CROSS WORDS

The Gesneriad Hybridizers Association

NEWSLETTER

Volume IX, Issue 1, 1985

EDITORIAL COMMENTS:

Even though Spring has just begun to arrive here in the Midwest, it's time to start planning ahead for the G.H.A. meeting at the upcoming A.G.G.S. Convention in Toronto, Canada this July. For those of you who cannot attend, please take the time to write down your thoughts on what you would like to have discussed at the meeting. Since we are a loosely-structured organization, we depend on all members for input at these meetings. Your thoughts do count. We need to hear them.

The nomination ballot for Hybrid of the Year has been dropped after poor response for the past several years. In its place, the G.H.A. will be sponsoring an award at the Toronto A.G.G.S. convention.

Last month, I had the pleasure of spending a day at the Gesneriad Research Foundation's greenhouse on the grounds of Dr. Hans Wiehler's home in Sarasota, Florida. Hans was a wonderful host, and consented to an interview for "CW." Look for it in the next issue.

Hope to see many of you at the convention in Toronto.

- Al Wojcik

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SINNINGIA — A NEW HYBRIDIZING POLYGON

John Boggan, 110 Terrace Place, Apt. 1, Ithaca, N.Y. 14850

I was reading through Martin Mines' excellent article, "Hybridizing Relationships Among the Sinningia Species," in the June 1980 issue of "CrossWords," when I realized that an update might be worthwhile. I took it upon myself to do this, beginning with some crosses he listed in his article but had left off the polygon, such as S. pusilla X S. macrorrhiza. From there I began to glean all available literature, and more and more interesting things began popping up. Finally, I met Mr. Mines in New York City and he encouraged me to publish this in "CrossWords." In addition, he told me of a few more interspecific hybrids. The result is Figure 1. Of course, these things are out of date the minute they're made, which is why I'm writing this article along with it. There are also some points that need explaining.

Some species were left off entirely because I didn't know of any hybrids that were made with them. These are S. magnifica, S. cooperi, S. guttata and S. peruviana. The first two are apparently similar to S. cardinalis and S. macrorrhiza and probably form similar hybrids. Dave Zaitlin reports he has crossed S. magnifica and S. reitzii and produced a fertile hybrid. Also, Dr. Moore reported "xGloxinera gesnerioides," a cross between S. tubiflora and S. cooperi, which is now extinct. Mr. Mines told me he knows of no hybrids made with S. guttata, but Dr. Moore reported a S. guttata X speciosa hybrid, presumably extinct. I could find no information on S. peruviana.

Several hybrids have also been omitted from the diagram. Dr. Moore described a dubious report of S. barbata X S. speciosa, presumably extinct. It appears that the early hybridizers (late 1800-1900s) made many unusual crosses — or at least thought they did. It sounds like the old "Stroxinia" story.

Two interesting hybrids were reported by Art and Peg Belanger in the Fall 1977 "CrossWords": S. concinna X S. claybergiana (now S. sceptrum) and S. eumorpha X S. richii. What is surprising is that they reported both to be fertile. (Peg Belanger is also responsible for crossing S. pusilla and 'White Sprite' with S. macrorrhiza.)

I'm sure that there are many crosses which could be made but simply haven't. Jim Steuerlein very easily made the cross S. eumorpha X S. macrorrhiza, which is not at all surprising except that we haven't seen it reported anywhere. S. macrorrhiza, especially, is a species I feel has been overlooked in hybridizing; the flowers are small, but it produces hundreds of them. It should make any crosses that S. cardinalis does.

A short discussion of cenospecies might be helpful. A cenospecies is a group of related species that will cross among themselves easily and produce at least partially fertile hybrids. (However, fertility is often restored in the tetraploid version.) I have put together an informal chart, Table 1, of cenospecies based on Dr. Clayberg's articles, sectional delineations and hybridizing relationships. Some species don't seem to fit any cenospecies; for these I have given the section name, where I was able to find it. Gland number, where known (to me), is also listed, because it seems to be constant within cenospecies and therefore can be an indication of where to put a species and what crosses to try first. It is probably safe to say that

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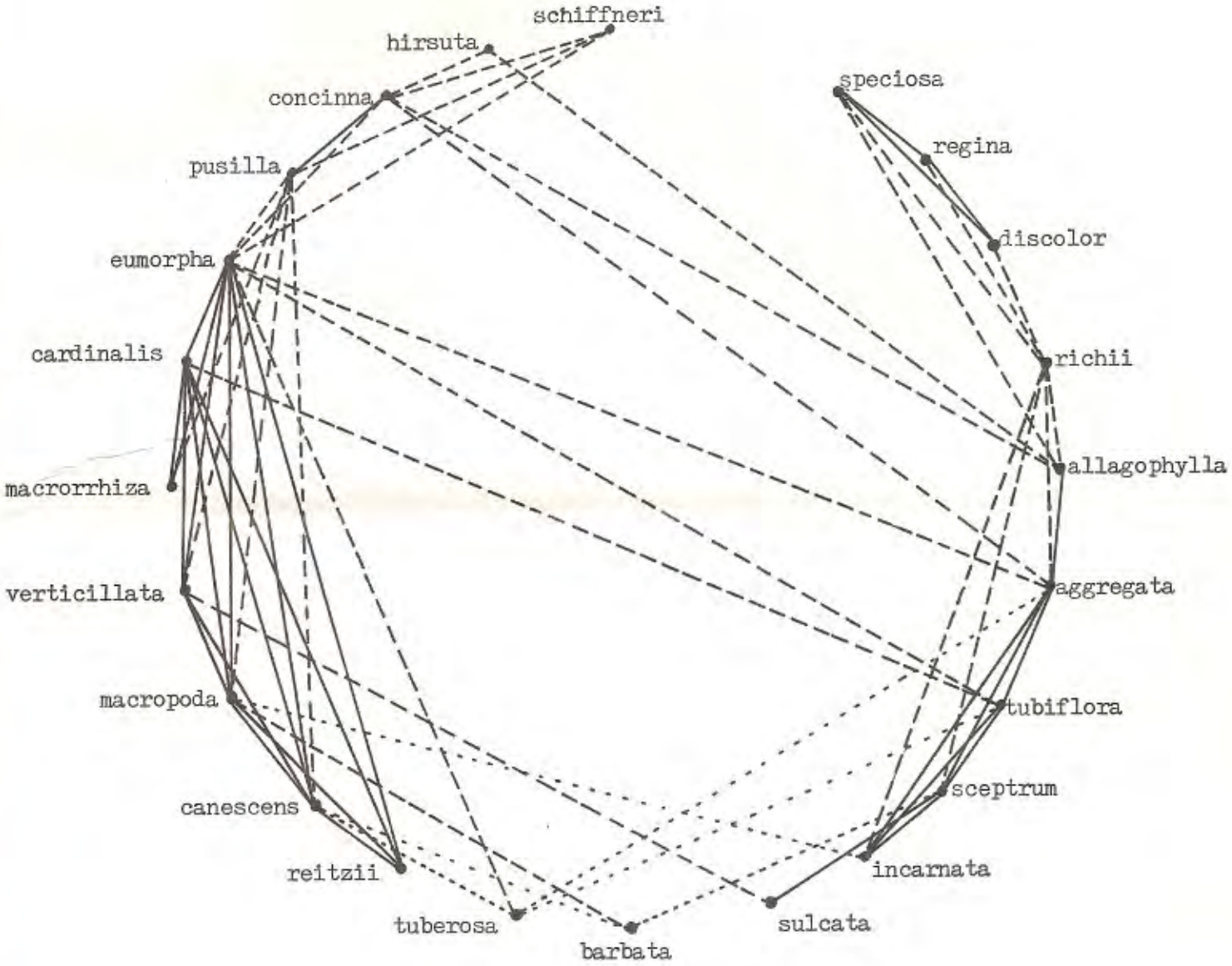

——————— Fully or partially fertile

– – – – – – – – – – Sterile

. . . . . Weak hybrid, no flowers reported

Figure 1. Sinningia hybridizing polygon. Taken largely from articles by Dr. Carl Clayberg and Martin Mines.

Section name	Species	Glands
Stenogastra	pusilla	2 large separate; 3 vestigial or absent
	concinna	5 large separate
Thamnocaula	canescens	2 large separate
	eumorpha	2 large separate
	cardinalis	2 large separate
	macrorrhiza	2 large separate
	cooperi	? (should be 2 large separate)
	magnifica	? (should be 2 large separate)
	verticillata	2 large separate
	macropoda	2 large separate (Moore reports 5)
	reitzii	2 large separate
Corytholoma	incarnata	2 large united, 1-3 small separate
	sceptrum	2 large united, 1-3 small separate
	tubiflora	2 large united, 3 small separate
	aggregata	2 large united, 1-3 small separate
	allagophylla	2 large united, 3 small separate
Ligeria	discolor	5 large separate
	regina	5 large separate
	speciosa	5 large separate
Thamnoligeria	schiffneri	5 large separate (Miracle Houseplants reports 4)
Tapina	barbata	2 large separate
Stenogastra?	hirsuta	5 large separate
Corytholoma?	sulcata	?
?	tuberosa	?
?	richii	2 large separate, 3 slightly smaller
?	guttata	?
?	peruviana	?

Table 1. Sinningia, sectional groupings and gland characteristics. Taken largely from Dr. Clayberg's articles.

any member of a cenospecies will cross with any other member of that cenospecies. Looking at the polygon, there are a lot of gaps that should be very easy to fill in.

Within cenospecies, there are often species pairs which form VERY fertile hybrids, with close to 100% pollen stainability, indicating a very close relationship (and perhaps future inclusion in a single species.) Some of these "sister species" pairs are cardinalis-macrorrhiza, canescens-macropoda, aggregata-allagophylla, sceptrum-tubiflora, incarnata-sceptrum and speciosa-regina-discolor. Indeed, the last three have been lumped recently under S. speciosa by Hans Wiehler. The significance here is that if one of these species has been used in a cross, then its sister will probably make the same cross. For example, S. macrorrhiza X S. canescens or S. hirsuta X S. aggregata. Similarly, varieties of a species can be used interchangeably with the species; try using 'White Sprite' instead of S. pusilla, 'Skydiver,' 'George Kalmbacher' or 'Innocent' instead of S. cardinalis; 'Pendulina' instead of S. aggregata or 'Pink Eumorpha' instead of S. eumorpha.

Incidentally, you may see some unfamiliar names on the chart. S. incarnata is the proper name for S. warszewiczii, S. sceptrum is the old S. claybergiana and S. reitzii was formerly known as S. 'New Zealand.'

When using this chart, it might be interesting to repeat crosses which are reported but dubious or extinct. But above all, don't let anybody tell you it can't be done. There are enough odd hybrids around to show that it CAN be done ... if you're persistent.

Special thanks to Martin Mines, Dave Zaitlin and Jim Steuerlein for encouragement and information on hybridization. ★

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CrossWords, various back issues. Dave Zaitlin's seed exchange listings are an especially good source of information on S. reitzii hybrids.

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SEED EXCHANGE

David Zaitlin, 103 Maplewood Dr., Ithaca, N.Y. 14850

Even though we are a foot deep in snow as I write this (early February), there is plenty of Sinningia seed available. For those of you who enjoy growing the larger species and varieties, I have a cross of *S.* `Skydiver' X *S. macrorrhiza*, made by Jim Steuerlein here in Itnaca. I also have seed from the selections listed in the last issue of "CrossWords."

By the time you read this column, Jim will have hybrid seed from *S.* `Super Orange' and other tetraploid miniatures available. I will be happy to supply any that he produces, or you can write directly to him at 218 Risley Hall, Cornell University, Ithaca, New York 14853.

Al Wojcik has also sent along a mixture of seed from numerous Sinningia crosses using the best of Bartley Schwarz' hybrids (`Super Red,' `Super Orange,' `Venus de Milo,' plus many others). They will produce a variety of flower colors in orange, pink, white, purple and every combination of these colors. The blooms have Bartley's characteristic large size on compact plants. Seed may be obtained by writing to me at the address above.

Please be sure to send a stamped, self-addressed envelope when requesting seed.

Sinningia `Big Venus'

In June of 1982, while driving cross-country from Ithaca to Davis, California, I stopped to visit Ted Bona in Reading, Pa. The stop was very pleasant and quite worthwhile, as I had corresponded with Ted for several years but had never met him. He gave me a number of plants, among them something called *S.* `Big Venus.' He told me that he managed to self Patrick Worley's `Little Venus' (*S.* `White Sprite' X `Modesta'), but the resulting offspring were much larger than the parent, hence the name.

The individual plant he gave me survived quite well in Davis, and made the trip east with me. I recently selfed it, and between Jim Steuerlein and myself, about a dozen plants have been brought to flower. All appear identical, and are probably similar to *S.* `Venus de Milo,' which I have only seen in a photograph. When mature, *S.* `Big Venus' is a stemless rosette measuring 16 cm. across. The plant grows rapidly under ideal conditions, flowering in four months from seed.

The leaves are a medium green (137A on the Royal Horticultural Society color fan), and the 4.5 cm long corolla is pure white with a purple-red splotch (RHS 67B) on the floor of the tube. At first glance, the plant itself closely resembles a miniature version of *S.*

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eumorpha. All of the seedlings seem to produce abundant quantities of seed quite readily, so there will be enough to distribute by the time this sees print.

As far as I know, S. 'Big Venus' has not reached the general growing public yet, so be sure to write to me if you desire seed. Keep in mind that 'Big Venus' is not a validly registered cultivar but is nonetheless a beautiful and worthwhile plant to grow.

Aeschynanthus Seed Available

A new member of GHA, John Boggan, has seed from the following Aeschynanthus crosses available for those who might be interested:

A. micranthus X A. 'Kew Pink'
A. micranthus X A. longicaulis

His address is 110 Terrace Place, Apt. #1, Ithaca, N.Y. 14850.

Looking for Codonanthe chiricana

Dr. Hans Wiehler of the Gesneriad Research Foundation would like to locate someone who has Codonanthe chiricana. It was originally distributed from Selby Gardens a few years ago, and Hans would like to get it back at the GRF. Drop him a note if you have this material available. The address is 1873 Oak Street, Sarasota, FL 33577.★

FURTHER NOTES ON xNAUTILOTHEMIS

Frances N. Batcheller, Durham, N.H.

I received a cutting of xNautilothemis 'Jack Pardo' at the 1984 AGGS Convention. It rooted promptly. Growing on a light bench at about 68 degrees F., with the lights burning for 13 hours a day, the plant reached about 30 cm. (12 inches) in height. At this height, there were about 50 buds, with 8 to 10 flowers in a cluster in the leaf axils. The lower leaves became quite large. It was grown in a 3-inch pot. In midwinter, the plant has needed higher humidity, provided by a plastic bag, to open the buds fully. It has proved a very attractive specimen, even under my less than generous growing conditions. When the top becomes too tall for the lights, it is very easily re-rooted and the plant continues to set buds and flower on the new cutting.

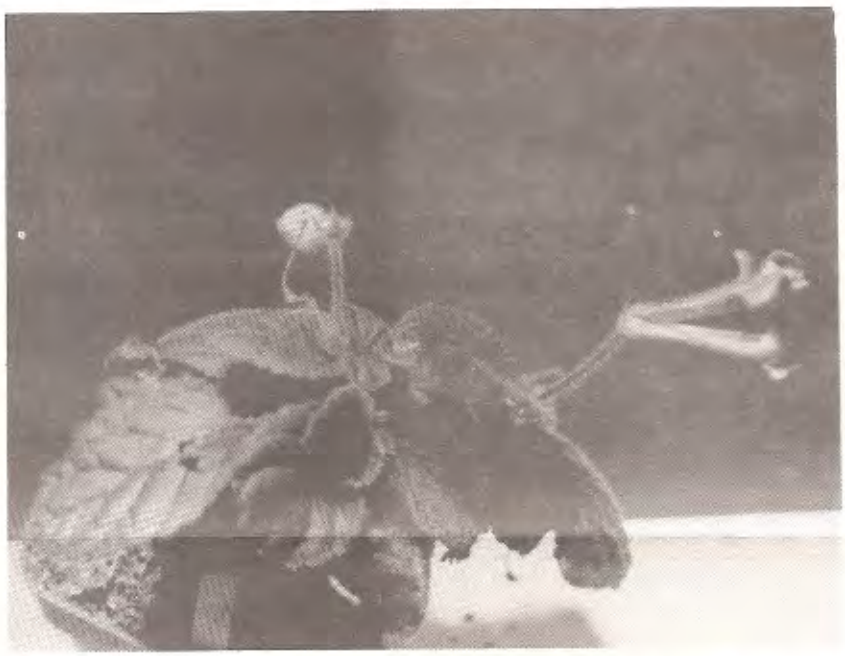
The growth habit is very symmetrical, with a straignt main stem and branches from the lower axils. The thick upright stem has prominent leaf scars, forming a ring around the stem. The dark green leaves have a bronze cast. They are 15 cm. long by 8.5 cm. wide. The leaves are ovate, with a sharp tip, the base somewhat decurrent. The margin is serrate. The yellow-green calyx is tubular, 2.3 cm. long, split into 5 sepals for about a third of the length. The edges of the sepals have a dark red-brown margin. The corolla tube is 3 cm. long, RHS 16B (Chinese yellow). The lobes are rounded, even in size, 35B (brick red) at the edge, merging to 39A (jasper red) near the open throat. Individual flowers last for almost a week.★

MORE SPORTED SINNINGIAS

Hugh L. Heiler, 80 First Ave., Lindenwold, N.J. 08021

I have been growing mini Sinningias for some 5 years and have accumulated some 140 varieties and still looking for more.

You had requested in the article on sported Sinningias ("CrossWords," Vol. VII, issue 3) if any of us have had any unique happenings to share them. I have had two situations which have occurred to me.



I had plants of S. 'Wine Dollbaby' and S. 'Winkie' produce peloric blooms. Flowers are almost white with slightly tinted violet petal edges. I have tried to propagate the crowns, but have not had success in growing them on.

One of my pink varieties, I believe it was S. 'Patty Ann,' grew what appears to be two flowers on the end of one stem (see photo). The flowers were complete except for the top portion of the tube on the bottom flower and bottom portion of the tube on the top flower. The center of the tube was open. This never happened before or since.

Georgie Bull from White Rock, British Columbia, sent me this photo of a peloric bloom on one of her F2 plants of S. 'Carefree's Regina.' Note the difference between the four-lobed, upright peloric bloom and the normal bloom on the left.

- Al Wojcik

INTRODUCING SINNINGIA 'DYMPH'

By Dave Zaitlin

Shortly after moving to Ithaca, New York I was given a small sinningia by Jim Steuerlein, a Cornell undergraduate and a dedicated, generous sinningia grower. The plant, with which I am now quite familiar, is known as S. 'Dymph,' and was first grown by him in 1980 which he was in high school. 'Dymph' resulted from the cross S. 'Purple Beauty' X S. pusilla (pollen parent), and has characteristics intermediate of both parents. Essentially, 'Dymph' resembles a large S. pusilla due to the red veination of the leaves and the fact that it tends to produce multiple crowns. It is much more floriferous than S. 'Purple Beauty,' and is also more vigorous and compact. The flowers are produced singly from the leaf axils and are again similar to those of S. pusilla, but are of a deeper red-purple. The overall dimensions of the plant are: Largest leaves - 30 x 35 mm; flowers - up to 20 mm long (tube) and 20 mm wide (across the limb) on 50 mm pedicels.

Despite its genetic heritage (tetraploid X diploid) S. 'Dymph' has proven to be slightly fertile and has accepted pollen from a number of sinningia species and hybrids. Seedlings have been produced from crosses involving S. pusilla, 'White Sprite,' S. concinna, S. 'Pink Eumorpha,' S. discolor (imagine that), and almost any tetraploid miniature used so far. S. 'Dymph' does produce pollen, but it has never been used successfully in any cross, and the plant itself has never been selfed. The progeny of S. 'Dymph' range in size from plants almost as small as S. pusilla to some much larger, almost as large as S. 'Dollbaby.'

Fertility of the progeny is generally low, and is quite low in the smaller, more compact plants. Of the crosses involving diploid pollen parents, the most unusual so far is a single plant of S. 'Dymph' X S. concinna. This unnamed hybrid grows slowly and only vaguely resembles S. concinna in that the foliage is small and darkly colored. The flowers are produced singly, are dark purple with some markings in the throat, and have proportions generally like those of S. 'Bright Eyes.' Most striking is the way in which the flowers are displayed — they are held so erect that the limb is perfectly horizontal.

Jim is presently in the process of registering Sinningia 'Dymph' with the hope that it may soon be distributed. As cuttings root quite easily, he usually has a good stock of mature plants on hand at any one time. Those of you who feel that you must have S. 'Dymph' could try writing directly to him. His address is: Jim Steuerlein, 218 Risley Hall, Cornell University, Ithaca, New York 14853.★

SAINTPAULIA SEED IN SPACE

By Al Wojcik, Bloomingdale, Ill.

In the Spring of 1983, the George W. Park Seed Co. of Greenwood, S.C., participated in a unique experiment. Earlier that year NASA (the National Aeronautics and Space Administration), in order to promote the commercial and private use of the space shuttles, had begun a program called the "Get Away Special." Under this program NASA sold containers aboard one of their space shuttles for experimental use by any company or individual. The containers would be carried aloft in the shuttle's cargo bay area and could contain any type of experiment the purchaser desired.

Researchers do know that the absence of gravity doesn't appear to affect the germination rate of seeds. However, the Park Seed Co. wanted to test the effects of temperature fluctuations, vacuum and radiation. The Park Seed Co. purchased a container aboard the shuttle Challenger and used it to test the effect of exposure to space conditions on the germination rates of various flower and vegetable seeds and to develop even better methods of packaging.

I had been receiving the Park catalog for years, and knew they had some gesneriad seeds listed, among them Aeschynanthus, Columnea, Sinningia and Saintpaulia. After reading of Park's space experiment, I wrote a letter in September of 1983 to Dr. Jim Alston, Director of Research at Park Seed Co. I requested more information about the kinds of seeds that were included in the space experiment, with the hope that there were some gesneriads among them.

Dr. Alston responded with a letter containing a brief summary of the experiment, a list of all seeds available and a request for a short experimental proposal for review. I was pleased to see that included in the list of available experimental seed was Saintpaulia `Fantasy Mix.' The only supplier of Saintpaulia seed to the Park Seed Co. (and other seed companies) is Dr. Ronn Nadeau of the Nadeau Saintpaulia Seed Co., so I knew the seed would produce high-quality and interesting plants. The name `Fantasy Mix' does not, however, imply plants with the fantasy or speckled-type blooms. Park uses the name to denote a mixture of many colors, mostly solids and bi-colors judging from the illustration in their catalog.

I then prepared a proposal in which I stated that my experiment would focus on determining the percent of germination among the Saintpaulia seeds, as well as a careful examination of all resulting seedlings grown from exposed seeds to determine whether the seed produced any plants with different characteristics, like more cold tolerance.

I sent Dr. Alston my proposal, and he responded favorably on October 10, 1983. I received several envelopes of Saintpaulia seed, along with a note from Dr. Alston that said, "Your experiment sounds very interesting. Will be looking forward to seeing the results."

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Before I begin describing my experiment, I'd like to explain a little more about the Park Seed Co. "space seed" project.

33 varieties of various flower and food seeds, many developed exclusively by the Park Seed Co., were subjected to four different environments aboard the shuttle Challenger and on the ground:

1 - Some seed lots were placed in the sealed portion of the flight container onboard the Challenger. This section of the container was maintained at one atmosphere of normal pressure and was never directly exposed to space.

2 - Another group of seed was placed in the vented portion of the flight container that was exposed, through a molecular filter, to the environment of space ambient pressure.

3 - A control group was kept in the Park Seed storage facility in Greenwood, South Carolina.

4 - A second control group traveled to the Kennedy Space Center in Florida and remained in air-conditioned storage.

There were two packaging tecnniques used for the seeds. One group was contained in Dacron bags to allow for maximum exposure to the vacuum of space. The second group was packaged in Park's own vacuum-sealed polyethylene-coated aluminum foil retort pouches.

The launch was at 1:30 p.m. EST on April 4, 1983 and landing was at 2:37 p.m. EST on April 9. The shuttle landed at Edwards Air Force Base in California. The seeds in the vented part of the container were exposed to the raw vacuum of space while the ones in the sealed portion were not. Unfortunately, I was not able to find out exactly how long the seeds were exposed to space conditions, but it is doubtful the exposed seeds received much radiation. The aluminum container nolding the exposed seed was inside NASA's larger flight container and was vented through a molecular filter.

Upon reentry, temperatures inside the container (measured by passive detectors) reached 140 degrees F. According to Dr. Alston, "We did not experience any damage, either physical damage or a major reduction in germination from sending the seed up." However, the corn seed had a 10% drop in germination, but it was the only crop that showed a significant germination decrease. "We have completed our second germination run and there was not a drop in germination percentages which indicates that there was no substantial damage to the seeds. We plan to run germinations over the next three years."

In order to study the effect of space exposure on Saintpaulia seeds, my proposal consisted of dividing the seeds into various groups and subjecting them to different germination conditions. Because Saintpaulia has always exhibited a fairly high degree of mutability (which is the reason for the plentiful variety of present-day hybrids), it seemed possible to me that seed exposed to

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the unfavorable conditions in space may produce plants that could tolerate narsher growing conditions on Earth.

I did not really expect to find any mutations among the plants grown from exposed seed, since most mutations are produced from growth arising from a single cell. Since seeds are multi-celled, the chances of any significant mutations showing up in the resulting mature plants were small.

I proposed to divide the seeds into two categories subjected to two different germination conditions: The first group would be provided optimum conditions for germination. The second group would be given much less ideal conditions. Careful records would be kept as to percent of germination, vigor and growth rate of the seedlings, etc.

For the germination studies, the seed lots were divided into 12 separate, sterilized agar nutrient culture disnes specially prepared for optimum nutrient content. Because I would be dealing with 12 different Saintpaulia seed lots altogetner, I had to come up with a system for quickly identifying eacn one. Rather than just give each lot a number, I decided to incorporate the information about each lot into its name.

The following explains what each letter of the lot name means:

The first letter:
X = Seed from the exposed portion of the flight container
S = Seed from the sealed portion of the flight container
C = Seed from the control groups, one at Park Seed neadquarters in South Carolina (designated "PS") and the other in an air-conditioned room at NASA headquarters in Cape Canaveral, Florida ("NASA").

The second letter:
F = Seed packaged in Park's own foil packets
D = Seed packaged in Dacron fabric bags

The third letter:
C = Germination took place under cool conditions (65 degrees F., 10-20% humidity)
W = Germination took place under warm conditions (80 degrees F., 60-70% humidity)

Therefore, seed lot X-F-C contained seed exposed to space, contained within a foil Park Seed packet and germinated under cool conditions.

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The following is a list of all 12 seed lots:

Lot #1 — X-F-C Exposed to space, foil packet, cool conditions
Lot #2 — X-F-W " " warm conditions
Lot #3 — S-F-C Sealed portion, " cool conditions
Lot #4 — S-F-W " " warm conditions
Lot #5 — X-D-C Exposed to space, Dacron bag, cool conditions
Lot #6 — X-D-W " " warm conditions
Lot #7 — S-D-C Sealed portion, " cool conditions
Lot #8 — S-D-W " " warm conditions
Lot #9 — C-NASA-D-C Control group, NASA, Dacron bag, cool conditions
Lot #10 — C-NASA-D-W " " " warm conditions
Lot #11 — C-PS-D-C " Park Seed " cool conditions
Lot #12 — C-PS-D-W " " " warm conditions

Each of these lots contained approximately 20 seeds. Nutrient agar dishes were prepared and the seed was sown on December 3, 1983.

The lots that were subjected to cool germination conditions were placed on the bottom shelf of a light stand, approximately 6 inches from the lights. The average daytime temperature was 65 degrees, with a drop of 5 degrees at night. Shelf lights (cool/warm flourescent) were kept burning for 16 hours a day.

Lots in the warm group were placed on the top shelf where temperatures averaged 80 degrees, again with a 5 degree drop at night.

The next chart shows the number of germinating seeds (out of a total of 20) from each lot over the next 26 days:

Lot # (approx. 20 seeds in each lot)	# of Germinated Seeds							
	9 days	12	15	17	19	21	23	26
Lot #1 — X-F-C	0	1	2	5	8	10	10	11
Lot #2 — X-F-W	0	2	4	6	8	9	9	9
Lot #3 — S-F-C	0	2	3	9	10	12	12	13
Lot #4 — S-F-W	0	0	1	4	6	7	7	7
Lot #5 — X-D-C	0	1	1	5	7	8	9	9
Lot #6 — X-D-W	0	1	2	4	6	8	8	9
Lot #7 — S-D-C	0	2	4	5	7	9	9	9
Lot #8 — S-D-W	0	3	3	7	10	12	12	14
Lot #9 — C-NASA-D-C	0	1	3	4	7	8	8	9
Lot #10 — C-NASA-D-W	2	4	5	9	14	15	15	16
Lot #11 — C-PS-D-C	0	2	3	3	6	6	6	6
Lot #12 — C-PS-D-W	0	2	4	7	10	10	11	12

After the 26th day, there was no further germination from either group.

From the beginning, it became apparent that some seed lots given warm conditions nad a slightly better rate of germination than the seed lots given cool conditions. Of some significance was the fact that the seed lots of the control groups showed what could be considered a normal preference for warm germination conditions. In the case of the "PS" control group, germination was 50% better when

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subjected to a warm environment. However, among the other seed lots, the temperature at which they were germinated seemed to make less difference. In particular, there is no difference at all between germination rates of the X-D-W and X-D-C seed lots.

After 35 days, the seedlings were all showing their first pair of true leaves. At 50 days, the seedlings were removed from the agar dishes and planted into 2 inch pots using a standard 3-2-1 mixture. The pots with the transplants from the cool and warm groups were kept separated into the same conditions under which they were germinated. The seedlings were watered and fertilized every week with a half-strength solution of Peter's Special.

In January of 1984, I began to prepare for a move from Michigan to Illinois and a new job. Faced with the prospect of trying to transport 124 Saintpaulia seedlings, along with my complete gesneriad collection, I decided it was time to dispose of the Saintpaulias that were part of the two control groups. I felt I was familiar enough with the culture and growth habits of Saintpaulia to determine if seedlings from the remaining lots that were sent into space produced anything significant.

During the move to Illinois, I carried all of my collection in my car. The trip took about 6 hours - on a very cold day in February. In the rush to get situated in my new apartment, the boxes of plants remained untouched for several days. During this time, temperatures remained on the cool side, as low as 55 degrees at night. Once I had my plant stands set up again, and as I began unpacking the plants, the damage to the Saintpaulia seedlings became apparent. Of the group grown under warm conditions, the plant loss was significant. Of the approximately 40 warm-grown plants, only 2 remained alive. Shortly thereafter these two warm-grown plants succumbed to a fungal disease and were discarded. However, there was little loss among the cool-grown seedlings. Out of 39 plants, there were only three losses.

The remaining cool-grown seedlings, now 4 inches across, were transplanted into 3 inch pots, and they all continued growing quite well. In addition, there appeared to be no sign of mutations, at least in leaf form and structure.

At this point, late in March, I decided to subject the cool-grown seedlings to even harsher conditions in order to find out which plants would be most tolerant. I removed the 36 plants from their protective plastic boxes and placed them on a board resting on the floor, near a window. They received sufficient light from a four-foot fixture. Temperatures on the floor ranged from a high of 60 degrees during the day, to as low as 50 degrees at night, with great daily fluctuations depending on the outside weather.

Humidity ranged as low as 20%, and the plants were allowed to dry out to the point of wilting. As expected, there were some losses. In fact, after four weeks, only three plants were left. These plants were all from the X-D-C lot (Exposed to space in a Dacron bag and germinated under cool conditions). I decided to begin

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regular watering in order to preserve these last three plants. These plants were named X-D-C-1, X-D-C-2 and X-D-C-3

In June of 1984, the three plants began setting buds and produced blooms shortly thereafter. Two of the plants (X-D-C-1 and X-D-C-3) were standard-type, with a span of 10 inches and light pink single blooms. The third (X-D-C-2) had a span of 11 inches and had single white blooms with purple/blue edging. The two pink-flowering plants had dark, tailored foliage with red backing. The white and purple blooming plant had light green, girl-type foliage.

I continued regular waterings with a very weak fertilizer solution every month, and these three plants continued to produce masses of blooms. I made it a point not to pamper the plants, even allowing them to dry out completely occasionally. They continued to bloom. During the summer of 1984, I began rooting leaves of all three plants. They rooted well and produced plants identical to the parents. They too received no special attention and began blooming five months after rooting.

Since the summer of 1984, the three original plants have never been without blooms. Their vegetative offspring have continued to do well also. They are all still growing on the floor near the window with a minimum of attention.

CONCLUSIONS

The main conclusion derived from this experiment is that there seemed to be no significant decrease in the germination rate of Saintpaulia seed sent into outer space compared to seed in the control groups kept on earth. There does appear to be a slight difference in the germination rates between the space seed packaged in Dacron bags and Park's own foil pouches, but not enough to state definitely that the pouches made a difference.

It would be nice to be able to state categorically that these plants, because of their exposure to space, can tolerate much cooler temperatures and lower humidity than most Saintpaulia plants. I think that is not the case. I believe that, since they had been germinated and grown under cool conditions, they were better able to adjust to harsher conditions later on. What is puzzling is the difference in the initial germination rates between the control groups (which seemed to definitely prefer a warm germination temperature) and the groups sent into space (and for which different temperatures made little difference in germination rates.)

Though my experiment was not very scientific, I think it showed how adaptable Saintpaulia plants can be. Given a chance to acclimate properly, they proved quite adept at adjusting to a wide variety of growing conditions.

If anyone would like a leaf from any of the remaining plants to try out, please drop me a note at my address on the back page. I would be curious to know if you reach similar conclusions.

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