

The BEGONIAN



OCTOBER, 1973

Devoted to the Sheltered Garden

VOL. 40, NO. 10



GENERAL OFFICES

GENERAL OFFICES: dues, address changes, or magazines:
11506 McDonald, Culver City, Ca. 92030

Subscription: \$4.00 per year. Foreign (Mexico and Canada) \$4.50. U.S. (Mexico and Canada) 1st Class \$6.00. Foreign 1st Class \$8.00. U.S. Air Mail \$7.00. Pay in U.S. currency only.

Second Class Postage paid at Whittier, California.

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

FROM THE EDITORS

As the new year begins for the ABS, many of the offices and staff positions are filled with a new slate of names. The tremendous success of the past year is a great tribute to the hard-working members who filled the ABS offices last year. A number of officers remain with us for another year giving us the continuity required to assure the constant integrity of the workings of the society. New officers bring enthusiastic strength and new ideas for the enrichment of all the ABS members. Through all of this is the thread of dedication to an ideal begun by Mr. Dyckman in 1932 and perpetuated by the constant efforts of those who shared his love of Begonias.

Beginning with this issue, the Begonian will have new editors. Mr. Bergstrom will continue to publish the Begonian and his knowledge and cooperation will be invaluable to us in putting together future issues. Recognizing the vast range of interest among the readers of the Begonian, Ed Bates and I will strive to present a wide range of information in the next year's issues. We have planned the theme of each issue, and thought you might be interested in knowing in advance what to expect. Also, since we have only the theme for most issues, articles to supplement that theme are welcome from any member.

November — National and Eastern Shows

December — Socotrana Hybrids

January — Epiphytic Begonias

February — Winter Flowering Begonias — Tuberous and others

March — Large Canes — Pruning and Grooming

April — Landscaping with Begonias

May — Tuberous Species

June — Rhizomatous Begonias

July — Large Leafed Begonias

August — Semperflorens Hybrids

September — Rex Cultivars

We realized as we chose the theme for each issue that 12 issues cannot begin to cover the subjects of interest to everyone. However, we hope to present new and interesting material about old but interesting subjects. To do this, we must rely on your support and contributions.

We also will begin publishing letters to the editor, and encourage you to write. We will attempt to print those of most interest to the general readership (within our space limitations), and will try to answer all others.

Marjorie Kirchoff, Editor

Ed Bates, Co-editor

COVER PICTURE

B. prismatocarpa grown by Dr. J. Doorenbos and photo by R. Jansen.

AIMS AND PURPOSES OF THE AMERICAN BEGONIA SOCIETY, INC.

The purpose of this Society shall be:

TO stimulate and promote interest in *Begonias* and other shade-loving plants;

TO encourage the introduction and development of new types of these plants;

TO standardize the nomenclature of *Begonias*;

TO gather and publish information in regard to kinds, propagation and culture of *Begonias* and companion plants;

TO issue a bulletin which will be mailed to all members of the Society; and

TO bring into friendly contact all who love and grow *Begonias*.

HOW I GROW B. PRISMATOCARPA

By Yvonne Wells, Mesquite, Texas

This is without a doubt one of the most rewarding Begonias I have ever grown. It's easy to grow, easy to propagate, and requires little care. In the yellow flowering group, I suppose it would be considered "the weed" because it is so much easier to grow than most of the others. While they are slow to grow from leaves, this one reproduces quickly and blooms at an early age. It flowers almost year round with only a small rest period.

It does require bowl culture and lots of good sunlight. It resents being moved, once established, and doesn't like a bowl too big. Mine nearly died when I moved it from a community bowl to a bowl by itself. It was only an eight inch bubble, but it still didn't like it! I finally decided it likes having company so I quickly put two small cuttings of other Begonias in the bowl with it, and in two weeks it had pulled out of it and had started growing. It now fills that same eight inch bubble. I have had to remove the two big friends and added some tiny new friends . . . I have found that most Begonias do prefer community growing whether with other Begonias or ferns, mosses, etc. They grow and bloom better and seem happier with other plants around.

B. prismatocarpa is an epiphyte from Fernando Po, a small island off the coast of west Africa, near the Equator. It has a slender creeping rhizome which meanders over the top of the soil. I have mine in a bubble and it has quickly filled it with lush and beautiful growth. The soil I use

for it is the same as for most of my other bowls—long fibered sphagnum with a two inch layer of perlite on the bottom. I fertilize just whenever I think it needs it with a good constant feeding fertilizer. Being an epiphyte, it can't stand a wet soil—just damp is perfect. It blooms constantly and has an unusual elongated ovary. The males are always loaded with pollen and they release it freely. I have succeeded in crossing it with *Morelii* but lost the seedlings to fungus. Good air circulation is a must if one is going to hybridize. The seed will not set if there's not air movement.

B. prismatocarpa is easily acquired from two of our many Begonia advertisers: Mr. Mike Kartuz and Mr. Rudy Ziesenhenne. Try this lovely and rewarding miniature Begonia. You'll never regret it.

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EXHIBITING AND JUDGING BEGONIA PRISMATOCARPA

By Ruth Pease

In recent years many have grown the "new" Begonias such as *B. prismatocarpa*. Learning what these plants need and how to grow them successfully has been a challenge. Some have asked what is needed for them to be "show plants."

B. prismatocarpa is a little gem with small green cut leaves and orange blooms. It is an interesting plant to grow. Although the rhizomes are very thin and seem to creep as well as rise slightly, this Begonia can become a compact plant when grown from a leaf cutting. If not given enough light, *B. prismatocarpa* seems to stretch and appears to be stringy. Good light is needed for the plant to remain compact and to have healthy green color.

One of the reasons some enjoy growing Begonias is the contact with other growers. When these "new" Begonias are seen in other collector's homes and gardens, the observer can soon judge for himself what a specimen plant should look like for the particular variety and can try to achieve the same results with his plant at home.

We have done this. Some of the *B. prismatocarpa* plants we have seen in other collections are grown under lights in enclosed atmospheres such as glass bubbles and plexiglass domes and appear to be a carpet of small green leaves with orangy blooms cheerfully held above the foliage. Some have said the blooms are yellow.

This plant grows best for us when placed alongside our light stand,

rather than under the lights themselves or where the plant gets the reflected light from the light stand. There is no set pattern for any one Begonia to be grown by all growers.

Recently, we learned of members who grow their plants under lights in their basements and homes, growing *B. prismatocarpa* without benefit of an enclosed atmosphere but as a potted plant. This brought to mind the question: what happens to the plant when it is taken out of this humid atmosphere and brought to a show to be exhibited?

As suspected, we learned that after being away from its growing environment (a humid atmosphere and among other plants under lights) the plant suffers and is no longer a show plant when it leaves the show.

To some this would be a sacrifice; to others, renewing the plant, beginning with an extra one on hand, or starting a new one is no great effort. The idea of showing and sharing their plant is important.

Looking at *B. prismatocarpa* in an enclosed atmosphere we stop to wonder how it should be classified for show purposes. With the present show schedule there isn't a problem. There is a division for Begonias grown in this manner and there is a point scoring schedule for such entries.

The scoring schedule includes 25 points for suitable container. This plant is low growing and would naturally be in a shallow container whether it is in an enclosed atmosphere or grown as a potted plant.

If the plant were entered as a potted plant, it would compete with rhizomatous plants having small leaves with an overall dimension of one inch and under. It would compete with plants such as *B. bowerae* which is also a rhizomatous but with a tiny, thin rhizome, more discernible as a rhizome than that of *B. prismatocarpa*. A class could be opened for these plants.

Finally, the plant should appear compact, having healthy foliage with good color. The exhibit should be free from wet or rotted foliage and blooms that may have fallen. Some growers plant this Begonia in moss. The moss should be free of volunteer weeds, grass or ferns. The Begonia, not a small wonderland of volunteer plants, is being judged. *B. prismatocarpa* with its habit of slightly rising stems could also become too crowded in a container, seeming to climb the sides of the container. This would then be considered past prime time for exhibiting. The grower could trim his plant back a few weeks before entering it in a show. This would allow for some growth but the plant would be more attractive and the size of the container would be correct.

Exhibitors of such entries should be sure the containers are spotless so the judges can view the entry without being hindered by a fogged-over container. This is, of course, when

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then enter their plant in an enclosed atmosphere container.

For those who bring this plant to the show as a potted plant it would help if the plant were gradually hardened off (taken from its humid atmosphere) several days before the show, and given Vitamin B-1 to help the plant survive.

Whether *B. prismatocarpa* is grown for self-pleasure or for entering in shows, it can always be enjoyed when given the light it needs, the humid environment it needs and kept clean.

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NOMENCLATURE

The lovely plant pictured on our cover has only recently come into prominence amongst American Begonia growers. In October of 1971 the *Begonian* carried an article by Thelma O'Reilly about the species which she obtained from England. However, the species has been known for a long time in Europe. The following information was supplied to the editors by R. Ziesenhenné of Santa Barbara. The original article for the name *B. Prismatocarpa* was published in Curtis' *Botanical Magazine* of 1862. Tab. 5307 is reproduced below. Two years later, *The Prodromus*, Alphonso De Candolle, 1864, Pars Decima Quinta, placed this species in a subgenus, *Loasibegonia*, of the genus *Begonia*.

CURTIS' BOTANICAL MAGAZINE Vol. 88. Series iii. Vol. 18. 1862

Original Article for the name

TAB. 5307.

BEGONIA PRISMATOCARPA.

Prism-fruited Begonia.

Nat. Ord. BEGONIACEÆ. — MONŒCIA POLYANDRIA.

Gen. Char. (Vide supra, TAB. 4172.)

BEGONIA *prismatocarpa*; herbacea humilis, caulibus teretibus repentibus pilosis, ramis ascendentibus, stipulis ovatis acutis membranaceis fimbriatis, foliis longe petiolatis oblique cordato-ovatis subpalmato-lobatis, lobis acuminatis inæqualiter serratis hinc latioribus, petioli teretibus pilosis, pedunculis axillaribus pilosis petiolo longioribus umbellatim bi-trifloris, umbella bracteis duabus stipulæformibus, floribus dipetalis, masculis staminibus monadelphis, antheris lineari-cuneiformibus, filamentis perbrevis, capsula (immatura) elongata lineari-oblonga quadrangulata vix alata angulis æqualibus 4-loculari, stylo profunde 4-partito, stigmatibus capitatis pubescentibus.

If this is wanting in floral beauty, it is nevertheless a very interesting plant, a *Begonia* with an elongated, four-celled, four-sided capsule, a quadripartite style, and capitate stigmas. It is discovered by Mr. Gustav Mann in Fernando Po. It will probably constitute a new genus among *Begoniaceæ* with M. Alphonse de Candolle, who has already alluded to some imperfect specimens of the plant in his valuable 'Mémoire sur la Famille des Begoniacées,' in the eleventh volume of the 'Annales des Sciences Naturelles' (quatrième série, Botan.): "L'Herbier de Sir W. J. Hooker m'a fait connaître une espèce

de Fernando Po. trop incomplète dans la collection pour qu'on put la décrire, et qui semble un genre on une section très-distincte, remarquable par un ovaire étroit et allongé, analogue à celui des *Prixmatocarpus*." It is one of the many interesting new plants we have lately received through our collector from the mountain regions of tropical Western Africa. It flowered in the stove at Kew in December, 1861. Its locality was rocks and trees at an elevation of 3000 feet above the sea-level.

(Continued on Page 239)

WINNERS IN 1973 A.B.S. NATIONAL SHOW

The November issue of the Begonian will contain complete coverage of the Eastern and National shows. However, because many readers are eager to know the winners of the ABS Annual Show, we are publishing the list in this issue.

AMERICAN BEGONIA SOCIETY
PERPETUAL AWARD FOR BEST
BEGONIA IN SHOW

B. *boweri nigramarga*, entered by
MABEL CORWIN

ABS SWEEPSTAKES TROPHY —
GROWER WITH MOST BLUE
RIBBONS IN BEGONIA DIVISIONS
MABEL CORWIN

AMERICAN BEGONIA SOCIETY
PERPETUAL TROPHY FOR BEST
NEW BEGONIA INTRODUCTION

B. 'Brown Eyes', entered by
LESLIE WOODRIF

HERBERT P. DYCKMAN
PERPETUAL AWARD FOR THE
MOST DISTINCTIVE NEW
FIBROUS BEGONIA
NO AWARD

JOHN THIEBEN PERPETUAL
AWARD FOR THE BEST NEW
RHIZOMATOUS BEGONIA
INTRODUCTION (other than Rex)

B. 'Brown Eyes', entered by
LESLIE WOODRIF

THEODOSIA BURR SHEPERD
BRANCH PERPETUAL TROPHY
FOR BEST BEGONIA GROWN BY
A NOVICE GROWER

B. 'Medora', entered by
B. "*Spotted Medora*" entered by
CLAIRE WUSTED

SILVER MEDAL AWARD
KATHY DORR

EDNA KORTS PERPETUAL
TROPHY FOR BEST CANE
BEGONIA

B. 'Irene Nuss', entered by
JOHN EKSTRAND
Pts—91 Cultural Award

HELEN BAILEY MEMORIAL
PERPETUAL TROPHY FOR BEST
SHRUB-LIKE BEGONIA

B. 'Jill Adair', entered by
WANDA ELIN

Pts—93 $\frac{2}{3}$ Cultural Award

BEST THICK-STEMMED BEGONIA
TROPHY

B. 'Richard Robinson', entered by
MABEL CORWIN

REDONDO AREA PERPETUAL
TROPHY FOR BEST
SEMPERFLORENS BEGONIA

B. 'Charm', entered by
MABEL CORWIN

JOHN R. WILLIAMS
MEMORIAL PERPETUAL
TROPHY FOR BEST RHIZOMATOUS

B. *boweri nigramarga*, entered by
MABEL CORWIN
Pts—93 $\frac{1}{3}$ Cultural Award

GONDA HARTWELL CHALLENGE
TROPHY FOR BEST REX BEGONIA

B. 'Bantam Gem', entered by
MABEL CORWIN

BEST SEMI-TUBEROUS OR
TUBEROUS SPECIES TROPHY

B. *dregei*, entered by
WANDA ELIN

Pts—93 $\frac{1}{3}$ Cultural Award

PALOS VERDES BEGONIA FARM
CHALLENGE TROPHY FOR BEST
TUBEROUS BEGONIA

B. 'Ethel Reid', entered by
NETTIE & GENE DANIELS

Pts—92 $\frac{1}{3}$ Cultural Award

INGLEWOOD BRANCH MEMORIAL
PERPETUAL TROPHY FOR BEST
SPECIES BEGONIA

B. *echinosepala*, entered by
WANDA ELIN

SAN GABRIEL VALLEY PERPETUAL
TROPHY FOR BEST BEGONIA
GROWN IN A CONTAINED
ATMOSPHERE

B. 'Purple Petticoats', entered by
GLEND & JIM ELIN

THE NEW PRESIDENT'S LETTER

As I look back over the list of ex-Presidents of the ABS I feel honored to be now filling that position. As I mentioned to Mrs. Herbert P. Dyckman at the Banquet after the annual meeting, I will be following in the giant footsteps of those who preceded me.

Because of the tremendous people resources that are available in our rapidly growing society, I know that my job of directing those resources will be a pleasure.

My goal this coming year is that the ABS will truly become a society of the North, South, East, and West; a society for the beginner, the advanced grower, and the botanist; a

society for the young as well as the retired.

The membership of the ABS is growing rapidly. Many of the new members are young people who are newly interested in plants, eager to learn, and willing to work. We need to consider seriously what we, the National Board and the local branches, are going to do to provide for the needs of these new members. To me they are a refreshing challenge.

I'm looking forward to a busy, but potentially rewarding year when the aims and purposes of the ABS will become realities to all members of the ABS.

SAN MIGUEL BRANCH PERPETUAL TROPHY FOR BEST BEGONIA IN CULTIVATION

B. 'Fire Flush', entered by
GLEND A & JIM ELIN

WILLIAM L. TAYLOR PERPETUAL TROPHY FOR BEST HANGING CONTAINER BEGONIA

B. *echinosepala*, entered by
WANDA ELIN

FERD NEELS MEMORIAL PERPETUAL TROPHY FOR BEST WALL POCKET BEGONIA

B. 'Polygonoides', entered by
WANDA ELIN

BEST NOVEL GROWN BEGONIA TROPHY

B. 'Pink Shasta' entered by
J. O. GILDEN

BESSIE RAYMOND BUXTON BRANCH PERPETUAL AWARD FOR BEST COLLECTION OF FIVE BEGONIAS, EACH FROM A DIFFERENT CLASS

Collection, entered by
MABEL CORWIN

BEST ENTRY IN STUDENT DIVISION TROPHY

B. 'Eunice Gray', entered by
TERRI ELIN

BEST EDUCATIONAL BEGONIA DISPLAY TROPHY

Branch Entry—

Theodosia Burr Shepherd Branch

BEST BEGONIA PHOTOGRAPH TROPHY

Educational Photo, entered by

PHIL SEITMER (Chicago, Illinois)

BEST PLANTER TROPHY

BARBARA KRUPNICK

BEST MINIATURE GARDEN TROPHY

JIM THOMAS

AUTHOR STRANDBURG PERPETUAL TROPHY FOR BEST FERN

Adiantum reniforme, entered by

DOROTHY PORTER

BEST SHADE PLANT (other than Begonia) TROPHY

Episcia 'Cygne', entered by

EDGAR A. BATES

ROUND ROBIN NOTES

For most A.B.S. members, vacations are over and fall is bringing renewed interest in Begonias, with the Round Robin members continuing to "share and compare". Reports of the progress of their plants during the summer have been most interesting.

Iris Cohen of New York decided that some of her Begonias apparently loved the warm weather but others didn't. B. 'Miyo Berger' definitely likes it warm but decided to spread out and sprawl. B. 'Pinafore' grew slowly and was stubborn. Some of the rexes seemed to vary in their color response to changes in temperature. B. r.c. 'Herzogin von Sagan' and B. r.c. 'Vesuvius' were as dark as in winter, but B. r.c. 'Dew Drop' had become silver-green with only a tiny bit of red. B. r.c. 'Peridot' lost all its silver altogether. She feels this one is the smallest rex to date. Its leaves are under $1\frac{1}{2}$ " across, with the rest of the plant in scale. It is reddish-olive with a trace of silver in cool weather. It is semi-upright, like most of the miniature rexes, roots easily from stem cuttings and makes an excellent terrarium plant. It is available from Mike Kartuz.

Rosetta White, Kansas, had some small rex plants she wanted to keep as stock plants so she put them in her lean-to greenhouse where she keeps her large stock plants. These small plants would take off and grow like mad, while similar plants left in her large greenhouse did not grow much. She decided to experiment with them, putting them in the lean-to greenhouse, too, where they soon doubled in size. The lean-to

gets morning light only whereas the large greenhouse gets most of the afternoon light. While it does get a bit warmer in the larger greenhouse, she does not feel that made the difference, since both greenhouses have had temperatures over 100° this summer. Perhaps the morning light and afternoon shade made the difference.

Mildred Rowland of Oregon learned from last year's experience that she needed more shade for her *semperflorens* Begonias outside in an east bed. This year she planted some marguerite daisies in front of them to shade them. The shade is great but she has to push the daisies aside to see her Begonias!

Marilyn Boldt, Colorado, is amazed at how well her B. *olsoniae* grows for her in an east window with no sun, in a terrarium, where it was still in bloom.

Connie Holcombe, Virginia, keeps all her terrariums closed, but has found that when she first places a plant in one that the older leaves rot while the new ones remain. She advises: watch out about having your terrariums too humid at first. After she has accustomed her plants to their new home, she finds the best growing atmosphere is rather dry soil and humid air. That is why she covers her terrariums. Otherwise, she feels, her plants couldn't have humid air and dry feet at the same time.

Ruth Wills of Oklahoma had a rex plant given to her growing in a gallon jar, with its roots going up the side of the jar. She put some potting mix in it and put it in a

stronger light and the roots stayed where they were supposed to stay. She feels the light made the difference.

Gordon Lepisto of Minnesota has built a "greenhouse within a room" in his basement. It is made of corrugated fiberglass with benches of red cedar and 12 foot panels of corrugated fiberglass to catch the water and drain. Thin strips of redwood are used over this as a platform to rest his plants on. It is all very waterproof and humid. Fresh air is vented into the room and exhausted through a vent to the outside. He has a humidifier attached to his water system with control set between 80-90%, all automatic. He uses a 14" fan constantly as a turbulator. The temperature of the room never goes higher than 74° although temperature outside has reached 98°.

To get Begonia and gesneriad seed to sprout better and quicker, suggests Ben Marcus of New York, take a small glass and put in it about 1 oz. of water. Spill into it your seed and let set 24 hours. Have your sprouting container ready and medium slightly moist. Pour the water with the seed over the top of the medium. He has found this works wonders for him.

Mold growing on various media used for seed planting has been reported from Robin members all around the world. Mickey Meyer of Australia had it, too, and found even when she picked the seedlings out, they just faded away. The next time she used the same mix, purchased from her plant store, she put it in a bucket and covered with scalding water, covered container and left it overnight. In the morning she

strained it through loosely woven cloth and planted her seed in it. In over a week, under Gro-Lux Lights, she still had no mold although previously it had appeared within 48 hours.

Margaret Collins of Florida received some seeds she had ordered from the Seed Fund just as she was leaving for jury duty. Not having time to plant them, she sealed them in a plastic freezer bag and placed them in the hydrator of her refrigerator. She was delayed planting them for five weeks and was amazed at results when she did: *B. socotrano* germinated in 8 days; *B. cathayana* X *deliciosa*, 9 days; *B. masoniana*, 12 days; *B. rajah*, 16 days. She later repeated the experiment with similar seeds but became impatient and left them in hydrator for only 8 hours, with very poor results. She wonders if the long stay in the cold helped germination.

Margaret Duval of California reported such fantastic germination with A.B.S. seed of *B. versicolor*, she had them all over the house until she found happy homes for the surplus.

Ethel Helms, North Carolina, finds *B. 'Orange Rubra'* doesn't have the strongest canes in the world so she puts a "tat" of superphosphate under hers and finds it sure helps them.

For propagating leaves of rhizomatous Begonias, May Taft Drew of Pennsylvania suggests: cut the leaf free from the stem, curl cut edges into a circle and insert into medium. Every vein may make a plant.

Speaking of tuberous Begonias, Beth Sackman, California, cautioned: remember that over-potting, over-

(Continued on Page 236)

PROPAGATION OF CANE BEGONIAS BY LEAF CUTTINGS

A Report to the American Begonia Society

By Bonnie S. Greener and Bruno C. Moser

Department of Horticulture and Forestry

Rutgers University, New Brunswick, New Jersey

Because of the length of this report, it will be published in two parts. The first part, published this month, will cover the introductory material and the literature review. The second part which will appear next month will contain the description and results of the experiments. Both parts will be followed by the bibliography for your easy reference. (Ed.)

Introduction

Begonias may be propagated in a number of ways including tip cuttings, node cuttings, and leaf cuttings. Leafcuttings have a number of advantages over the other types. For instance, the shape and health of the parent plant is affected very little; the cuttings themselves take up less room in the propagator; the resulting plant is usually fuller because numerous plantlets arise from a single leaf; and finally, in commercial production the leaf cutting provides a quick and economical method for obtaining a large number of plants.

Unfortunately, leaf cuttings of many species of Begonia, notably those of the cane type, do not initiate buds or do so only after many months. The general objective of this study, therefore, is to investigate the use of cultural, environmental, and chemical manipulations to improve and/or accelerate bud initiation of leaf cuttings.

Literature Review

It has been known that commercial production of *Begonia x cheimanthus* 'Everett', commonly called the 'Christmas Begonia', is possible only in late fall and early winter. It seems that bud initiation is strongly in-

hibited in the spring and summer seasons. To O. M. Heide (6, 7) this suggested the influence of temperature and daylength. In a series of experiments *B. x cheimanthus* leaf cuttings were subjected to various temperatures ranging from 10 to 27 C. at different stages of development. The highest number of visible buds were found at 18 and 21 C. At 15 C. there were a few cuttings with visible buds, but when transplanted and grown under higher temperatures, many buds became visible and growth was rapid, indicating that initiation had already taken place at the low temperature. Those subjected to 24 and 27 C. formed few buds even after transplanting. These results indicated that lower temperatures are optimal for the initiation of buds, but long periods of exposure tend to result in delay of rooting, poor leaf production, and poor growth. Once initiated, buds grew more rapidly at higher temperatures.

In regard to a daylength effect, Heide found that as the number of short days increased from 0 to 32, the percent of bud-forming cuttings and the number of buds per cutting increased.

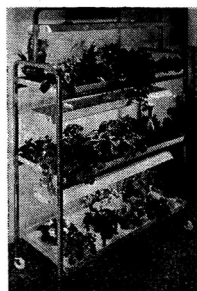
In summary, the most bud formation occurred when the cuttings

were grown under lower temperatures and short day conditions. This led to an investigation of the level and activity of endogenous growth regulators under those conditions. Heide (4) demonstrated that the level of extractable auxins (IAA) in Begonia leaves is reduced under conditions of short days and low temperatures. Conversely, Heide and Skoog (5) showed that cytokinen activity in Begonia increased two to three times that of the long day controls after only 16 short days. This raises the question the role the auxins and cytokinens play in the promotion of bud formation.

Cytokinens are defined as substances which act on cell division, in contrast to auxins which act on cell extension (2). Cytokinens were first discovered by Skoog and his colleagues at the University of Wisconsin (9). They found that tobacco (*Nicotiana tabcum*) pith cells could be cultured for months when coconut milk or yeast extract was added to the basic nutrient medium, eventually forming a large mass of undifferentiated cells called 'callus'. Upon analysis of the additives, the active component was found to be a purine, and after further tests the chemical was identified as a breakdown product of DNA formed after long storage at room temperature, or heating at high temperatures. The substance was isolated and purified, and is known as 6-furfurylaminopurine or 'kinetin'. Many derivatives have since been identified and the entire group of compounds is known as 'cytokinins'.

Following its discovery, the effect of kinetin and its derivatives on plant

growth and differentiation was studied in more detail. Excised tobacco pith tissue proved to be an excellent test object because its cells do not grow and divide on basal nutrient medium unless both auxin and cytokinins are present (11). Skoog and Miller (10) performed the now classic experiments with tobacco callus cultures demonstrating the effects of different levels of the two growth regulators. By increasing the auxin (IAA) levels in the medium while the low kinetin level remained constant, they were able to show the stimulating effect of IAA on root growth. Addition of kinetin suppressed this effect. Conversely, when the auxin level remained at a constant low, and the kinetin level was increased it was found that 0.5 to 1.0 mg/1 was optimum for bud formation. At higher concentrations (2.0 to 10.0 mg/1) there was an inhibition of all growth, and at lower concentrations (0.2 mg/1) undifferentiated growth occurred. These concentrations all prevented any root growth. The effects could be suppressed by addition of auxin. From this it can be seen that the differentiation of cells into shoots and/or



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roots is dependent to a large extent on the ratio of auxin to cytokinins present. A high ratio promotes root formation, and a low ratio enhances shoot formation.

These results indicate the potential for stimulation of bud initiation in leaf cuttings by regulation of the amount of cytokinins present. When considering the exogenous application of cytokinins, the mobility of the substance must be taken into account. Under natural conditions a major source of cytokinins is believed to be from the root apex. The materials are synthesized there and move upward to the stem and leaves. When applied to intact leaf or stem surfaces, however, the chemicals are relatively immobile (2).

Batson (1) applied SD 8339 (Shell Development cytokinin product*) in a foliar spray to leaf cuttings of African Violet (*Saintpaulia ionantha*) in an attempt to stimulate a greater number of plantlets for commercial production. The cuttings were stuck at a slant so that the foliar spray would run down and accumulate at the base of the cutting close to the source of bud initiation. The concentrations were 50 ppm, 100

ppm and 200 ppm in one, two and four applications. The optimum treatment was 100 ppm applied once, resulting in the highest total number of plantlets and the highest average number of plantlets per leaf.

Chlyah-Arnason (3) applied kinetin as a foliar spray to *Begonia rex* while the leaves were still attached to the plant, and found that it promoted budding over the entire surface of the leaf.

Heide (8) applied a cytokinin to *Begonia x cheimanthus* by immersing the basal end of the petiole in a solution for varying lengths of time (1 to 125 minutes). The cuttings were stuck and grown under greenhouse conditions. The number of buds increased greatly with increasing concentrations; in longer periods of immersion, the rooting ability was somewhat lessened. A second group of cuttings were prepared and treated in the same manner, but were placed in a temperature controlled chamber. In most of the cuttings grown at 21° C., pretreatment with a high concentration of kinetin overcame the inhibitory effect of high temperature on bud initiation, increasing the percent of cuttings with shoots from 40% to nearly 100%.



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In experiments to determine the best time for application Heide (8) found that the most effective time is immediately after sticking the cuttings. The longer the treatment was delayed, the more the effect of the kinetin was reduced. It also appears that the foliar spray method for application is more effective than the dip method.

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SEED FUND

Mrs. Pearl Benell, who has in the past served in several capacities on the National Board of Directors, has been appointed as the new Clayton M. Kelly Seed Fund Administrator.

She would like you to be aware of the dual role that you can play in supporting the Seed Fund of your Society.

First, you have the privilege of buying seed of begonias from around the world at a fraction of the cost you would pay to search out and buy seeds for yourself.

Secondly, you are needed to supply seeds to be shared by all members who buy from the Seed Fund. New sources are constantly being sought for seed of new and different begonias. You have three options for supplying seed to the fund:

1. You may donate seed
2. You may sell seed of the rarer types to the fund
3. You may swap your seed for other seed from the monthly seed offering.

In any of the three cases, please contact Mrs. Benell before sending seed. She will give you instructions on how to properly mail the seed to her. Write to her today before you forget. The Seed Fund will be better for all if you participate. Her address is: Mrs. Pearl Benell, 10331 S. Colima Rd., Whittier, Ca. 90604.

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OUTDOOR TROPICAL GARDEN IN THE TEMPERATE ZONE

By Jim Wyrzten

Floral Park, Long Island, N.Y.

The general opinion is that tropical plants can only be grown outdoors in the United States either in the extreme south on the east coast or the warmer areas of the southwest and the west. Of course, under glass in some of the botanical gardens we can see tropical gardens year round.

Many years ago, when I started gardening on my property 40' x 110' there were only a few small trees. At that time I built a goldfish pool. Plenty of sunshine with little shade provided the necessary ingredients to bloom water lillies, water hyacinths and other plants. Annuals and perennials were planted in the borders and with proper care, rewarded us with plenty of flowers.

About 25 years ago we purchased the 60' x 110' adjoining property. During the ensuing years, many shrubs and trees were planted to attract the birds. Eventually, we noticed the water lillies were blooming less and less. This was because of the shade created by the increased size of the trees. It is interesting to look at the color slides of annuals — zinnias, marigold, dahlias and other sun loving plants that only 7 or 8 years ago grew in profusion.

Well, the garden has changed. Several years ago a Wisconsin Willow was planted about 12' from the back fence and 4' from the side fence.

This location was ideal for future landscaping when the tree, which is a variety of willow which grows slowly, grew large enough to shade

the area. The level of the ground in the corner was raised 4' for a rock garden and a water fall. The ground slopes toward the redwood fence in the corner. A brook made of metal and painted with roofing tar to protect it from the elements was placed at the south side of the rock garden. It makes a turn around the willow tree and empties into a fiberglass pool. The water from the pool is recirculated through a hose to a water fall constructed of rocks at the beginning of the brook. The redwood fence 5' high makes an ideal background. This is enhanced by placing rex rhizomatis and cane type begonias on hangers. They receive filtered sunlight off and on during the day. The garden bordering the brook and pool is planted with all types of tropical plants; coleus, begonias, aphyllandra, Ixora, Voodoo plant, fuchsias, gesneriads and others. Caladiums planted in pots do very well if placed in the pool with the bottom of the pot 2" below the water line. There are many begonias columnneas, aeschynanthuses, achimenes and fuchsias growing in baskets which are summered outdoors from May to Sept. These are hung from the branches of trees. A cable which runs 30' from the house to a large tree in the center of the lawn, supports a dozen or more hanging baskets. Several double varieties of hibiscus chinensis are grown in tubs and placed in strategic spots.

In the rear of the house there is another fiberglass pool with a sub-

merged pump which creates a pretty fountain of water. This pool also is enhanced by caladiums and flowering begonias. A white dogwood tree spreads its beautiful branches over the pool and is one of our most interesting trees at any time of the year. This tree was planted 40 years ago when it was only a whip which my wife and I dug up in the woods about a quarter of a mile from the house. The woods have long since disappeared and have been replaced by homes. What price progress?

About 13 years ago we erected a 20' x 8' aluminum lean-to greenhouse in which we grow shade loving plants such as gesneriads, begonias and other tropical plants. This faces east northeast.

In the spring of 1965 a free standing redwood greenhouse 20' x 12' was built. A garden 4' wide with roses and petunias was planted on the west side of this greenhouse. On the north side we have found that tuberous begonias and gloxinias do exceptionally well. It is quite likely that the exhaust fan from the greenhouse which blows directly on this area, is the reason for tuberous begonias growing better here than anywhere else in the garden.

When visitors see tropical plants growing in the garden, the usual comments is either, how do you water all these plants? or it must be a terrific amount of work putting them out in the spring and taking them in in the fall. Watering is not too much of a problem as it is done with water from the hose. All outdoor plants can be watered in a half hour. They are chemically fertilized two or three times during their stay

outdoors and sprayed about every two or three weeks with an all purpose spray. The pot holders on the fence, once nailed up, remain there and each spring the potted plants are put back. Baskets hung from the trees do not require any more effort than carrying them outside. Tuberous begonias placed in the ground are left in the pots and sunk about 1" from the rim. All areas are mulched with pine bark. This prevents weeds from growing and also keeps the soil cool and moist. Probably most of the work is in the fall when all pots have to be cleaned and plants sprayed thoroughly. Many have to be transplanted into larger pots or divided and repotted. However, it is all worth the effort. The rewards of a tropical garden in the temperate zone gives one a satisfaction far in excess of the labors involved.

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5. NAME AND ADDRESS OF PUBLISHER, EDITOR, AND MANAGING EDITOR The American Begonia Society, Inc., 10331 Gullson Rd. Whittaker, CALIF 90066		
6. OWNER (Name and address) Jack G. Bergman, 519 Argentean Rd. San Gabriel, CALIF 91776		
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PS Form 3526 July 1973

**CONDENSED MINUTES OF THE
ANNUAL MEETING OF THE
BOARD OF DIRECTORS AND
MEMBERS OF THE
AMERICAN BEGONIA SOCIETY
AUGUST 18, 1973**

The Annual Meeting of the Board of Directors of the American Begonia Society opened at 1:20 p.m. on August 18, 1973 in the Student Commons Building at the California State University at Fullerton with John Provine, President, presiding. There were eighty members present, including sixteen officers and representatives of seventeen branches.

The minutes of the July meeting were read and approved. Mr. Jack Golding, Vice President, read his annual report. Mr. Golding has been very active, working with the Eastern Branches to promote interest and knowledge of begonias, has assisted in their shows and conventions and was one of several members who were instrumental in establishing the new Long Island Branch. Working with Dr. Lyman B. Smith, Carrie Karageannes and others, Mr. Golding has done much research with begonias and is reviewing Dr. Fred Barkley's List "The Species of the Begoniaceae." He had suggested in a letter to Rudy Ziesenhenné that Dr. Barkley's List may be a duplication of his "Catalogue of Species." Mr. Golding therefore proposed that Dr. Barkley's List should become the official ABS Catalogue of Species Names in order to save time, effort and money, since Dr. Barkley's List is near completion.

The Treasurer's report for the period July 19, 1973 to July 31, 1973 receipts \$748.95; disbursements \$793.43; balance on hand, July 31, 1973 \$3,883.95. Treasurer's report for August 19, 1972 to July 31, 1973; balance as of August 19, 1972 \$1,323.45; receipts \$17,480.11; disbursements \$14,919.61; leaving a balance as of July 31, 1973 of \$3,883.95. Fund balances: Life Membership \$3,706.61; Begonia Catalog Fund \$1,992.44. Convention Fund (balance after advance of \$650.00 to 1973 Show) \$440.53.

Membership Secretary reported for the period July 19, 1973 to July 31, 1973: new members 74; renewals 89; funds received and deposited \$711.25; expenses \$24.02. Membership Secretary's report for the period August 19, 1972 to July 31, 1973: total new members 1232; renewals 1821; total membership 2930; last year 2311; total funds received and deposited \$13,011.49; total expenses \$326.94. The Circulation Manager's report for July 19, 1973 to July 31, 1973: Begonians dispersed 3079; total expenses \$128.34. Circulation Manager's annual report for period August 30, 1972 to July

31, 1973: total Begonians dispersed 32,922; Mailing costs \$295.15.

The Advertising Manager, reporting for period July 19 to July 31, 1973 receipts \$37.70; unpaid accounts \$31.00. Advertising Manager's annual report: total receipts \$847.24 unpaid accounts \$31.00. The Awards Chairman reported he had sent 25 Cultural Certificates as requested by 4 branches; awards for all three ABS Special awards would be presented at the banquet that evening. The Historian presented the 1973 History book which will be on display at the Show.

The Judges Course Director reported 50 sets of Judging Course were sold in the period September 1972 to August 1973; 145 Classification Guides and 74 Point Scoring Books were also sold. The list of accredited judges was printed in the Begonian but more new judges are badly needed as some are no longer able, for various reasons, to work as hard as is necessary at the annual show. The Director has written the Begonia Shows Question and Answer column consistently for the Begonian and has received many good comments. The Librarian reported sales \$1,146.22; purchases and postage \$519.09; balance on hand \$627.13. The Scientific Book Store in Tokyo owes \$165.00.

The Nomenclature Director reported the year had been very busy: 43 plants were registered in activity as International Authority for Begonia Names; 50 inquiries were answered; 24 begonias on colored slides were identified for a member in Japan; 32 begonia leaves were identified for a member in Australia; many other requests for identification of plants were answered.

The Parliamentarian reported for the seven months of her tenure of office: the Board meetings had been well attended, harmonious and business-like. In May she had been appointed as chairman of a special committee to work on by-laws amendments or standing rules of office. Two proposed amendments and several proposed standing rules changes will be brought up later in the meeting.

The report of the Research Director was read: during the past year the Research Project at Rutgers University started with a senior student helping Dr. Moser. All of the begonia stock plants needed were donated by ABS members and several plant growers. A large collection of plants has been built up for the project. Dr. Moser intends to have a graduate student work on the project for another year. The Research Fund now has a balance of \$83.30. The report from Dr. Bruna Moser of Rutgers University was enclosed. However, in the interest of saving time and the fact that the whole report will be printed in the

Begonian, a motion was made and carried to dispense with the reading of the lengthy report. The special committee to count the ballots reported 347 ballots received and all nominees elected to office.

The special committee to audit the treasurer's books reported the books and records had been examined and found to be in order. The Northeastern Public Relations Chairman reported the very successful beginning of the Long Island branch which now has 160 members; however her efforts to establish other branches have not been successful so far. The Public Relations Director reported much correspondence answered and information sent about starting a new branch but no results.

The Special Committee to recommend amendments to the By-laws and Standing Rules proposed the following: Article 1, Section 1 of By-laws which shall be changed to read: **The President shall preside at all meetings of the Society and of the Board of Directors; shall appoint the heads of the various departments with the exception of the Editor; and shall have general supervision of the affairs of the Society. The President shall be an ex-officio member of all committees.** A motion was made and carried to adopt this amendment, subject to approval of the membership. Proposed amendment to Article 1, Section 2 of By-Laws which shall be changed to read: **The President Elect or 1st Vice President shall perform the duties of the President in the absence of the latter, or whenever the President is unable to perform the duties of his office, and such other duties as are assigned to him by the President.** A motion was made by Margaret Ziesenhenne, seconded and carried to adopt this amendment, subject to approval by the membership.

Proposed Amendment to Article II, Section 1 of By-Laws which shall read as follows: Section 1. The officers to be appointed by the President as Directors to serve as heads of Departments shall be as follows: (Editor omitted) Business Manager, Membership Secretary, Research Director The Clayton M. Kelly Seed Fund Director, Nomenclature Director, Public Relations Director, Librarian, Chairman of the Speakers Bureau and Slide Library, Chairman of the Flower Show Committee, Historian, Chairman of Awards Committee, Chairman of the School for Judges, Parliamentarian, Circulation Manager and such other heads of Departments as shall hereafter be established by the Board of Directors. **The Editor shall be selected by an editorial board consisting of the President who shall act as chairman; the President-Elect or First Vice President, the Past President; and two others chosen by the President.**

Margaret Ziesenhenne made a motion

which was seconded and carried, to adopt the above amendment, subject to approval by the membership.

Jack Golding made the motion to adopt the following proposed amendment: The purpose of this amendment is to eliminate the position of "President-Elect" and to change the term of all officers from one to two years. This would change the following applicable section of the Constitution as follows: Article IV, Section 1 Line 2, eliminate "President-Elect" and lines 4 and 5, eliminate "and one Director for each Department of the Society." Change Section 3 to: "All officers listed in Section 1 shall be elected bi-annually in August, by ballot, each member of the society being entitled to one vote. They shall all serve for two years and be installed at the appropriate annual meeting.

In Section 4, line 1, change "annually" to read "bi-annually" and in line 2, change "one" to "two".

In Section 5, line 3, change "annually" to "bi-annually." In Article V, Section 1, line 2, change "eight" to "seven."

In By-Laws, Article 1, Section 2, line 1, change "President-Elect" to "1st Vice President."

In Article III, Section 2, line 4 & 5, change President-Elect to "1st Vice President." This motion would become effective next year (1974). The motion was seconded by Gene Daniels and carried. There were 4 No votes.

Proposed Standing Rules:

1. Resolved: That the President shall employ on an hourly basis such clerical or typing assistance not obtainable on a voluntary basis necessary to keep the correspondence current, the necessary equipment to be supplied, through rental or purchase, by the Society. The motion, made by Margaret Ziesenhenne, seconded by Pearl Benell, carried.

2. Resolved: That all correspondence involving complaints shall be referred to the head of the department concerned for preparation of a reply to be returned to the president for approval, typing and signature. Letters of an abusive nature shall be referred to the President who will confer with his Public Relations Director and the Society's attorney, if necessary for appropriate action. This motion, made by Margaret Ziesenhenne, seconded by Mrs. Cronin, carried.

3. Resolved: That the President-Elect or 1st Vice President shall be included in planning and policy making during his years of service as a method of training.

This motion, by Margaret Ziesenhenne, seconded by Gene Daniels carried.

4. Resolved: That the Treasurer shall be responsible for the preparation of all reports required under Federal, State and local laws pertaining to financial matters

(Continued on Page 236)

ROUND ROBIN NOTES

(Continued from Page 227)

watering and over-fertilizing are the three principal causes of losing plants. She found she had more humidity for her plants when she had the gravel floor and much less after floor was cemented in her greenhouse.

Topsy Todd of New York, said her *B. acaulis* went dormant in May of last year and in June this year. The tuber is twice bigger than it was last year.

Now that fall is here, why not try a Robin Flight or two to make growing your begonias more interesting? Write and let me know how you grow your plants and which are your favorites. I'll be happy to introduce you to some new friends who will make your hobby even more enjoyable!

Mrs. Mae Blanton
Round Robin Director
118 Wildoak Drive
Lake Dallas, Texas 75065

CALENDAR

October 10 — Long Island Branch — 7:30 p.m. — At Planting Fields Arboretum in Oyster Bay, Long Island, New York, Millie Thompson will speak on Shrub-like Begonias. There will also be a Mini-Show of Begonias in Hanging Containers. *B. Olsoniae*, Begonia of the Month will be discussed by Ed and Frances Hoffman. The Hoffmans won a bowl for their seed-grown *olsoniae* at the Long Island Chapter's first show. (It's no wonder they wanted to speak about it!) Refreshments will be served.

October 26—Redondo Area Branch

— 6:30 p.m. — President's Potluck Dinner. Past presidents will be honored. Presidents, past presidents and members of other branches are invited. Speaker for the evening will be Mae Tagg. Plant table and coffee. Visitors welcome.

CONDENSED MINUTES

(Continued from Page 235)

and employment taxes; the Finance Committee shall assist the Treasurer in this task. Motion by Margaret Ziesenhenné, seconded by Cecelia Grivich, carried.

5. Resolved: That all heads of departments shall transmit to the Treasurer at least once a month, not later than the 18th, any funds. A uniform form or forms shall be issued by the Society to the department heads to record the transactions. A negative report monthly from the department head will indicate no receipts or disbursements. This motion, made by Margaret Ziesenhenné, seconded by Walter Barnett, carried, with the amendment that the Library Fund and the Show Fund be exempt.

Jack Golding submitted the following amendment to the Constitution: The purpose of this amendment is to give all Branches an equal opportunity to vote on all decisions of the National Board. In Constitution add to ARTICLE V, Section 2— Each Branch Director of a Branch more than 50 miles from the meeting place of the Board of Directors shall have a proxy vote.

In ByLaws, Article III, change to read: The Board shall meet on the call of the President, or any four elected officers with sufficient frequency to conduct the business of the Society. Each member of the Board shall receive a notice of the time and place of the meeting, together with an Agenda of the items to be discussed. Within two weeks after a Board meeting, the minutes shall be mailed to all members of the Board. The eligible Branch Directors shall mail their Proxy votes to the Secretary within two weeks after receiving the minutes.

The above motion, made by Jack Golding, seconded by Gene Daniels, carried. There were 11 NO votes.

Mr. Clarke extended an invitation to the ABS to hold its Convention and Flower Show in Santa Barbara next year.

The invitation was enthusiastically accepted.

The meeting adjourned at 4:15 p.m.

Respectfully submitted,
Irene Grannell

ADVENTURER OR JUST A SUBSCRIBER?

By Wally Wagner

Is belonging to the American Begonia Society an adventure or merely subscribing to a magazine? The ABS offers many services which can transform you into the class of an adventurer. The Begonian is your magic carpet to these adventures.

Consider the Clayton M. Kelly Seed Fund. Each month seeds are offered from around the world. Many times the offering contains seeds of Begonias never before grown in the U.S. Sometimes new species will be discovered through seed you have sown from the Seed Fund. Explore the world through the Seed Fund.

Our librarian maintains an extensive library which can not only carry you around the world but also take you back into history where you can recapture the excitement of the early days of the American Begonia Society as well as be introduced to many of the fascinating pioneers of our Society. The only cost to you for this trip around the world is the amount of the postage to mail the books to you.

Have you flown lately? That surely would be a new adventure for you. A Round Robin Flight is a small group of Begonia fans who communicate about their favorite aspect of raising Begonias via the mail. About once a month they receive a precious pack of letters from all the members in the flight. They add a letter of their own, relating their latest thoughts, successes, failures, etc., stuff it into the pack they received and forward the letters to the next eager recipient. Lasting friendships and a lot of good grow-

ing advice result from these Robin "Eggs."

Have you seen a good show recently? I mean a Begonia show? They are happening all over the country now. Shows are an excellent opportunity to compare your growing successes with others'. You can learn a lot about growing Begonias just by attending and observing the show entries but you'll learn a lot more if you enter plants. Winning a ribbon or trophy makes all the work seem more worthwhile. A well grown Begonia becomes a friend.

The best way to learn to grow a Begonia is to enroll in the ABS Judging Course. You'll appreciate your plants more, grow them better, and win more trophies if you join the growing numbers of adventurers who have graduated with praise on their lips for an outstanding course. Enroll even if you don't want to be a judge.

I must not forget the Slide Library. Carefully selected groups of slides are available for you, your branch, or any garden club, for just a nominal fee. Pick your topic and a set of beautiful color slides will be rushed to you so that you can enjoy yet another of the adventures offered by the American Begonia Society.

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	Once	Monthly
Full Page	\$30.00	\$25.00
Half Page	18.50	15.00
Quarter Page	10.00	8.50
Per Inch	3.00	2.50

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WILLIAM PENN BRANCH

4th Tuesday, Noon Homes of Members
Mrs. Stuart J. Bracken, Secy.
727 Mt. Moro Rd., Villanova, Pa. 19085

NOMENCLATURE

(Continued from Page 223)

DESCR. The *plant* is small and insignificant-looking; it has creeping, herbaceous, rounded, hairy *stems* and ascending *branches*. *Leaves* on long petioles, also hairy, the largest of them scarcely two inches in length, obliquely cordato-ovate, subpalmately three to five lobed, but the lobes are much larger on one side than the other, acuminate, coarsely and unequally, but sharply and submicronately serrated. *Stipules* small, ovate, fimbriated. *Peduncle* axillary, solitary, longer than the petiole, bearing a small imperfect *umbel* of two to four dipetalous *flowers*. *Petals* ovate, yellow, with a tinge of orange towards the base. *Male flower* pedicellate, with a cluster of many *stamens* borne upon a short stalk (hence monadelphous), all inclined to one side. *Filament* very short. *Anther* linear-cuneate, most of it made up of the *connectivum*, yellow. *Female flower* sessile, apparently one to each umbel. *Ovary* or immature *fruit* linear-oblong, tetragonal, a little attenuated upwards; the four angles are prominent, but scarcely form wings, and these angles are equal, four-celled, with numerous ovules attached to the four central receptacles. *Style* short, soon dividing into four erecto-patent branches, each crowned with a large capitate downy *stigma*.

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