, in general, more like that of the fibrous begonias than of the *Rex*, as they like considerable loam in the potting soil, and they will stand more exposure than the *Rex*. The blooming period is winter or early spring.

They are usually propagated by rhizome cuttings, though many of them may also be propagated by leaf cuttings. The rhizomes may be cut into short sections and embedded in leaf mold, where they will quickly form a mass of fine feeding roots. They do best if potted in rather wide and relatively shallow pots, as the rhizomes need room to grow.

While they are much longer lived than the *Rex*, they have somewhat the same tendency for the rhizomes to elongate and become unsightly. When this stage is reached it is best to cut up the old rhizomes and start new plants.

## TRAILING OR CLIMBING BEGONIAS

Relatively only a few begonias can be called climbing or trailing. As their stems root freely at the joints and in other ways resemble the true rhizomes, most authorities class them with the rhizomatous types.

*B. glaucophylla* (*glaucophylla scandens*) probably a hybrid of *B. coccinea*, and *Alba scandens* make good basket plants. *Alba scandens* will also cling to a wall like ivy. These begonias are rather slow growing, and as cuttings need bottom heat, it is usually best to imbed a part of the stem in the soil and allow it to take root there before separating it from the plant.

*B. convolvulaceae* (*scandens*) likes relatively cool temperatures and will not thrive in a hot house, while *B. mexicana*, which likes to trail over the ground, likes glass-house culture.

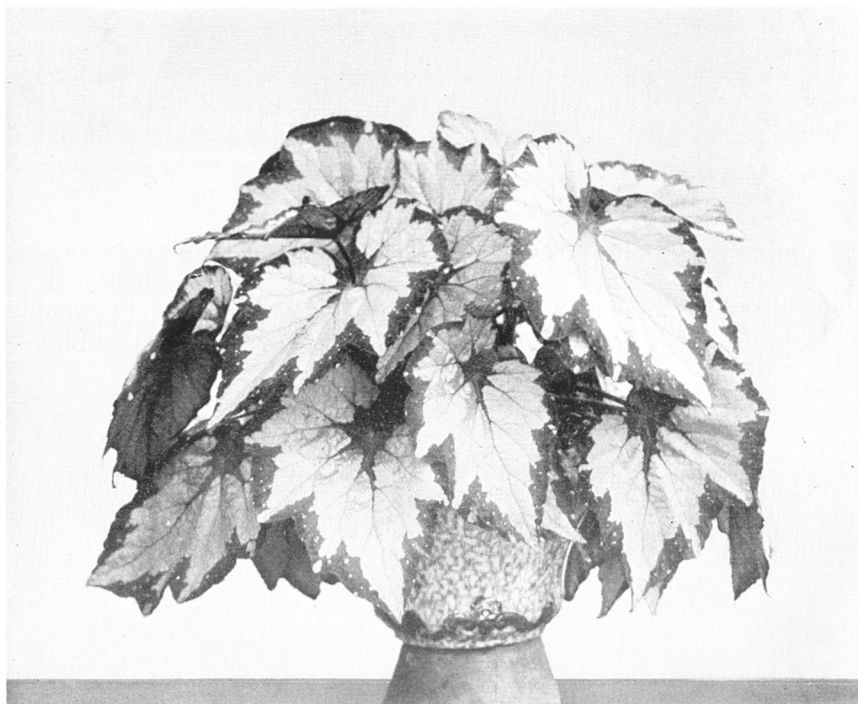
Marjorie Daw is a rampant climber that will require considerable space. It is one of the finest begonias that has been produced in California.

While most of the trailing begonias originated in Mexico, there are three minor species from tropical Africa, *B. parva*, *B. injoloensis*, and *B. poggei*. These are more interesting to the collector than ornamental, and have probably not yet been introduced into the United States.

For further information when new problems arise members should write to the QUESTION BOX DEPARTMENT of the BEGONIAN, Long Beach, California.

The illustrations are from photographs furnished through the courtesy of Ernest L. Logee.





REX BEGONIA — MRS. E. G. SHEPPARD

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