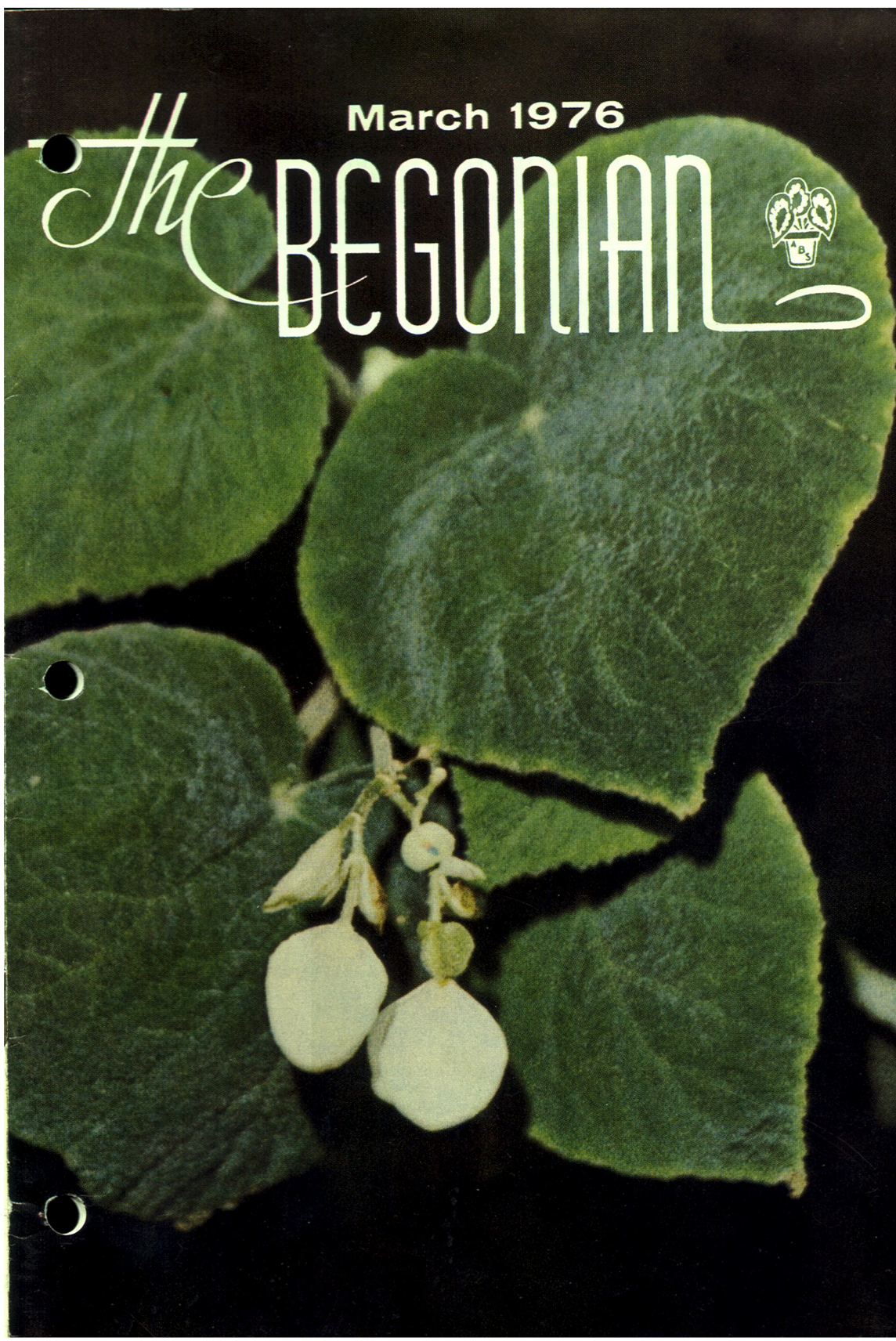
March 1976

The BEGONIAN



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COVER PICTURE: BEGONIA ALICE-CLARKAE ZIESENH.

By Rudolf Ziesenhenne

On June 18, 1971, I received a shipment of begonia plants from Mr. Thomas MacDougall sent from Laredo, Texas. One of the plants, labeled 'C.317' had thin, woody stems and was noted to be a "cane." The amazing things which set it apart from other *Begonia* were the deeply-rounded leaves of spinach-green and a fine-hairy surface which reminded me of *Begonia imperialis*. Of course *B. imperialis* is a rhizomatous plant, a creeper, and here was a similar-leaved plant with upright growth of a woody nature. The hairy surface of the leaves was unusual also because it was made up of little cones each topped with a tiny hair. This same structure occurs with *B. imperialis* but there are only two to three cones to a square millimeter whereas 'C. 317' has eight or nine per square millimeter which makes a much finer texture.

During the fall months before Mr. MacDougall's death in January 1973 I sent him a list of his collection numbers to have him complete his habitat notes; I had not received the information about plant 'C. 317' at the time of his death. I learned from Mrs. E. W. Stix of St. Louis, Missouri, that Mr. MacDougall's personal notes and all my letters to him had been given to the American Museum of Natural History, New York. I wrote to the director and he kindly sent me the requested information which lists 'C.317' as a cane begonia collected at Las Pitas, Ocozocoautla, Chiapas, Mexico, May 11, 1971. Due to lack of time to work on my taxonomic interests, I have just now finished the botanical study of this plant.

It is my intention to name new *Begonia* in honor of serious begonia lovers when the plants are in cultivation since the hobbyists who grow them can retain the names better than Latin adjectives. I am naming this plant (MacDougall C.317) for Mrs. Alice M. Clark of San Diego, a valued friend who is an untiring worker and enthusiastic supporter of begonia-growing, an inspiring leader of various garden clubs, and a distinguished begonia artist working with water colors. Mrs. Clark has made many paintings of *Begonia* plants which were published in the *Begonian* from 1943 to 1949 and may be reproduced in color in a volume to be published in the near future. Mrs. Clark is a long-time member of the American Begonia Society, editor emeritus of the *California Garden* magazine, and in 1958 was recipient of the ABS highest award for service, the Eva Kenworthy Gray Award.

Begonia alice-clarkae is an unusual plant which I am sure will prove useful to hybridizers. I have made only one cross, *B.* 'Al Clark', which I have named for a young begonia enthusiast, not related to Alice Clark. *B.* 'Al Clark' is the result of crossing *B. imperialis brunis* onto *B. alice-clarkae* in 1973, and is an upright, thin-stemmed grower with leaves spinach-green with silver areas at the junctions of the main nerves; the underside of the leaves are pale green and not rhodonite-red as with *B. alice-clarkae.* Seedlings of *B.* 'Al Clark' selfed are showing some interesting color variations at this time. *B.* 'Al Clark' was awarded the first William M. Bower Memorial Trophy for the best *Begonia* introduction by a commercial Nurseryman at the American Begonia Society Annual Show, September 6, 1974, at Goleta, California. It bears the ABS registration number 441, published in the *Begonian* May 1975, p. 116.

Begonia alice-clarkae poses a problem because it does not fit nicely in the present Sections of *Begonia.* The two-celled seed pod would place the plant near Section *Weilbachia* Kl., the plants of which have two styles, a two-divided placenta, a necked seed-pod, but consists of plants which are stemless or creeping-rhizomatous.

B. alice-clarkae on the other hand has three styles, a two-celled seed-pod, two placentas, each set apart from the other, a seed pod which is not necked; the plant has thin, woody, upright stems and is a dwarf shrub.

Because of these differences I feel a new sub-genera or section should be established. It must be remembered that sections are tools of taxonomists to aid in identifying plants; the whole system of sections will no doubt be reviewed at some later date when all wild *Begonia* have been described.

At this time, *Begonia* anatomy, even of many named species, is very poorly understood. There are over one hundred *Begonia* which have been so poorly described as to flower parts that one cannot determine in which section they should be placed. I have made drawings of a number of other unidentified Mexican *Begonia* which have three stigmas and two-celled seed pods with two separate placentas so I am sure this peculiarity in *B. alice-clarkae* is not just a freak condition.

NEW SECTION: LIEBMANNIA ZIESENHENNE

This section is named for Frederick Michael Liebmann, a botanist who wrote "The Begonias of Mexico and Central America" in *Videnskabellge Medeleser fra des naturhistereske Foreining I Kjobenhavn* 1:1-22. 1952.

Begonia section *Liebmannia* Ziesenh, new sect., male tepals 2, filaments free, anthers oblong, longer than the filament. Female tepals 2, styles 3, base united, stigma wide moon-shaped, stigmatic papillae cover the top and edge. Capsule unequal three-winged. Ovary 2-celled, placentas in each cell 2 carrying seed on both sides. One species, the type *Begonia alice-clarkae* Ziesenh. Thin woody-stemmed plant growing erect and having palmately-nerved leaves.

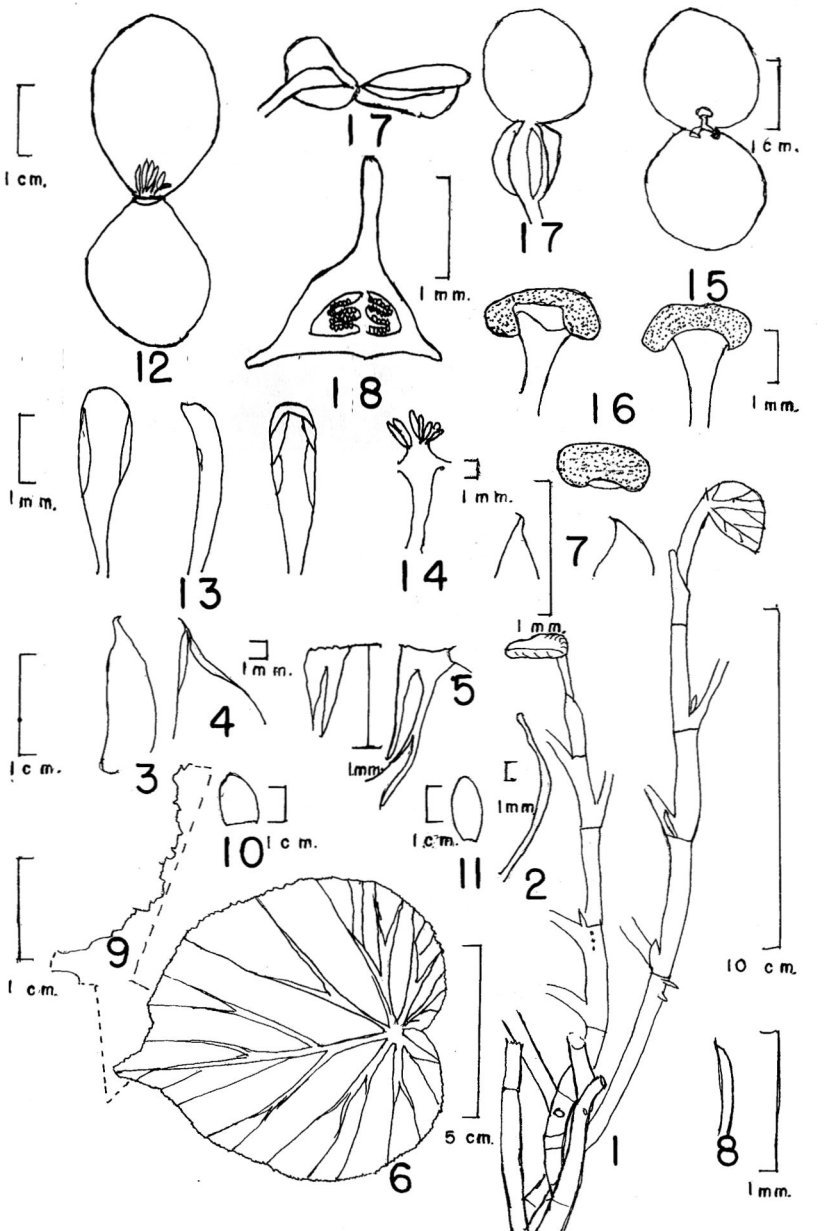
Begonia sectio *Liebmannia* Ziesenh. sect nov., tepalis masculinis 2, filamentis liberis, antheris oblongis. Tepalis femineis 2, stylis 3, basi connatis, stigmatibus lunulato-bilobis, margine fascia papillosis cinctis. Capsula inaequaliter trialata. Ovarium biloculare, placentae in loculo 2, utrique ovuliferae. Species una. *Begonia alice-clarkae* Ziesenh.

Rudolf Ziesenhenne presented a plant of *Begonia alice-clarkae* to the artist for whom he named it, Mrs. Alice Clark, of San Diego. The occasion was the January meeting of the Alfred D. Robinson Branch of which Mrs. Clark is a long time member. One of Mrs. Clark's paintings, that of *B. diadema,* is a part of the permanent collection of the Hunt Botanical Library, Carnegie-Mellon University, Pittsburgh.

DESCRIPTION
Begonia alice-clarkae

Begonia (Section *Liebmannia* Ziesenh.) *alice-clarkae* Ziesenh. New species. Herbaceous perennial, stem (Figure 1) woody, erect, in transverse section oval, 12 in. tall, ¼ in. in diameter, branching, when young covered with simple clear hairs (Figure 2) 1/16 inch long which quickly turn brown and wooly, well-covered with leaves; internodes ¼-1¾ inches long, medium green becoming brown with age; nodes slightly swollen; stipules (Figure 3) quickly dropping, papery, thicker lengthwise along the center, not keeled, narrowly elliptical, tip blunt with the tip running out to a point ⅛ inch long, margin entire, the edges near the tip curled inward (Figure 4), ⅝ inch long, ⅜ inch wide, pale green, outside thickly covered with colorless hairs which quickly turn brown, nerves not observable; petioles cylindrical, ⅛ inch in diameter to 5 inches long, dark green, dull, thickly covered with colorless single and multilobed hairs (Figure 5) which become brown and curly: leaf (Figure 6) papery, spinach-green, minutely-rough surface, thickly

Begonia (sectio LIEBMANNIA Ziesenh.) *alice-clarkae* Ziesenh. spec. nov. Herba perennis: caule persistente, erecto, elliptico, ligneo, 30 cm. alto, 6 mm. crasso, ramificatio, pilis in juveni simplicibus incoloratis 2 mm. longo qui cito brunneolo et lanato, omino foliato; internodiis 2.1 cm. - 4.25 cm. longibus, medio veridibus; stipulis deciduibus, papyraceis, incrassata elongata secus centro, non carinata, ovatis anguste, apice obtusus cum acumine, 2mm. longa, marginibus integris proximis apice crispo extrinsecus, 1.5 cm. longis, 5 mm. latis, viridis scheeleanis 860/3 (Royal Horticultural Society Color Chart), pallidibus, extus densis incolorato pilis qui cito brunneolo et lanato, nervaturis non manifestis; petioles teretibus 12.5 cm. longis, 2 mm. crassis, viridis spinaciis 0960, obscure, densis pilis simplicibus et multilobis incoloratis qui cito brunneolo et lanto: foliis tenuibus, viridibus spenciae 0960, minutis asperis, dense (8-9 quadratis mm.) tectis minuatis conicis terminanibus pilis ⅛ mm., obscurem nervis dipressis; subtis ruberis rhodoni-



Begonia alice-clarkae Zies.

(8-9 per square millimeter) covered with tiny cones (Figure 7) each terminating in a short 1/8 mm, hair, dull, nerves depressed; below rhodonite-red, dull, covered with tiny pits which are the underside of the cones, nerves suspended below the leaf surface densely hairy (Figure 8); broadly-eggshaped, tip sharp-pointed, basal lobes short and the sinus shallow; margin irregularly finely-gnawed (Figure 9), ciliate; 4 inches long, 3 1/2 inches wide; palmately 10-nerved, outside basally 3, laterally 2, inside basally 3, laterally 1; inflorescence a few-flowered evenly-divided cyme; flower stem produced from the leaf axil, cylindrical, 1/8 inch in diameter, 3 inches long, dark green, dull, thickly covered with colorless single and multiple-lobed hairs (Figure 5) which become brown and curly; branches 2, internodes primary 3/8 inch long, internodes secondary 1/8 inch long; bracts (Figure 10) cupped, quickly drying but adhering to the flowers, greenish-white turning brown and papery, very fine short-hairy outside, broadly ovate, tip blunt, base cut straight across, margin toothed, 5/8 inch long, 1/2 inch wide, parallel nerved; secondary narrowly elliptical (Figure 11), tip sharp: flowers male (Figure 12) pedicels 1/8-5/8 inch long, hairy as the peduncle: tepals 2, white; inverted egg-shaped, tip blunt, base wedge-shaped, margin entire; outer surface dull, thickly (2+ per square mm.) covered with minute trichomes .3 mm. long; 7/8 inch long, 3/4 inch wide; stamens (Figure 13) 39-49. hardly-raised base (Figure 14), free-arranged like a hand of bananas; filaments 1.25 mm. long, anthers oblong-wedge-shaped, tip blunt, connective not produced: female flower, bracts as in males, pedicels 1/2 inch long, covered with clear hairs; tepals (Figure 15) 2, white, dull, circular to broadly egg-shaped, tip blunt, base rounded, margin entire, outer surface covered with trichomes as with the male tepals; stigmas (Figure 16) three, base united .66 mm. free part 2 mm., crescent-shaped, 2 mm. wide, stigma papillae around the top and outer edge; capsule (Figure 17) 3/8 inch long, .8 mm wide, oval, tip and base rounded, few scattered hairs, one large wing 5 mm. long, 8 mm. wide, ascending, oval, tip rounded, thinly covered with colorless hairs .15 mm. long, other angles (2) fleshy marginal ridges: ovary (Figure 18) 2-celled, placentas 2, carrying seeds on all sides.

Holotype: Thomas MacDougall C.317. Mexico, Chiapas, Ocozocoautla, Las Pitas. May 11, 1971, in herbarium of Rudolf Ziesenhenne, 1130 N. Milpas St., Santa Barbara, Calif. 93103. U. S. A.

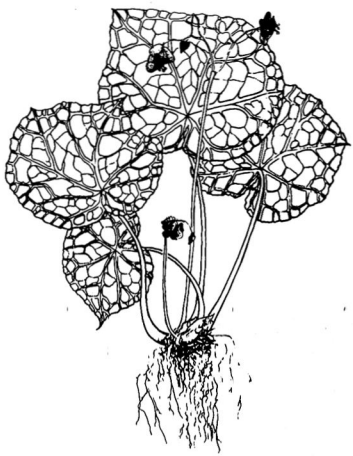
ticis 0022, obscure minutis lacunis, nervis suspensis, dense pilis; latissime ovatis, obtusis cum acumine, lobis basilaribus brevibus, sinu non profundo; marginibus minutis erosis, ciliatis, 10 cm. longis, 9 cm. latis, palmatinervis nervi 10: inflorescentia cymosa, pauciflora, pedunculis similis petiolo; bracteis deciduis, extus obscure, pilis brevibus tenuibus, late ovatis obtusis, cupulatis, basi truncatis, marginibus denticulatis 1.6 cm. longis, 1.3 cm. latis, parallelinervis, secundaris anguste ellipricis, obtusis 2 cm. longis, 1 cm. latis: tepalis masculinis 2, albis, obovatis, obtusis, cunatis, marginibus integris, extus obscure, dense tactis (2+ quadratis mm.) minutis trichomatibus .3 mm. longis; 2.8 cm. longis, 2 cm. latis; staminibus 39-49, basi vix elevatis, filamentis libris, 1.25 mm. longis; antheris oblongo-cunatis, obtusis, 1.6 mm. longis, connecto non producto: tepalis femineis 2, albis, circularis ad late ellipticis, obtusis, marginibus integris, basi rotundatis, extus dense tactis minutis trichomatibus atque maribus, stylis 3, basi .66 mm. connatis, parte libera 2 mm., lunatis, 2 mm. latis, fascia papillosis circumcursis; capsula 1 cm. longa, 8 mm. lata, ovali; inaequaliter trialata, ala maxima 5 mm. longa, 8 mm. lata, obtusa, reliquis angustis; ovario 2-loculata, placentis 2, undique ovuliferis.

Please contribute slides of Begonias to the A.B.S. Slide Library.

BEGONIA RAJAH RIDLEY

By Mildred Thompson, Southampton, NY

From the *Twiglette* — Hampton Branch Newsletter

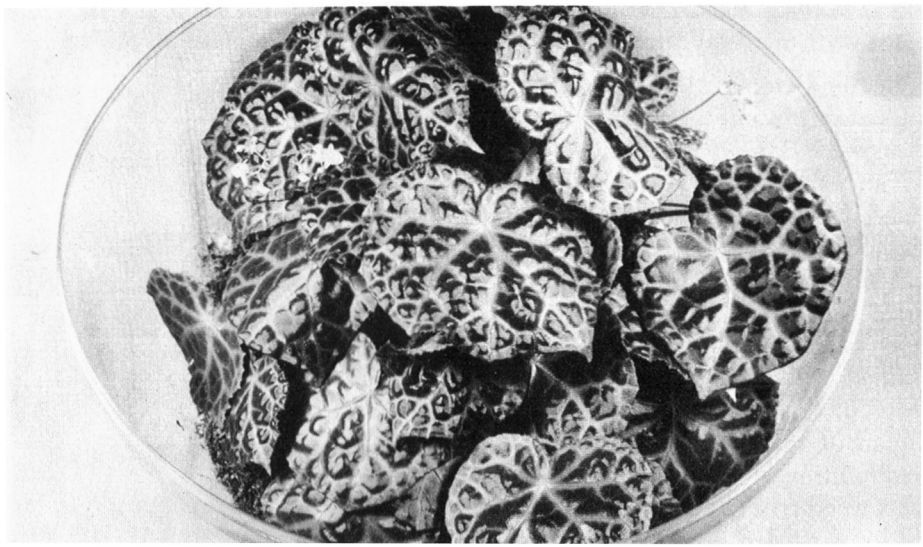


R. A. Ridley, a plant collector for the Singapore Botanic Gardens, discovered *B. rajah* in the Tringganu district of the Malay Peninsula. In 1892 this species was mentioned in the Annual Report of the Singapore Botanic Gardens as a very fine begonia. However, it was not described. Plants of *B. rajah* were sent to Europe and on August 14, 1894 it was exhibited by F. Sander & Co., of St. Albans, England, at the Royal Horticultural Society. It received a first-class certificate.

The first description of this species was brief. It appeared August 25, 1894 in the *Gardener's Chronicle,* a weekly illustrated journal of horticulture and allied subjects which was published in London, England. In 1900 *B. rajah* was once again mentioned in the *Kew Bulletin,* "Published Names of Plants Introduced to Cultivation: 1876 to 1896," along with 73 other species and hybrids of begonias. Once again the description is brief. It was not until 1914 that a full Latin description of this species was written when in 1914 it appeared in the *Kew Bulletin,* "Miscellaneous Information."

Today this species is available to many begonia enthusiasts through the A.B.S. Seed Fund, branch sales and specialized commercial growers of begonias. However, this was not always the case because at times it has been extremely rare. Mrs. Krauss, in her book, *Begonias in American Homes and Gardens* (1947), states that *B. rajah* is not presently in cultivation. In 1961 in the February issue of the *Begonian* the Seed Fund mentions that they had searche for five years for seeds of *B. rajah* and finally received a fair amount of seed from a collector of begonias in France. Again in the January 1968 issue of the *Begonian* in the Seed Fund it states that the seed of *B. rajah* is very rare and this time the fund received the seed from a botanist friend in Holland. This is the way many seeds of rare begonias are shared between enthusiasts and collectors in this country and several foreign countries. In fact my husband and I recently had the pleasure of being the first ones to send rhizome cuttings of *B. rajah* to two friends in Japan, Hikoich Arakawa and Isamu Misono. In return they have sent us some lovely new Japanese hybrids.

B. rajah is a strikingly beautiful species with slender creeping rhizomes. The medium sized leaves are orbicular (circular) with a cordate base and an acuminate apex. The leaf margins are denticulate (minutely toothed) and ciliate (fringed



B. rajah

Photo by M. Thompson

with hairs). The surface of the leaves is glossy, glabrous (free of hairs), and bullate (puckered). The coloring is a metallic green and reddish brown which forms a sort of network pattern. The lower side of the leaves is reddish brown with some hairs on the veins. Petioles are long and erect. The small flowers are pink. The inflorescences are few flowered and rise just slightly above the foliage. Our plant blooms intermittently throughout the year.

The botanical classification places *B. rajah* in the section *Reichenheima* of the genus *Begonia* of the family BEGONIACEAE. In 1972 Dr. Fred Barkley in *Begoniaceae: The Genera, Sections and Known Species of Each* lists 38 species in the section *Reichenheimia.* Several other well-known species are listed in this section: *B. floccifera, B. goegoensis, B. laciniata, B. morelii, B. nurii,* and *B. sudjanae.* Most species in this section of the genus come from India, Borneo, Burma, Sumatra, China, Malaya, Siam and/or Ceylon.

The horticultural classification as it appears in the *Thompson Begonia Guide* is rhizomatous, distinctive foliage, unusual surface and/or unusual coloring, medium leaved (3″ to 6″ at maturity). Begonias in this group usually need additional humidity which sometimes necessitates growing them in contained atmospheres. Other begonias in this classification are as follows: *B. crispula, B. ficicola, B. nurii, B. versicolor, B.* 'Eagleshamm,' *B.* 'It,' *B.* 'Sansouci,' and *B.* 'Wanda.'

B. rajah has been considered a difficult plant to grow. However, it is not too demanding provided its needs are satisfied. In our geographical area it should be grown in a contained atmosphere. The potting mix which seems to be most suitable is 4 parts

(Continued on page 82)

MORE ABOUT B. RAJAH AND B. VERSICOLOR

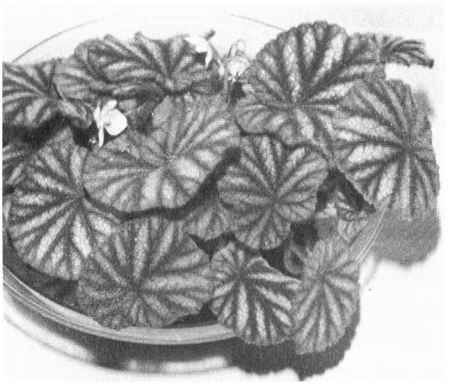
By Elda Haring, Flat Rock, N. Carolina

In the October 1974 issue of the *Begonian* I wrote about my experiences with *B. rajah* and *B. versicolor.* As an experiment, young plants as identical as possible in size were planted in Astra-domes, clear plastic bubbles with removable domes, provided with small openings in the top. One each was planted in a long-grained sphagnum watered with 7 drops of Schultz Instant fertilizer to a quart of water; the other two in my own potting mix made up of two parts weed-free top soil, purchased at the local garden nursery to which is added 1 part German peat, 1 part builders sand, plus a 2½ inch flower pot each of dolomite lime and the slow release fertilizer, Mag-Amp. Those planted in the sphagnum grew rapidly and had to be placed in larger bubbles within six months. Those in the potting mix grew much more slowly. However, after some months, it became obvious that the ones growing in the potting mix were far superior in sturdiness and color and texture of leaves. These begonias are grown in my basement fluorescent plant room where a fairly even temperature is maintained winter and summer and where humidity remains at 40 to 50 percent. No attempt as yet has been made to grow them in our greenhouse where the temperatures go from 58 nighttime to 80 or more on sunny days, staying at the 58 degree temperature on cloudy days.

I found that *B. versicolor* growing in the milled sphagnum in the bubble had a tendency to wilt and discovered that although the sphagnum seemed adequately moist around the edges, the moss at the crown of the plant covered by over-lapping leaves had become quite dry. This condition did not prevail in those growing in the potting mix. After giving additional water at the crown, the leaves and rhizomes again became turgid.

Elda Haring with *B. rajah*

Having successfully grown such begonias as *primatocarpa, olsoniae, goegoensis* and others that some members of ABS find difficult unless grown in bubbles or terrariums under the conditions they can give their plants, I decided to experiment. The

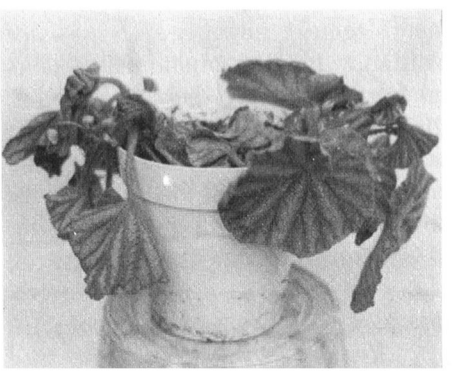


B. versicolor ready for next size Astra-dome

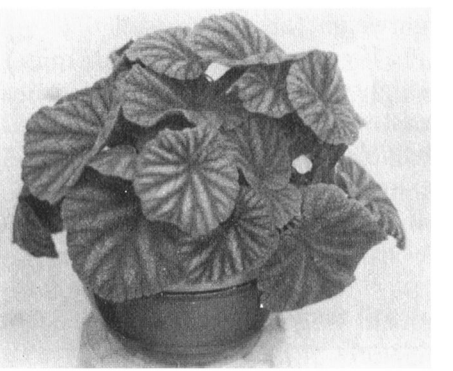
large *B. versicolor* that had been growing in the Astra-Dome in long grained sphagnum was broken up and planted in pots in the potting mix mentioned and they grew and thrived uncovered. The plant in the photo is potted in a plastic pot kept in a decorative glass bowl. Members of the Round Robins have often spoken of *B. versicolor* "collapse" and the need for "wet feet." I felt it would be expedient to do some testing of these theories. As a result one plant was permitted to dry out completely. It did indeed collapse as evidenced by the photo, many of the leaves drying up completely and turning brown. However, after a deep watering the remaining leaves and rhizomes again became crisp and new growth soon appeared. Using the same plant as a "guinea pig" the soil in the pot was saturated and a little water permitted to remain in the saucer. After a few days, the rhizomes became soft and leaves limp. The plant was removed from the pot, the saturated soil rubbed gently from bottom and sides and replaced in dry mix. It soon recovered and showed new growth and has now become an attractive plant.

B. rajah I find is much easier to grow than *B. versicolor* for it does not suffer drastically should it become slightly dry at the roots. The leaves have a crisp texture and I have found it to be a sturdy and undemanding begonia. Shown in the photo is a plant still in the original 15 inch Astra-dome in the potting mix, the top of the dome having been

(Continued on page 82)



Wilted *B. versicolor*



B. versicolor in pot, in bowl after top has been removed.

Photos by Walter Haring

WHAT TO DO WITH THAT CRUMMY SOIL

By Don Parsley, Sunnyvale, CA

The Begonia Leaf, Santa Clara Valley Branch newsletter

Few soils are naturally good enough to sustain the level of plant growth and appearance required for ornamental purposes. Various available materials can improve the soil. Ideally, soil improvements should be made before planting. It is possible to correct deficiencies later, but it is difficult and expensive.

Amendments are added for a variety of reasons. There are fertilizers to increase the fertility but often with secondary benefits, including factors listed below. Specific amendments are used to loosen soils, improve porosity, increase water penetration and retention, change soil pH or some combination of these. They are added to replenish exhausted materials or to offset the deterioration of the soil condition.

When amendments are used as a surface layer, they are called mulches. Mulches reduce evaporation, runoff, compaction, heat reflection, and fertilizer needs. Mulches improve water penetration and appearance of the soil. Sometimes layers of dust, pebbles, or other materials give much the same benefits. The materials are often used interchangeably, depending on the price and availability. They are seldom permanent, but need to be replenished.

INORGANIC AMENDMENTS

Inorganic amendments include:

1. *Sand*—to improve drainage.
2. *Perlite* (expanded pumice) — lightweight, aerates the soil.
3. *Vermiculite* (expanded mica) — lightweight, aerates and retains moisture.
4. *Haydite* (volcanic gravel) — aerates and drains.
5. *Gypsum*—acidifies and loosens soil temporarily.
6. *Soil sulfur* — acidifies and loosens soil temporarily.

ORGANIC AMENDMENTS

Organic amendments are used in greater amounts. The microorganisms that break down the amendments require nitrogen. If it is not available in the amendments it is taken from the soil, thereby depleting the soil and depriving the plants. In some cases it is incorporated into the amendment or must be supplied as ammonium sulfate or in other form.

Organic amendments include:

1. *Peat moss* — acidifies, aerates, retains water (use wetting agent).
2. *Redwood mulch* (bark and chips) — acidifies, aerates (nitrogen added), cheaper than peat.
3. *Compost* — varies with ingredients; retains moisture.

4. *Bean straw* — acidifies, aerates, 6% nitrogen.

5. *Leaf mold* — acidifies, aerates; often contains diseases and insects.

6. *Cattle manure* — cheap; high in salts and weed seed; 1% nitrogen.

7. *Pine shavings* — depletes nitrogen; aerates.

8. *Fir bark* (pebbles) — used as mulch.

9. *Sewage sludge* (nitrohumus) — similar to manure but contains less salt.

10. *Sawdust* — aerates (add nitrogen).

11. *Rice hulls, animal manures, poultry manures* — sometimes used when available.

PLANTING SOILS

These same materials are also used in planting soils. They should be blended with other materials, including native soil, so roots will make their way throughout the planting mix. A typical planting soil might include 25% native soil, 25% topsoil, 25% redwood mulch, 20% manure or sludge, and 5% complete fertilizer.

To be usable, soil amendments should meet certain specifications. They should be free of harmful materials, be long-lasting and break down slowly, have adequate nitrogen (or nitrogen should be added), be cheap and readily available, and be consistent in quality.

COMPOST COOKBOOK

Since it is increasingly difficult for the gardener to obtain large quantities of bulky animal manure, he has to rely on composting refuse for enriching and maintaining the soil in humus — the organic glue-like substance that causes soil particles to granulate and consequently improve soil structure. Well-made compost is, indeed, a good substitute for manure and with its aid, supplemented by fertilizers, soil structure can be maintained and first-rate crops of all kinds produced.

What to Use

Plant refuse of soft texture should form the bulk of the compost pile, supplemented by straw and any animal manure available. Suitable materials include leaves, grass clippings, peels, soft prunings, chopped corn stubble, and in general, any organic material that will rot fairly quickly. Materials that are insect and disease infested should be avoided, along with hard, woody pieces that will not rot quickly.

How to Build a Compost Pile

Choose an out-of-the-way location where the pile can be constructed five feet wide and to any convenient length. The site should be level, and can be in the sun or shade.

Mix the organic material together well to get an even distribution of all components, then spread a layer six to nine inches deep on the site. If dry, it should be watered.

Sprinkle the layer with an activator such as calcium cyanamid and single super phosphate or ammonium sulfate and single super phosphate, using ½ ounce of each ingredient per square yard. Alternately, a proprietary decay activator can be used in place of the fertilizers.

Then add a layer of animal manure four to six inches deep, if available. A second layer of refuse is put on and the process repeated until the pile is five feet in height. The top of the

(Continued on Page 79)

THE EFFECT OF VITAMINS ON THE GUARD CELLS IN BEGONIA LEAVES

By John Bradley, Jr.

From the *Twiglette,* Hampton, N.Y. Branch newsletter

This report was originally a project that was entered at the Long Island Senior Science Congress which was held at Farmingdale University. 320 senior high school students from all over Long Island participated. I was fortunate enough to win a blue ribbon and a medallion for this project.

The topic is "The Effect of Vitamins on the Guard Cells in *Begonia* Leaves." For those of you who don't recall your high school botany course, the guard cells are bean-shaped cells located on the underside of the leaf. The stomata are defined as the openings between these cells. The guard cells let out water and let in carbon dioxide in a process called transpiration.

The project involved three major steps. First the application of certain vitamins on the guard cells themselves (not systematically) and finding out the effects that the vitamins had. The second part was to photograph different formations of stomata under the microscope. The third phase was counting the number of stomata per square centimeter in a leaf.

I used Vitamin E and Vitamin C (ascorbic acid) for the applications on the stomata. The results of the testing were interesting. The application of the Vitamin E seemed to enlarge the stomata and make them more pronounced in the leaf. I observed another interesting result with the Vitamin E.

I applied Vitamin E to a leaf of *B.* 'Emerald Lacewing'. With it I saw the same results as above. The Vitamin E preserved the leaf very effectively. It was left in an ordinary atmosphere for 1½ weeks (not very humid) and the leaf stayed as fresh as when I first picked it from the plant.

The Vitamin C also had an interesting effect. I also used a leaf of *B.* 'Emerald Lacewing'. The Vitamin C did not enlarge the guard cells as the Vitamin E experiment, the leaf had dried up completely.

While photographing the guard cells under the microscope, I observed some interesting things. One thing, besides the variations in size, was that there were different formations of stomata. This ranged from stomata singularly placed and spread out over the leaf, up to groups of 10 or more with much empty space between groups. The size of the stomata and the number varied with the size of the leaf.

For example, the guard cells of *B.* 'Peridot' were very small, in fact hardly noticeable, and were spaced greatly apart. The guard cells of *B.* 'Emerald Lacewing', however, were much larger, two or three to a group, and were closer spaced. However, a much larger rhizomatous begonia (about 15 times that of *B.* 'Emerald Lacewing') had smaller stomata than *B.* 'Emerald Lacewing' and were in large groups (up to 10) and the groups were fairly close together.

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To photograph these begonia stomata, I used a Polaroid land instrument camera, Model E-D 10. There is a special adapter which is placed on the eyepiece of a microscope. Then the microscope is put in focus and checked again from the height of the camera by use of a special telescope-like apparatus. The picture is taken (I used various exposure times) and the negative is put into a solution of sodium sulfite for up to 20 seconds. The positive I just ran under cold water. No other preparation was necessary.

The film was an undistributed experimental film from the Polaroid Corporation, whom I would like to thank for their generosity. I had very good results with this film.

The third phase was counting the number of stomata per square centimeter in a leaf. So far, I have gotten the approximate number of stomata in 20 or more different species and hybrids, mostly of the rhizomatous group. I plan to catalog this information on computer cards so it will be available to others who might be studying this subject. I plan to continue this listing. It might be interesting to check the number of stomata in a species that has long been in cultivation with the same species freshly collected in the wild. This is only one of many possibilities for the continuance of this research.

This, I think, would be a good basic foundation for further research in this field, and I would like to continue in it.

Name	Group	Approx. # stomata/sq. cm.
B. 'Pink Nacre'	Rhizomatous	1500
B. 'Green Valley'	Rhizomatous	7500
B. 'Chantilly Lace'	Rhizomatous	3000
B. 'Shirtsleeves'	Rhizomatous	2800
B. 'China Doll'	Rhizomatous	2500
B. 'Peridot'	Rex	2500
B. fernando-costae Irmscher	Rhizomatous	9500
B. 'Red Planet'	Rhizomatous	6400
B. 'Emerald Lacewing'	Rhizomatous	4500
B. bowerae var. *nigramarga* Ziesenhenne	Rhizomatous	5000
B. coccinea Hooker	Cane	3400
B. glabra Aublet	Cane	4200
B. conchifolia var. *rubrimacula* Golding	Rhizomatous	3600
B. 'Rosea Gigantea'	Shrub-like	9500

OPERATION GRAND DONATION

By Gene Daniels, Chairman of Plant Sales

CAN WE BEAT THE $4,000 OF 1974?

If you've wondered how the beautiful color reproductions and the rest of the improved *Begonian* fit into the ABS Budget, the answer during this past year was the check for $4,000 raised by the very successful plant sales at the 1974 Convention.

The goal we are setting for 1976 is $5,000 and I'm telling you, we need help. The answer lies in having a large quantity of donated plants as the backbone of the plant table. This year each branch in Southern California will receive a check for $10 from the Show Committee to pay for fresh, new plastic pots. An appropriate sum is available to *any* other branch or to *any* member-at-large who wants to be included.

The first of many new Convention and Show ideas begins with this OPERATION GRAND DONATION. It will immediately bring us well over half way to our goal of $5,000! There are 14 branches from Santa Barbara to San Diego. With a minimum quota of 100 plants donated by each branch, at an average of $1.50 per plant, the profit realized will be $2,000! A great start towards the goal of $5,000!

Next let's add to the idea of some of the branches outside of Southern California. I happen to know a number of good members from those great branches in Northern California. I'm throwing this challenge to my friends of Sacramento, San Francisco, Monterey and Santa Clara to get into the project. Frankly, I suspect they will eagerly jump at the bait. So from them, let's add in another (conservative) 200 plants, which moves the total up to $2,310.

Then there are the non-California Branches. A little bit of a problem in transportation . . . But many of the Eastern branches have managed to send at least a token showing of donation plants to us in the past. So let's add a total of 100 plants which moves the total up to $2,460. We're getting close to the halfway point now!

Now I just happen to have had some wonderful times with our members in the Japan Begonia Society, and I challenge them to send or bring 25 cuttings of their choicest new hybrids. Let's add this (at $2 each) and we break through the half-way point at $2510.

No, I'm not through yet. This great ABS is made up of thousands of Members-at-Large spread throughout the world. I'm asking for 10 plants from each of 50 of you. That's not a tough request. This is your opportunity. Let's hear from you. Just this much will bring $3,260 which can be used to improve ABS next year.

A regular listing in future *Begonian* issues will show how we stand on pledges to fulfill this goal. A special privilege at the plant table will be extended to those who cooperate in this project.

There is my challenge. Will you accept it? Do your share to make this a great project. Please write your comments to the Plant Sale Co-Chairmen: Gene Daniels and Walt Hansen, P.O. Box 83, Camarillo, CA 93010.

REGISTRATION OF BEGONIA CULTIVARS

Note: The American Begonia Society is the International Registration Authority for cultivars of the genus *Begonia.* Information regarding registration may be obtained from ABS Nomenclature Director Rudolf Ziesenhenne, 1130 N. Milpas St., Santa Barbara, CA 93103.

B. 'Bill Cook'

No. 496 — Begonia (B. Purpurea x unnamed hybrid) 'Bill Cook'

Originated by Bob Cole, The Plant Shop, 18007 Topham, Reseda, CA 91335, in 1974, this rhizomatous, stem erect, plant has distinctive foliage, a seven-lobed palmate leaf of good form, green, silver-splashed, with reddish underside, and red hair. The 4½″ x 6½″ leaf has a serrated margin and a smooth texture with scattered hair; petioles, 6-10″, reddish green, translucent; stipules, ¾″ x ½″; nerves 7. The plant has not yet flowered. Registered July 15, 1975.

No. 497 — Begonia (B. 'Ricinifolia' X B. 'Arcola') 'Bardon Hills'

Originated by Hazel Burley, 191 Simpson Rd., Bardon, Brisbane, 4065, Old Australia, in 1972 and first bloomed and distributed in 1974, the rhizomatous plant has a distinctive leaf and is vigorous and easy to grow. The leaves are almost black with green bleeding off each vein, taking the shape of a maple leaf, 6″ x 4″; rough, lightly-spiked margin and slightly-hairy texture; petioles up to 10″; nerves 7; stipules, colorless. Flowers are pink on stems 10-12″. Registered August 8, 1975.

No. 498 — Begonia (B. faureana Lind. var. metallica & unknown) 'Douglas Burley'

Originated by Hazel Burley (address above) in 1973, this bulbous plant grows to 3 feet. The leaves are brown, shaped like a giant, smooth-edged oak leaf, 5″ x 6″, of smooth, thick texture. No flowers to date. Registered August 8, 1975.

No. 499 — Begonia (B. faureana Lind. var. metallica X unknown) 'Ellen Russell'

Originated by Hazel Burley (address above) in 1973 and first bloomed and distributed in 1974, the sturdy, low, cane-like plant has swollen base. Clear-green leaves with silver-white splashes above, are long, heart-shaped with 4 shallow lobes, 8″ x 3½″. The pale-pink flowers are

paniculate, 5″ x 6″, male blossoms have 2 petals and female blossoms have 5 petals, (with a hanging arrangement on 3″ stem) blooming easily year-round. Registered August 8, 1975.

No. 500 — Begonia (B. 'Pink Zulu' X unknown) 'Fenella'

Originated by Hazel Burley (address above) in 1973 and first distributed in 1975, the tall cane grows to a mature stem height of 4 feet. The tall, vigorous plant has a very large leaf with unusual coloring. The leaves are shaded green, vivid rose beneath, angel-wing shaped, 10″ x 4″, with a waved margin and smooth texture. The petioles, red outstanding beneath nerve; stipules, 1½ to 2″. Registered August 8, 1975.

No. 501 — Begonia (B. faureana Lind., var. metallica X unknown) 'Johann Breddien'

Originated in 1973 by Hazel Burley (address above) the bulbous plant grows to a mature stem-height of 3 feet, and has a thick growth of 5-6 stalks. The leaves are brown-green with rounded basal lobe and irregular white spots, obliquely cordate, lobed, 8″ x 4½″; undulate margin; nerves 5, pale-green, indented; petioles 3″; stipules, none on mature leaf; no flowers to date. Registered August 8, 1975.

No. 502 — Begonia (B. 'Pink Zulu' X B. 'Corallina de Lucerna') 'Kelli-Anne'

Originated by Hazel Burley (address above) in 1973 and first distributed in 1975, this tall, superba-type, cane-like plant, 5-caned, growing to 4 feet, has beautiful leaf-coloring of nearly-black, spotted deep-pink with vivid red beneath. The new leaves are red, very lightly spotted, a paler color. The leaves are angel-wing shaped, 8″ x 4½″, with waved margin, and smooth texture; nerves 9; petioles 2-3″; stipules, none on mature leaf. No flowers to date. Registered August 8, 1075.

No. 503 — Begonia (B. faureana Lind. var. metallica X unknown) 'Mathilde Warns'

Originated by Hazel Burley (address above) in 1973 and growing to a mature stem-height of 2 feet, the tuberous plant has green leaves with the main vein of deep rose color near the main stalk. The palmately-lobed leaves 8 x 8″ have slightly-serrated margins, smooth texture; nerves 4; petioles 3-4″; stipules colorless when young. Had not yet flowered. Registered August 8, 1975.

No. 504 — Begonia (B. imperialis X B. 'Sir Percy') 'Morning Mist'

Developed by Hazel Burley (address above) in 1973, this rhizomatous plant of distinctive foliage is closest in color to *B.* 'Sir Percy', but with a different, star-shaped leaf, green, washed with sparkling silver, 6 x 4½″, with a rough, hairy margin and nearly smooth texture; nerves 6; petioles 4-5″; stipules colorless when young and non-existent on mature plant. No flowers to date. Registered August 8, 1975.

The sun will be shining!
ABS National Convention
San Diego, Calif.
August 26-29, 1976

B. 'Frosty Meadows'

No. 505 — Begonia (B. imperialis X B. 'Sir Percy') 'Frosty Meadows'

This rhizomatous plant of distinctive foliage was originated by Hazel Burley (address above) in 1973; resembling *B.* 'Pink Pearl', but with no white; has not bloomed yet. Leaves are green completely shaded silver-brown with green veins; slightly star-like, 4 x 3″, with rough-edged margins, brown on upper side; texture nearly smooth but puckered; nerves 7 all deeply indented; petioles 6-8″; stipules colorless when young. Registered August 8, 1975.

CRUMMY SOIL

(Continued from page 73)

compost pile should be made concave by placing more material toward the edges. This allows water to collect and rain down through the pile rather than run off the sides.

After reaching five feet in height, a two- to three-inch layer of top soil or sand should be added over the entire pile to complete construction. This will keep the compost pile from having an odor.

Maintaining the Compost Pile

Construction of the compost pile can, of course, be spread over a period of time, adding layers as sufficient materials become available.

About two months after its completion in the summer, and up to six months in the winter, it will need to be turned. The pile is broken down and rebuilt so the less decayed material is placed toward the center. It is then covered with a two- to three-inch layer of soil or sand and left to stand for another two to three months.

The compost pile should be kept uniformly moist, weed free, and well aerated by preventing crusting around the sides.

Compost can be used as a surface mulch or as an amendment by working liberal quantities into the soil to a depth of six to ten inches. Aside from being an economical source of organic matter, it is safe to use because it will not cause root burn, and its effects are long lasting.

BOOKS AVAILABLE IN THE AMERICAN BEGONIA SOCIETY LENDING LIBRARY

It's very easy! A note to the ABS Librarian will bring a book from the library to your door via the post office. Just write to Mrs. Lydia Austin, 15329 Eastwood Ave., Lawndale, CA 90260. If you do not have a specific title in mind, she may be able to send you a book about a particular topic in the field of horticulture.

Be sure to include your return address when you write. Prompt return of the books when you are through will be appreciated. A donation to help defray the expense of the mailing is requested.

A list of the contents of the Library was compiled recently and that list will be published in several parts in the *Begonian.* The inventory was carried out by Frances and Gil Estrada and Lydia Austin.

Additions to the Library are made from time to time, as the Librarian locates books she feels might be helpful. Your requests and suggestions are welcome. Donations of books and magazines are welcome.

The Story of Plants — John Asch
Plants, Man and Life — Edgar Anderson
10,000 Garden Questions — F.F. Rockwell
10,000 Garden Questions, Vol I, Vol II
500 Garden Questions — American Begonia Society
The Gardener's Almanac — Edward Farrington
The Complete Book of Garden Magic — Biles
The Care and Feeding of Garden Plants
Science in the Garden — Logan and Putnam
The Home Garden — American Begonia Society
Gardening the Small Place — William H. Clark
Camellias Illustrated — Oregon Camellia Society
All About African Violets — Montague Free
African Violet Variety List — Carolyn Rector
A Handbook for African Violet Growers — Mary Margaret Odom
How To Grow African Violets — Carolyn Rector
A Little Book of Annuals — M.R. Birdsey
Bromeliads, A Cultural Handbook — American Begonia Society
Azalea Handbook, 1952 — American Horticultural Society
How to Prune Almost Everything — John Philip Baumgardt
America's Garden Book — Bush-Brown
Standard Plant Names — Kelsey
Your California Garden and Mine — S.B. Mitchell
Gardening for Beginners — Daniel J. Foley
Styling Corsages with Garden Flowers — Mary Hazel Drummond
Gardening for Fun — Consigny
Orchids — O'Brien
Home Orchid Growing — Rebecca Northern
So You Want To Grow Roses — Wright
Orchids for Amateurs — T. W. Briscoe
Gillespie's Garden Scrapbook
The Tulip Handbook Of The National Tulip Society
Perennials for Every Garden — Helen Van Pelt Wilson
The Story of Plants — Hutchinson and Melville
A.B.C. of Orchid Growing — John V. Watkins
Orchids Are Easy To Grow — Logan and Casper
Philippine Orchids — Davis and Steiner
Orchids for the California Amateur, Manual 18 — Butterfield
Commercial Flower Forcing — Laurie
All About House Plants — Montague Free

(To be continued in later issue.)

CLAYTON M. KELLY SEED FUND

Pamphlets for beginners:

Begonias from Seeds — Sowing and Growing ..... $ .25

Begonias in General — Basic descriptions of classes and culture ..... .50

Mr 1 — *B. cathayana:* China. Silky velvet leaves, zoned ruby-red and emerald green; reversed underneath. One of the most beautiful begonias grown. Requires warmth, protection from drafts, high humidity. Best grown in terrarium. Avoid sunlight..... per pkt. 1.00

Mr. 2 — *B. cinnabarina:* Bolivia. Tuberous with soft orange flowers, which are fragrant for many people. Widely used in hybridizing. per pkt. .50

Mr 3 — *B. fuchsoides* var. *miniata.* A 3 ft. high shrub (cane-type) with small leaves and rather small brilliant red flowers in fairly large inflorescense. A magnificant species. ..... per pkt. .50

Mr 4 — *B. roxburghii:* Asia. A herbaceous, fibrous species with a thick root stalk. Medium sized, medium green leaves, heart shaped with sawtoothed edges, covered with small raised dots and fine white hairs. Fragrant white flowers. ..... per pkt. 1.00

Mr 5 — B. *heracleifolia* var. *sunderbruchii.* An old time favorite rhizomatous begonia. The 7 or 9 fingered leaves are large, bronze-green strikingly marked with light green splotches, light green veins, mottled red and green underneath. Each finger is pointed and scalloped on edges. Flowers are pink, in large clusters. Makes a beautiful basket plant or pot plant. ..... per pkt. .50

Mr 6 — *B. xanthina*: India. A good rhizomatous with ovate leaves which are unequally cordate, and are brownish with a ring of white spots. Flowers are a medium size and are conspicuously yellow. per pkt. .50

Mr 7 — Mixed semperflorens. Beautiful compact plants for a wonderful looking edging along walks, driveways, etc. or individually. Make handsome potted plant for accent or gift-giving. Colors are mixed reds, rose and pinks. ..... per pkt. .50

OTHER SEEDS

Impatiens. Limited amount available. Good in hanging baskets or as bedding plants. Mixed colors, pink, salmon, red and magenta. per pkt. .50

Sesbania tripetii. A shrub or tree from Argentina which grows to 6 ft., with pinnate leaves. Orange-red flowers with scarlet standard, yellow spotted at base, in drooping racemes. Grows out-of-doors in warm climates. ..... per pkt. .50

Platycerium grande. Spore from one of the most sought after staghorn ferns. A must in any fern collection. ..... per pkt. .50

Please include a self addressed, stamped envelope. Make checks and money orders payable in U.S. funds to Clayton M. Kelly Seed Fund. Mail orders to Mrs. Pearl E. Benell, 10331 Colima Rd., Whitier, CA 90604.

Gift of Cuttings

Members of the East Bay Branch of Berkeley, CA brought begonia leaves and cuttings to their November meeting to be sent to the Florida Union Correctional Institution. The plant materials are used in connection with the Horticulture Training Program. See *Beg* 43, pp 242-4. (October '75). This activity was reported in the Branch newsletter.

MORE ABOUT B. RAJAH

(Continued from page 71)

removed some ten months ago. A thin layer of fresh soil was added around the rhizomes last April. Nearly always in bloom, the plant is 16 inches in diameter and 14 inches high.

As growing conditions vary greatly all over the country I want to point out that your experiences with these lovely begonias could be quite different from mine. If you plan to experiment with them do use plants you have propagated yourself and be prepared for disappointments. Keep in mind that those of us who share our experiences with the readers of the *Begonian* live in various parts of the country, where climate and growing conditions are widely varied. In some cases conducive to good growth; in others most difficult.

MOVING?

If you are planning to move, be sure to send a change of address notice to the Membership Secretary. Copies of the *Begonian* which are sent by Second Class Mail are returned to the office and are not forwarded by the Post Office.

America the Beautiful

The Riverside, California Community Flower Show will be held at the Riverside Memorial Auditorium, 7th and Lemon Streets. The theme of the show is *America the Beautiful* and will feature a large variety of plants. Garden tours and workshops are also included in the two day event to be held Saturday, April 10 from 2 p.m. to 9 p.m. and Sunday, April 11, from 10 a.m. to 6 p.m. Admission for adults is $1.25; children accompanied by an adult are free. For further information or to purchase tickets in advance, contact David L. Wall, President, Riverside Community Flower Show Association, 6900 Riverdale Place, Riverside, 92509.

B. RAJAH RIDLEY

(Continued from page 69)

long fiber sphagnum moss mixed with one part perlite. Since there is no nutrition in this mix a constant feed fertilizer should be added to the water when watering is necessary. Care should be taken not to overwater because this will cause the rhizomes to rot. Water on the leaves should be avoided.

Drawing of *B. rajah* by: Doris Jenkins

The Indoor Light Gardening Society of America, Inc., Dept. B, 128 West 58th St., New York, New York 10019. Dues $5.00. Bi-monthly magazine; light garden; up-to-date, informative; seed fund; round robins; chapters.

IN MEMORIAM

The Research Department of the American Begonian Society regrets the passing of one of the long standing members of the committee.

Dr. Grant McGregor of Ottawa, Canada, passed away suddenly, Jan. 23, 1976 from a severe heart attack. Grant was a member of the Research Committee since 1967. He has been interested in the aims of the American Begonia Society and has written many articles for the *Begonian.* His interest and helpful suggestions to the Department will be missed.

M.C.L.

CALENDAR

Mar. 4 — Twin Cities Branch — Slides and tape tour of Panama and gardens. Contact secretary for time and place.

Mar. 6-7 — Tucson African Violet Show. Randolph Park, New Recreation Center, 200 S. Alvernon Way, Tucson. Sat. 3-8 p.m., Sun. 10-5 p.m.

Mar. 22 — ABS Board of Directors Meeting — South Gate Auditorium, 7:30 p.m.

Mar. 25 — Last date to mail contributions for *Begonian* for May issue.

Mar. 26 — Redondo Area Branch — 6:30 at Dana School, 135th and Aviation Blvd., Hawthorne, CA. Speaker: Nellie Weaver.

Apr. 8 — Westchester Branch—7:30 at Citizen's Savings, 5347 Sepulveda Blvd., Culver City, CA. Speaker: Walt Hansen.

AMERICA THE COLORFUL
The 1976 Chicago Flower and Garden Show

By Philip G. Seitner

For the fifth consecutive year, the American Begonia Society is to be represented at the annual Chicago Flower and Garden Show. This year, begonia representation is scheduled for the Show's final Saturday and Sunday, March 27 and 28. (Other "single plant" societies will be represented on the earlier days of the Show, March 20 through 26.) The Show will be at Chicago's great exhibit hall, McCormick Place, on the lake front near the Loop: Lake Shore Drive at 23rd Street. Begonia representatives and exhibits will be located in the Single Plant Societies facility within the area labeled "Horticultural Hall."

The Flower and Garden Show pays tribute to the U.S.A. bicentennial year in its theme, "America the Colorful." March 1976 will also mark the first "birthday" of the Begonia Society of Greater Chicago, a group of local begonia enthusiasts who have enjoyed a year of monthly meetings, have established for themselves a title and officers, and are dedicated to begonia studies and collections, with emphasis on cultivation of begonias in environs typified by that of Chicago. The two-day begonia exhibit at the March Show will be a cooperative effort of these Chicago "begonia-philes" who hope to meet others similarly inclined and to make converts.

ROUND ROBIN NOTES

With spring coming on we all start looking forward to more vigorous growth and, hopefully, more bloom on our begonias.

Mae Blanton, Texas, says that rhizomatous begonias need a long night to set buds. She says as little as thirty days with a long night will set buds and the begonias will then bloom regardless of light.

Casey Marchlewicz, Illinois, gave a little more detail. She says she gives begonias like *B. bowerae nigramarga, B.* 'China Doll', and *B.* 'Black Falcon' ("short-day" begonias) eight hours of bright light (four, forty-watt tubes.) Then she gives them *complete* darkness (this is essential). About one and one-half months later she puts them out with the other plants. She says little *B. bowerae nigramarga* blooms even with only a few leaves. She says having cool nights helps bloom, too.

Clara Tuoto, California, read how to housebreak outdoor plants. Bring the plant in, then when it starts to look sad, take it outdoors until it revives. Bring it back indoors until the next relapse. Keep repeating this procedure, and soon you'll find it no longer needs to go outside.

Barbara Neptune, also from California, told how she goes about moving a plant to a different place. She has good luck when she puts the plant in a place darker than the intended home. After three days, she puts the plant where she had planned.

Shirley Johnson of Florida attributed her large loss of rex and other succulent begonias last year to rot due to an overly hot and humid atmosphere coupled with poor air circulation in her screened-in porch. This year she moved them to a very sheltered patio, where they're doing beautifully.

Bonny Bersch of California also has a suggestion for hot weather growing. When her area is suffering a hot spell, she leaves the fluorescent lights off for a few days to give the plants a rest.

Here are some unusual plant mix ideas from the robins. Peggy McFarland of Texas tried something new with her begonias. She repotted them in equal parts of peatmoss and sludge with a little bit of perlite added. She says you can see a tremendous difference, with growth she never imagined.

Mae Blanton described this mix. (If I were a begonia, I'd think this sounded yummy!) Mae has a friend who raised earth-worms. "He had long wooden bins in his yard — about 10′ x 4′ and about 3′ deep. These had wooden floors and hinged wooden covers. He ground up oak and pecan leaves with his lawn mower . . . and mixed it half and half with Canadian sphagnum peat moss. He kept it moist and fed the worms table scraps, etc., coffee grounds, peelings and chicken laying mash. At the end of THREE WEEKS he removed the worms and put them into new mix. He said if the worms

stayed in the mix longer than three weeks they become diseased." The old mix can be used as planting mix.

Finally, Bill Parlin of New York has some advice for those of you who use slow-release fertilizer. It is recommended that you not put these into soil mixes that are not going to be used within ten days. The moisture in the soil gradually leeches out the fertilizer and it remains in the soil under stronger and stronger concentration. This would result in a danger of fertilizer burn.

The robins are now on their flights again. They took a rather long vacation while I tried to figure out how to keep them going and enjoy the holidays at the same time. Write me and I'll get you on one or two or however many flights you want.

Debi Miller
919 Hickory View Circle
Camarillo, California 93010

Classified Ads

Readers may now place classified ads in the *Begonian*, starting with the April issue. This practice had been discontinued a number of years ago, but is being revived since there have been requests for this type of advertising.

The rate for advertising is $1 per line, with a minimum charge of $4. Payment for the ad must accompany the request for insertion. The ads will be set in 8 point type with a bold lead-in and straight copy.

Direct questions, copy and payment to the Advertising Managers.

B. 'CHANTILLY LACE'

Back Cover Photo by Joe Bond

Just the right begonia to cluster in a terrarium with other indoor plants . . . or to bask in the sunlight of a winter morning on the windowsill . . . or to set in a decorative pot near the lamp on your desk. *B.* 'Chantilly Lace' has proved to be an important member of the begonia family.

In the approximately twenty years since it was hybridized, it has spread geographically so that it is in the collections of many plant lovers throughout the world. At first it was available only from the hybridizer, Mrs. H. E. Dillard at her nursery, Tropical Paradise, in Kansas. It has appeared and won prizes in numerous recent begonia shows. The plant shown on the back cover was grown in Panama by Joe Bond, who sent his beautiful colored slide to us.

B. 'Chantilly Lace' is a rhizomatous form that enjoys existence with other plants. If it has long nights and bright days, it will send up clusters of pink blooms in winter and early spring. But the light, mossy green leaves are attractive in themselves. They fairly glow under fluorescent lights. The leaves are darkly stitched around the edges and black dots may appear over the entire leaf.

Care of the plant is easy. Keep the light soil moist, not soggy. Provide humidity of 40% or more. Give strong light, but guard against sunburn. Let it experience the long dark

One other feature of the plant is that it propagates easily. An experiment reported in the *Begonian* in 1966 (p. 192), showed that a root cutting put out two leaf clusters within a month. Rhizome tips root easily, too. It is a plant that gives much pleasure. P.B.

CONDENSED MINUTES OF THE ABS MEETING JANUARY 26, 1976

The ABS Board meeting was called to order by President Margaret Ziesenhenne on January 26, 1976 at 7:30 P.M. at Southgate Auditorium. A quorum was present. The flag salute and Aims and Purposes were presented. A motion not to allow tape recorders at ABS Board Meetings was defeated. The minutes of the November 24, 1975 meeting were read by Secretary Rochelle Rose and corrected.

Treasurer James Porter read the expenditures for November 1975-January, 1976. Corrections were made on figures for Seed Fund and Judging Course Director. It was moved and seconded that the expenditures be approved for payment. Motion carried. Mr. Porter said sales tax payment will be made this month.

Two new charters for Twin Cities Branch, Minnesota and Palomar Branch, North San Diego County were approved by a motion by Public Relations Director Burnell Yarick. Motion carried. $30.00 will automatically be sent to these new branches. The new National Representative from Palomar Branch, Ralph Corwin, was introduced.

President Ziesenhenne read her report to the Board. Letters to her of an abusive nature will be turned over to the Public Relations Director. Also, an audit of the financial records had been ordered as state sales tax and federal income tax records were handed over to the current treasurer during January 1976.

Secretary Rose read a letter from the Royal Horticultural Society of England presenting President Ziesenhenne a certificate of complimentary fellowship in the RHS honoring the 1976 Bicentennial.

It was moved that the bank savings account have four signatures with two being required for withdrawals. Motion carried. It was moved that these signatures include the President, First Vice President, Secretary, and Treasurer. Motion carried. It was moved that the checking accounts for the Library, Research, Clayton M. Kelly Seed Fund, and Catalogue have the signature of the committee chairman and the treasurer. Motion carried.

The ballot report regarding the increase of dues to $5.00 was read. It was moved that the increase be made effective February 1, 1976. Motion carried.

It was moved that the balance of the special travel fund now in the Special Fund be transferred to Convention Fund at the discretion of the Treasurer. Motion carried.

The resignation of Katherine Alberti as Slide Librarian was accepted with regret. The appointment of Gordon Lepisto as Slide Librarian was approved by the Board; also, the appointment of his assistant Joe Bond was approved.

Mabel Corwin gave a report recommending a classified advertising section for **The Begonian**. The guidelines were suggested as follows: $1.00 per line, 9 lines per inch, and $4.00 minimum. The motion to have such classified advertising carried.

Gil Estrada, Business Manager, reported on the advertising program suggested at an earlier meeting for Alice Clark's book. A motion carried that the ABS could not accept the financial responsibility of advertising the book.

Gene Daniels and Walter Hansen, the plant sale co-chairmen for the 1976 Show, reported on plans for Southern California branches donating 100 plants each for the show. $10 to cover basic expenses for soil and pots would be sent to each participating branch. The motion passed to approve this plan. Details will be published in the **Begonian**. A motion also carried to advance $300 to the current 1976 Show Chairman Betty Cooper of San Diego.

Mr. Yarick introduced Mr. Nathan Randall, the new chairman of the ABS Speakers Bureau.

The purchase of a 6-month supply of paper for the **Begonian** was approved.

The report of the Research Director Mr. Carleton L'Hommedieu was read.

The cost of printing the extra pages needed for the 1975 Index in the **Begonian** was approved.

The next meeting will be held at Southgate Auditorium.

Adjourned,
Rochelle Rose, Secretary

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