CROSS WORDS

THE GESNERIAD HYBRIDIZERS ASSOCIATION

NEWSLETTER

VOLUME NUMBER 1 ISSUE NUMBER 2 SUMMER 1977

DIRECTOR'S MESSAGE

We have made our first membership goal. At this time there are over 100 members of GHA. The importance of the number involved is in the increased probability of having more members who will participate. This is in a way a coordinated centralized round robin with this exception, if you do not contribute your part, the newsletter goes on anyhow. But if the entire membership has this attitude we won't get the dividends of shared experience that we hoped for.

Issue 1 was mainly an effort to interest people in the GHA concept. Issue 2 is aimed at membership participation. We will always be ready to change the format to suit conditions. The professional members and the highly skilled amateurs will surely provide us with technical articles and articles suggesting ways to test our abilities.

Starting in this issue, we are going to attempt to teach the inexperienced how to regain recessives that are seemingly lost at f1. Follow this project step by step and report progress; we'll publish it as a group progress report. Also, we have included a survey to establish the most popular genera for hybridizing, and a survey to find the median experience level.

We will need 100% participation in the survey. The most obvious reason other than the above is to find out if anyone is reading this Newsletter. Plus we plan to count no reply as a vote of indifference and will take it as a hint to cease publication at the end of 1977. Any reply to the survey will be counted as a vote for the continuation of publication through 1978.

I must now thank all the generous people who sent far more than the membership fee with their good wishes for a successful gesneriad hybridizers newsletter and association.

See you at the A.G.G.S. convention. Mel Sater said there will be a notice at the registration desk of a meeting place for GHA members. We sent a $25.00 check to Isla Montgomery, Awards Chairman: "For the best new hybrid, not yet introduced, shown by the hybridizer". This is a personal award, to promote hybridizing and the GHA.

Art Belanger

Director, G.H.A.

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SINNINGIAS - FAST EXPERIENCE FOR BEGINNERS.

Peg Belanger, Warwick, RI

The purpose of this article is two-fold. To prove: that anyone, even though more familiar with growing plants than writing about them, is capable of writing about experiences encountered in caring for them; "fast" is relative.

For those who were looking forward to an article which would tell them: how to dab pollen from one flower to another, harvest seeds from that 'brief encounter', plant and grow them to maturity, and then be lucky enough to make the selection of a plant which could be immediately registered...sorry, but it takes a lot more than just that, not only in time, but in effort. But it will be well worth it. I hope that by writing about what I have learned, I have helped someone else to save a bit of time or effort.

The very first time that I realized what a stigma was for, it was on a Sinningia then known as, 'Park's Dwarf Gloxinia f1'. I simply applied pollen to it from a nearby plant of the same type, slightly different color, using my thumbnail. I am more sophisticated now and use disposable toothpicks dipped in India Ink. Later, when the pod had matured, I planted 10 - 20 seeds and got many varied blossom colors. I simply could not understand how this could possibly be the result from the parents which I had used. That is when I began to search for available information on hybridizing, and joined the AGGS mentioned in the book about Gloxinias, by Peggy Schultz, and "Flourescent Light Gardening" by Elaine Cherry. The effect was like rolling a snowball, each reference gave another source.

I chose the miniature Sinningias for my first hybridizing because I enjoyed growing and showing them, and because their compactness (in comparison to other Gesneriads) would require less space to grow the succeeding generations. At first, I found it great fun being involved in the simple crossing of two plants, with nothing more in mind than testing the possibility that it actually could be done. But, in gaining familiarity with the peculiarities of some Sinningia traits, (especially when I noticed that the dormant time was equal to, or surpassed, the growing and showing time), I found that I wondered "Is that all there is?" The actual life cycle of many Sinningias make them rather a nuisance at times, as when they become a bit old and unsightly, their tops must be removed. Then the tuber must be stored so that it rests until it (hopefully) re-sprouts. So it was not too long before I had learned to become more selective of the plants which I planned to use for parents. Starting with good healthy stock is certainly one of the most important steps in obtaining good hybrids. Whenever there is a chance to choose between several plants, take the one which blooms the most, of course, but also look for the one which may be superior in that it sends up another plantlet before the old top has to be removed. Having recurring bloom is an advantageous trait to pass along the hybrid line. This 'pick and choose' game goes on indefinitely, down the generations. To illustrate, following is the diary of S. 'Silhouette', registered in 1976:

Two of my favorite miniature Sinningias are S. 'Cindy-ella', and S. 'Pink Imp', both prolific bloomers, with repeat growth habit. It seemed to me that the large spotted flower of the one, combined with the delicate pink of the other, plus the almost constant flowering, could yield a superior plant. I applied pollen of S. 'Pink Imp' to the stigma of S. 'Cindy-ella'.

(Cont.).

This was after very carefully emasculating at early bud stage, as illustrated*; then waiting two days to check that the corolla did not slip off easily, which would indicate that the plant had already voluntarily selfed. (We lost much time previously, when, after 'crossing' S. 'Dollbaby' with S. 'Snowflake', we found ourselves with hundreds of S. 'Dollbaby' plants, only explained by the 'volunteer' bit). This cross, written as" S. 'Cindy-ella' x S. 'Pink Imp', f1," resulted in plants with red-purple flowers and deep red throat, and they were but weakly fertile. That was where I learned the hybridizing term, STERILITY, in capital letters because it has become the Nemesis of our Sinningia breeding programs. There are other terms such as diploid, triploid, tetraploid, etc., about which we are in hopes that some of our scientific members will be writing about in future issues of CROSSWORDS. I was just about to give up hopes of ever getting seeds from the cross as plant after plant refused to set a pod. It was only with persistence, (another word for making 50 or so attempts) that I managed to set seeds on the best bloomer. From this next group of seedlings, known as f2's, came variations of the f1 group, and they were generally either sterile as a rock, or very weakly fertile. However, there was also one plant with flowers of startling white with a red-purple spot in the throat. Naturally this wonder proved to be completely sterile, a slow grower, and a poor bloomer. We call it S. 'Misty', and grow it as a pet. Probably the best of that lot was the one registered as S. 'Silhouette'. This one has flowers with ruffled limb of dark purple, darker red purple throat, flat symmetrical foliage and it was also very nearly sterile. Since this one showed promise of being a heavy bloomer and a good show plant, we thought it would be worth the effort of back-crossing. We found that going back to S. 'Cindy-ella' was the key to fertility, but it also strengthened the genes of that particular parent so that succeeding generations so far have resulted not only in a good percentage of S. 'Silhouette' seedlings, but also a percentage of the S. 'Cindy-ella' type. That is the reason S. 'Silhouette' will not be introduced commercially until the seed line is pedigreed. We are also at present testing the seed of S. 'Splashes' a large flowered colorful selection from this same backcross.

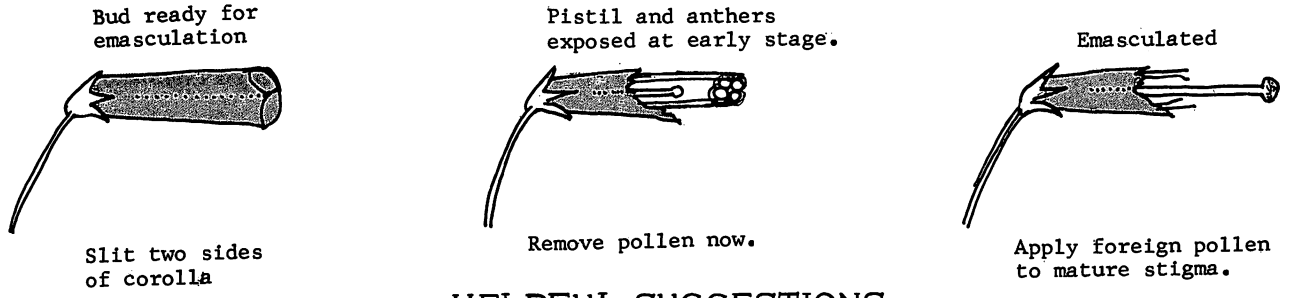
Repeating known crosses may not give the same result as obtained previously. Our own S. pusilla x S. eumorpha was only half the size of S. 'Dollbaby'. Basic crosses can be interesting. One of our favorite hybrids still is one of the first made after reading Dr. Clayberg's article in the Brooklyn Botanic Gardens Handbook #53, page 53. Unlike the description of his crossing of S. cardinalis x S. canescens (leuctricha), ours called S. 'Lucy' for convenience, generally had larger leaves than either of the parents at f1, though some of the f2's were more delicate. One of the second generation was noticeably different than all the others. When about 6 inches high, the plant consisted of 6 large pale green hairy leaves, and then sent up a bloom stalk, diameter about thumb size, green and very furry, with a cluster of small leaves and bright red tubular flowers the size of S. cardinalis at the ends. Our plan for S. 'Lucy' is to incorporate it into our breeding program as a bridge with some of the smaller Sinningia species. So far although we have been able to obtain seeds from a cross of it with S. 'Snowflake' which seemed to be plump and good, when checked with a 10 power glass, none have germinated. This shows that even a carefully thought out program can run into problems. But as it is my habit to divide any one batch of seeds into several, I still have more chances to get seedlings.

(Cont.).

SINNINGIAS (Cont.).

For another Sinningia hybrid we used the pollen from S. cardinalis 'Innocence' which bloomed on the window sill for nine months, always sending out a new plantlet just when the old one was spent. It was placed upon the stigma of a S. eumorpha which had a 6 inch tuber and has produced as many as 48 blossoms in a season. From the f2's (second filial generation) we chose the smallest, best blooming plants. An application of the pollen from S. macropoda brought a further hybrid effect of even more blossoms, yet the plant otherwise was unchanged; continued selection of the small best blooming f2's has brought forth plants which sometimes resprout continuously for many months before going dormant. This one was called S. 'Redbird'.

Our S. 'Redbird', and S. 'Lucy', and the hybrid from selections of them are taking a great deal of time to develop to the point where it can be said that they are compact and nearly year-round blooming. We are also trying to do the same with other hybrids using S. cardinalis 'Innocence' crossed with S. eumorpha and with S. richii, and it is interesting to see the desired traits combining in one plant. With what other genera could we get to the fourth generation within three years? Even if the end result of your hybridizing is non-commercial, you will certainly enjoy growing the plant more, because you really were involved in the mixing of the genes and nothing can top the pride, pleasure, and excitement when you show your HYBRID at a Chapter or Convention Show.



HELPFUL SUGGESTIONS

A Bausch & Lomb folding pocket magnifier (3x,4x) is recommended. It has a wide clear field of vision and you can use either lens or both together for the most magnification... Small jewelers tags to hang on the seed pods with name of pollen parent. A #0 litho needle, it comes premounted in a 6" long handle, and available at any art supply store. This is used to slit the corrolla and expose the vital parts....A box of wooden toothpicks; dip the ends of 50 or so in India ink (same art supply store) After they dry the toothpicks are used to apply pollen on only one cross and discarded. Pollen will stay viable for weeks on the end of a toothpick....Square $2\frac{1}{2}$ inch pots for the seed, and clear plastic shoe boxes to hold the humidity around the pots. 18 of these pots just fill 1 shoe box. Supply bottom heat, and lots of patience. Hybrid seeds often take far longer than species to germinate.

DEADLINE FOR ARTICLES, ANECDOTES, ETC., 30 DAYS BEFORE PUBLISHING DATE. Projected publishing dates are: March 1, June 1, Sept. 1, and Dec. 1.

PARAQUAT.....CAN IT CHANGE GESNERIADS

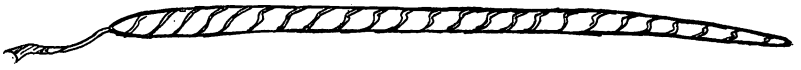
Don Nielson, Toppenish, Washington

In 1970 just as the tulips were starting to yellow I sprayed the annual weeds with Paraquat (weedkiller), since I did not have time to hoe. Three weeks later I sprayed the edge of the lawn but not the tulips. The application was heavier this time so I could kill the weak perennial weeds.

When they bloomed in 1971, the tulips were all varied in color. The reds became red and white mixtures. Yellows and oranges had changed to many varied mixes, yellow and red, yellow and white, orange and yellow, and brown and orange. All the solid colors in fact had become bi-colored. Seed from these tulips produced bi-colored progeny; none were solid colors.

PARAQUAT [1:1 dimethyl-4:4 bipindumdichonde] is produced by Ortho division of Chevron Chemical Co. It is produced in California and Hawaii also Perth Amboy, N.J. and Desmoines, Iowa. EPA reg. - #239-2186-AA. Here in Washington, Paraquat is used to remove the leaves from alfalfa just before seed harvest, also to kill weeds in the irrigation ditches.

It is my opinion that a soil treatment at a rate to be determined will cause color breaks in many of our flowering plants. My guess is that 2 drops in 1 Gallon of water and applied as a soil drench would be a good starting point. None of the Paraquat should be allowed to touch the leaves, $\frac{1}{2}$ pint diluted to cover 1 acre kills all leaves.



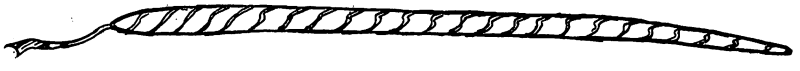
Beverly Van Ess....Cayton, OH

There is one point I think worth mentioning expecially for readers who are just making their first attempts at hybridizing. When a person of some experience happens to tell you that a particular something won't work, don't take this advice too seriously. I am just a beginner myself and have already proved many of these people wrong. Granted, some of my ideas may not be too practical for the commercial grower where time and space is of the essence, but they do work and provide a source of great enjoyment to the amateur collector in his own private garden and imagine the appreciation of friends to whom starts of unusual unknown plants are given.

In addition to the pollen exchange, what about seeds from new crosses? Most of the readers I'm sure will not want to give up their seeds, but there are two of us here who have been doing some interesting things and neither of us has the room to plant all these seeds and would like for someone to try them and report back to us on results so we can compare with what we have here. Areas we have been working in so far include Streptocarpus, miniature Sinningias and Episcias, we are working on others but seed has not yet matured, but should be available by the time next Crosswords is printed.

Thanks again for taking the iniative towards this worthwhile project.

Anyone interested in some of Beverly's seeds contact: Beverly Van Ess, 36 East Burton Ave., Cayton, OH 45405.



COMING IN THE FALL ISSUE.

Segregation: "Why the f2 and backcross generations are so important in plant breeding."

by PETER SHALIT

PARENTAGE of commercially introduced hybrids not yet to be found in existing gesneriad registers.

W.R. Saylor Cultivars

Aeschynanthus

'Bali'	(A23B)	A. pulcher x A. nummularius
'Mandalsy'	(A37A)	A. marmoratus x A. evrardii
'Red Cascade'	(A2F)	A. pulcher x A. micranthus
'Fireworks'	(A36C)	A 22 x A. evrardii
'Greensleeves'	(A21B)	A. tricolor x A. radicans
'Tiger Stripe'	(A11B)	A. tricolor x A. pulcher

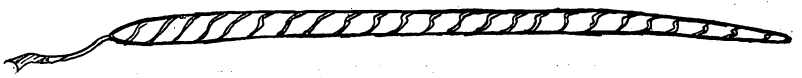
Columnea

'Pixie'	(C1D)	C. 'Yellow Dragon' x C. percrassa
'Sunny'	(C44A)	C. 'Yellow Dancer' x C. teuscheri
'Fanfare'	(C33A)	C. 'Joy' x C. moorei
'Christmas Carol'	(C31A)	C. 'Red Spur' x C. mortonii
'El Dorado'	(C60A)	C. 'Pixie' x (C. 'Yellow Dancer' x C. 'Flamingo')
'Campfire'	(C64B)	C24B x C. erythrophaea
'Autumn Leaves'	(C62B)	C. 'Pixie' x C. erythrophaea

Nematanthus

'Tropicana'	(H8)	N. perianthomegus x N. gregarius
'Rio'	(H1A)	N. gregarius x N. fissus
'Mardi Gras'	(2H1A)	N. 'Tropicana' x N. 'Rio'
'Black Magic'	(I9A)	N. wettsteinii x N. 'Stoplight'
'Green Magic'	(I9B)	N. wettsteinii x N. 'Stoplight'
'Sambo'	(2I17B)	I9B x I9A
'Cameo'	(2I16A)	I9B x I9C
'Moonglow'	(2I14B)	(N. perianthomegus x N. fritschii) x N. 'Black Magic'
'Butterscotch'	(2H6A)	N. strigillosus x N. 'Tropicana'
'Bijou'	(I8A)	N. wettsteinii x N. fritschii
'Cheerio'	(H7A)	N. gregarius x N. wettsteinii
'Castanet'	(2I14A)	(N. perianthomegus x N. fritschii) x N. 'Black Magic'
'Bambino'	(2I22A)	N. 'Bijou' selfed

A22 = A. micranthus x A. parviflorus
C24B = C. 'Early Bird' x C. 'Othello'



POLLEN FINDER

If anyone has Sinningia cardinalis 'George Kalmbacher' in bloom, please send some pollen to Peg or Art Belanger, 140 Howie Ave., Warwick, RI 02888. Pollen may be folded in note paper. It will survive very well as long as it remains dry, so be sure to remove it from the corolla and the filament.

AFRICAN VIOLETS AND TISSUE CULTURING

Peter C. Bilkey and A.C. Hildebrandt, University of Wisconsin

[The following excerpts are being reproduced by the kind permission of the African Violet Magazine, and the two authors noted above.]

A new breakthrough in African Violet research has occurred. Tissue culturing, a part of micropppropagation, is providing scientists with new methods for solving complex plant genetic problems; producing new hybrids asexually, and developing mass propagation techniques. Although tissue culturing is at an early stage of development, it provides an important potential tool for creating the first true yellow flowering African violet.

Tissue culturing is the process of growing and controlling live plants aseptically on an artificial culture medium containing all nutrients needed for good growth. The culture media, consisting of water, sugar and agar, contains fertilizers, trace elements, vitamins, and various hormones. Changes in the hormonal level forces the growing cells to either divide, forming callus, turn into a mass of roots, or sprout plantlets. Various sizes and shapes of culture vessels may be used, including tubes, flasks, jars, and bottles.

The number of plantlets that could be produced from a single cell is limitless. The method used is called mass micro-propagation and is a prelude to all other tissue culture research. As many as 20,000 plantlets have been produced from a single AV leaf.

Scientists are not always limited to using only leaf tissue to sprout plantlets. Violets have been propagated from flower stalks, anthers and even from flower petals.

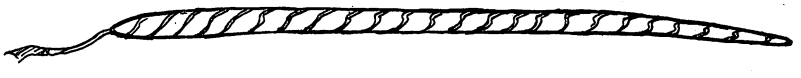
Plants from anthers have yielded haploids. Using haploid African Violets greatly facillitates such work as select chromosomal trans-plantations and asexual hybridization.

With the aid of tissue culturing, chromosome transplants are now considered possible. Culturing cells artificially provides a convenient stage for genetic research on live single cells. Transplanting chromosomes that affect a specific flower color, such as yellow, or flower fragrance, into a growing African violet cell may result in a golden, scented African violet.

Asexual hybridization involves taking haploid parent plants that have been produced by anther culturing, and growing their cells on an agar culture media. Once enzymes have been used to remove the cell walls, the two parent cells [protoplasts] are fused together. The cells contents then become mixed which doubles their chromosome count back to normal, and a new hybrid results. This hybrid cell is placed on fresh medium where it forms a new cell wall and grows rapidly. Adjusting the hormones in the medium triggers the hybrid cell to turn into a whole plant having the combination of both parents.

By using asexual hybridization techniques it may be possible to cross African violets with Episcias, violets with gloxinias, violets with many plants that could never before be crossed using conventional techniques.

Tremendous advances in the science of horticulture are occurring. With tissue culturing as a foundation tool, the future of horticulture is increasingly promising.



PLANT FINDER:

Carol and Bill Saylor would like to obtain a piece of, or information about a possible source of Streptocarpus cyanandrus, and S. johannis. Saylor, 1603 Old King's Highway, Brewster, Mass. 02631

A PROJECT FOR BEGINNERS

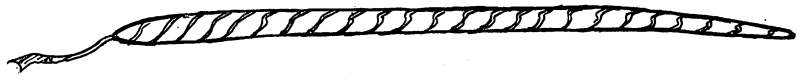
Peter Shalit, Ithica, NY

There are many members who profess to being new at hybridizing in general. I propose a simple project that all interested parties could participate in, and thus gain confidence in their abilities; in addition to producing a new kind of miniature Sinningia which is not normally available.

First, beg, buy, or steal one plant of Sinningia pusilla and one plant of S. pusilla 'Snowflake'. Since these two plants both belong to the same species, a cross between the two is intraspecific. When both plants come into bloom, cross-pollinate them. If you are not familiar with the mechanics of cross-pollination, read some of the references given in "A Note To Beginners" (CROSSWORDS I:1). Be sure to emasculate the female parent. You can use either plant as the female parent; however, I suggest that S. pusilla 'Snowflake' be used as the female (pod) parent and that the regular lavender S. pusilla be used as the male (pollen) parent. This is because the F1 (first generation) seedlings should all look like typical lavender S. pusilla, and if you used that one as the pod parent, you wouldn't be sure whether you had an accidental self or a bona fide cross.

Plant the F1 seed. There is no need to plant very much, as the F1 plants should all be identical. When they bloom, compare the appearance of the flower to that of normal S. pusilla, and see if you can detect any difference. Then self the flowers on the most vigorous F1 plant (s) to get a supply of F2 seed. Plant what you have room for, in plastic shoe boxes or equivalent, allowing about one square inch per plant. In the F2, you will retrieve the recessive floral characteristics (white color and fringed border) which did not appear in the F1 plants. However, these characteristics are inherited independently of each other. So the F2 will include all possible combinations of flower color and shape: lavender/plain and white/fringed (like the original parents), white/plain (like S. pusilla 'White Sprite'), and lavender/fringed (a new type). As each new F2 plant blooms, note down the appearance of the flowers; keep a record of how many plants you get of each kind in the F2. Send your results to our Director for publication in CROSSWORDS.

If you are interested in the theory behind this project, I suggest that you read an article by Bill Saylor: "Gesneriad Cross Roads" (The Gloxinian, Jan/Feb 1971, pp. 27-30. If you don't have this issue, it can be ordered for 75¢ from the AGGS Membership Secretary, Mrs. Charlotte M. Rowe, P.O. Box 174, New Milford, Connecticut 06776.) In a future issue of CROSSWORDS, I will discuss the theory behind this particular project, and how it can be used to predict what kinds of plants will appear in the F2 generation and how many of each kind there will be. Bill Saylor's article (noted above) provides the background for that discussion.



NUMBERING SYSTEMS FOR HYBRIDS

If you are already involved in hybridizing, how do you keep records? Do you have a numbering system for plants and for crosses? If you don't, do you feel satisfied working without a numbering system, or do you wish you had numbered your plants from the start? THE WINTER ISSUE (deadline Dec 1) will feature a section on record keeping and numbering systems. The size of the section will depend on how many people send in descriptions of their systems. Remember, if you get along fine without any numbering system, inform us of that too.

NEW HYBRID ANNOUNCEMENTS

We are offering the following example of hybrid announcements in hope that others will follow suit. It's advantage is that it will make the commercial segment of our organization aware of what hybrids are available or will be available in the near future. On the other hand, for the amateur with his new hybrid; remember a hybrid is not introduced until it is offered for sale to the general public in a dealer's catalogue. It may also save duplication of effort if the members could learn what's being done by others through the announcements on these pages.

Sinningia 'Star eyes'. (Snowflake' x 'Bright Eyes'). by Margaret Belanger, 1975. Leaf size and shape similar to S. pusilla. Flowers fringed like S. 'Snowflake'. Color light lavender blending to creamy white in the throat. (RHS color chart, Violet Group #84B). Limb 10mm across, corolla 16mm long. This plant is now blooming at F4 in the process of being pedigreed. The early difficulties with fertility are gone. Before release we plan to pedigree to at least 90% true to seed. First shown as part of a terrarium in the national show at the AGGS Washington Convention, 1976.

Sinningia 'Silhouette'. ('Pink Imp' x 'Cindy-ella'). by Margaret Belanger, 1975. Plant, low rosette to 12mm across, leaves dark green. Flower, tube 4cm long, limb 2cm wide. (RHS color chart, purple 77A). A very rich, dark purple, slightly ruffled lobes which overlap. Many difficulties with sterility at first, quite fertile now but needs a few more generations to pedigree the seed line. Best in class, (Gesneriads), at R.I.A.V.S. show, 1976. Properly grown it makes a good show plant.

Sinningia 'Splashes'. (Silhouette' x 'Cindy-ella'), by Margaret Belanger 1976. This back-cross was actually made to increase the fertility of 'Silhouette'. It was selected because of its fertility, fast growth, and striking flowers. It's basic color is purple #77A on the corolla, limb is splashed purple on white in blobs, dots, and dashes on the entire lower 3 lobes. The limb is 3cm wide which is noticeable when compared to either parent. The lobes overlap and are quite ruffled. At F3 this one is still throwing a kaleidoscope of color in varied dots and blobs. Maybe it should be called S. 'Surprise' and released as is. First shown as part of a terrarium in the national show at the AGGS Washington convention, 1976

Streptocarpus 'Poor Prince'....(S. parviflorous x S. rexii) Art Belanger, 1975.

Although the Streptocarpus register lists a cross of S. rexii x S. parviflorous, 1886, it is apparently extinct.

The following descriptions are from 2 year old plants growing in 4" tubs. Plant: rosette, overall dimension under 14". Leaf sizes variable, largest 8" long by 2½ wide; average leaf size 6" by 1½". It is a vigorous grower, more so than either parent, and tolerates low light intensity for growth and bloom. Recurrent bloom, heaviest in Jan. to June period, usually 2 blossoms to a pedicel. Color, RHS color chart Violet-blue group #91 A. Has 7 dark purple stripes in throat and on lower lobes. Corolla 4 cm long, limb 4 cm wide. Propagate by leaf cuttings.

The plant was well received at its first showing in a NECH little show.

(Cont.).

NEW HYBRID ANNOUNCEMENTS (Cont.).

Streptocarpus 'Good Hope', (S. stomandrus x S. saxorum), by Bill Saylor.
An Interesting New Streptocarpella Hybrid

The caulescent group of Streptocarpus, while much less flamboyant than many of its rosette-type relatives, includes a variety of species some of which produce quantities of light airy flowers ranging in color from white through shades of violet and blue to deep purple. Many members of this group have succulent stems and fleshy leaves and all are distinguished by having a chromosome number n=15 as compared with the number n=16 characteristic of very nearly all the rest of the genus. These caulescent, or stemmed, species are grouped together as the subgenus Streptocarpella, the remainder falling into the subgenus Streptocarpus.

I had grown only four of the caulescent species until recently - S. holstii, S. kirkii, S. nobilis, and S. saxorum. Soon these became categorized in my mind. S. saxorum was a nice hanger with graceful generous flowers but seemed to need a south window or the bright light of a greenhouse to bloom. S. nobilis threw nothing but seedpods from unopened flowers for me and besides was a rather gawky awkward-looking plant. S. kirkii was more compact and had quantities of dainty little lilac-blue flowers, while S. holstii was a rangy plant with attractive purple blooms shaped remarkably like small sweetpeas. It was not until I acquired S. stomandrus and became conscious of its many desirable characteristics * that I developed an urge to cross any of these.

There was very little to choose from, but S. saxorum and S. kirkii each had two or three flowers open at the time. S. stomandrus was used as pod parent, largely because it has a flower which is easy to emasculate and pollinate. In due course the pods matured, the seeds were planted, and the young plants were on their way. At the end of two months a subtle difference in the leaf characteristics of the two populations began to confirm the fact that at least one of the crosses had been made. Finally in about five months the first seedling from S. kirkii pollen bloomed--a blue-violet flower nearly the size and form of S. stomandrus and with pronounced dark lines in the throat (which are absent in S. kirkii). The plant habit appears so far to be similar to that of the parents and under my growing conditions I see very little difference among the three. Individual flowers are rather heavy for the delicate pedicels and buds frequently are broken off by their own weight just before opening.

Proof that the S. saxorum pollen had also taken was forthcoming in just a bit over five months when the first seedling from this cross came into flower. The corolla is about 40 mm long and 33 mm wide, blue-violet with a white throat accented by violet markings (absent in S. saxorum), and open wide with presentation even better than that of the pollen parent. Two to four buds are carried on long wiry peduncles originating in the upper leaf axils. The somewhat fleshy elliptic leaves are up to about 40 mm long by 30 mm wide. Habit so far appears to be spreading upright with a good probability that the plant will adapt itself readily to either hanging basket or shelf culture. It blooms readily under fluorescent lights. The flowers are self-fertile and have already produced a good crop of f2 seedlings.

This second hybrid displays such desirable characteristics that it has been decided to name it and introduce it. The African origin of its parents and the prospects for future development of other distinctive individuals from it make the name 'Good Hope' seem to be doubly appropriate.

* See Streptocarpus stomandrus by Peter Shalit THE GLOXINIAN Vol.26 No6 p4.

Frances N. Batcheller

Glossary for Hybridizers - Part I

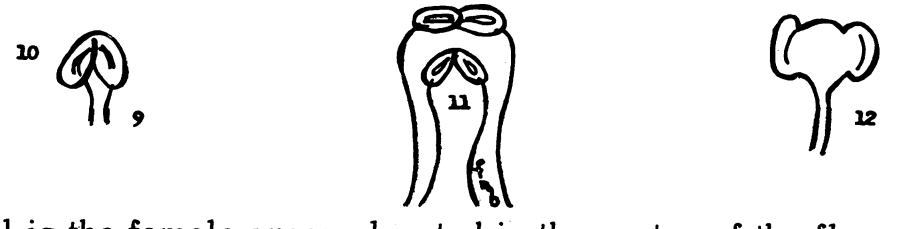
Parts of a Gesneriad Flower

The complete flower consists of 4 parts - calyx, corolla, stamens, and pistil.

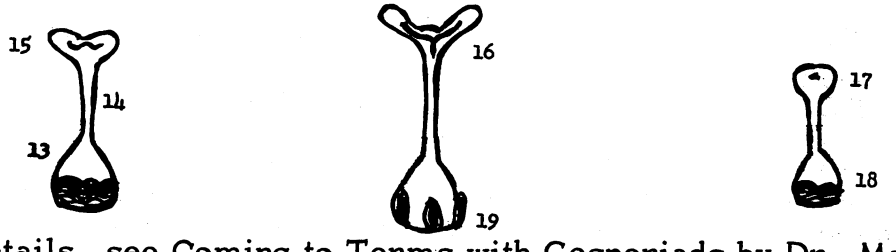
The calyx consists of 5 sepals. The sepals may be linear (Gloxinia sylvatica) (1); leaf-like (Drymonia) (2); or fused into a solid tube (Aeschynanthus radicans) (3); The calyx serves as a protective wrapper for the developing bud and sometimes encloses the ripening seed pod.

The corolla consists of 5, rarely 4, petals, fused at the base into a tube with a limb or border of lobes. The tube may be long and cylindrical (Gesneria cuneifolia) (4); or very short (Bellonia) (5). The limb may be wide and spreading (Achimenes longiflora) (6); reflexed, bent back (Nematanthus longipes) (7); or projected forward (Columnea tulae) (8).

The stamens are the male organs. A stamen consists of a stem, the filament (9); and the anther (10) with 2 sacs containing the pollen. The anther sacs release pollen, dehisce, usually by slits (most gesnerads); or by small holes or pores (Drymonia.) Anthers may be separate, distinct (Heppiella - rare in gesneriads) but are usually joined together, connate. They may form a ring (Sinningia); or a square (Columnea); or be joined in pairs with filaments of different length, didynamous (Aeschynanthus) (11). Most gesneriads have 4 stamens. Some Old World genera have only 2 (Streptocarpus). Cultivated forms may have additional stamens and corolla lobes. The connective is the continuation of the filament between the anther sacs. It is sometimes enlarged (Codonanthe) (12). A staminode is a sterile rudimentary stamen, usually without an anther.



The pistil is the female organ, located in the center of the flower. It consists of a base or ovary or carpel (13); a stem or neck, the style (14); and a mouth, the stigma. The stigma may be mouth-shaped, stomatomorphic (Koellikeria) (15); bi-lobed (Kohleria) (16); or capitate (Gesneria humilis) (17). The nectary is a disc (18) or series of 1 - 5 glands (19) surrounding the ovary. It serves to attract pollinators by secreting nectar. It does not occur in all gesneriads.



For more details, see Coming to Terms with Gesneriads by Dr. Margaret H. Stone, The Gloxinian, January/February, 1974.

QUESTIONS FROM INTERESTED MEMBERS.

Lee Linnett....Clinton, MD

Along with some fine suggestions included a question. Has anyone thought of introducing foliage pattern in mini-Sinningias, and if so using what plants as parents? My theory is that I expect most of my plants to be not in bloom most of the time due to their erratic grower so I would like to have pleasing foliage to look at.

Corinna Moulton Zirbel....Washington, CT.

I am wondering if others have experienced a situation similar to the one that developed this winter - a Sinningia which did not reflex its' lobes. In all other respects the plant has been very satisfactory - a well shaped upright, nicely formed leaves color deep red similar to Lyon's S. Rex. When the first flowers did not reflex I put the plant into a terrarium with high humidity, still the developing buds did not open, nor did it self itself as I thought it might. It needed assistance to develop a good seed pod. This plant clearly was one which came back from the last stop before the compost heap and in this way lost its identity and thus is sort of a mystery - a riddle. To give it identity I am calling it 'Tom Riddle'.

Is this failure to open its lobes an inherited one, a possible recessive on the order of the uprights mentioned by Bob Kelley?

Sue Lasswell....Edmonds, Wash.

I recently acquired a cutting of Columnea 'Tricolor'. It has variegated leaves. Has anyone used it in a cross? Did the seedlings show variegation?

Does Saintpaulia pusilla exist in cultivation?

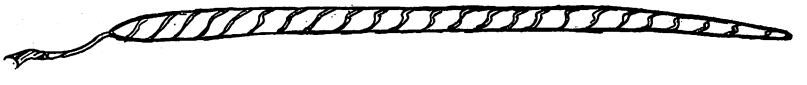
Frances Batcheller....Durham, N.H.

Has anyone produced a fertile hybrid using Columnea teuscheri, C. moorei, C. affinis, C. dissimilis, C. sanguinolenta, or C. purpureovittata as one parent?

From Ruth Zavitz....Ontario Canada

Will Saintpaulias hybridize with any of the other groups? I have never read of any such cross.

My own gesneriad seed usually germinates in about 10 days. Purchased seed takes 3-6 weeks. Why the difference? Does freshly gathered seed germinate faster? What is the expected life of gesneriad seed stored in the refrigerator? Is Sinningia Tinkerbells self sterile?

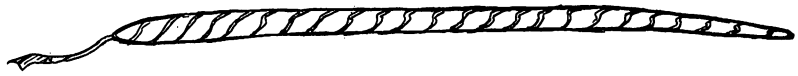


COMING IN THE FALL ISSUE!! THE COMMERCIAL VIEWPOINT:
Notes from a commercial grower.....by Vincent Flanders
JUST PLANTS, PO BOX 26193, Indianapolis, IN 46226

The rest of you commercial people are invited to join this discussion about what a commercial grower is looking for in new hybrids. Send in your viewpoint and we can have the commercial slant explained to the members. Your views could effect the choices made on seed and pollen parents by our members in the future.

Answer from....Frances Batcheller, Durham, N.H.

Variegation in Saintpaulia is transferred sexually only by using the variegated plant as female parent. The variegation is dependent on the green or white plastids not the chromosomes, which are inherited equally by male or female plants. The plastids are present only in the large egg cell, not in the much smaller pollen cell.



COMMENTS ON PELORIC SINNINGIAS

Peter Shalit, Ithica, NY

Bob Kelley (in CROSSWORDS I-1) reports finding an upright (peloric; radially symmetrical) flower on a plant of Sinningia 'Cupid's Doll'. This is something that seems to happen occasionally in the tetraploid miniature Sinningias. I have had it happen with various plants of S. 'Dollbaby', S. 'Connecticut Hybrids', and S. 'Purple Dollbaby'. Its incidence varies; I had a plant of S. 'Purple Dollbaby' that regularly produced these symmetrical flowers, at a rate of about one out of four blossoms. But then it stopped producing them and has not had a peloric bloom in more than a year.

As far as I know, selfing these peloric flowers does not stabilize the trait. I grew a batch of seedlings from one selfed peloric flower of S. 'Purple Dollbaby', but none had any radially symmetrical flowers. Genetically, I interpret the situation as follows:

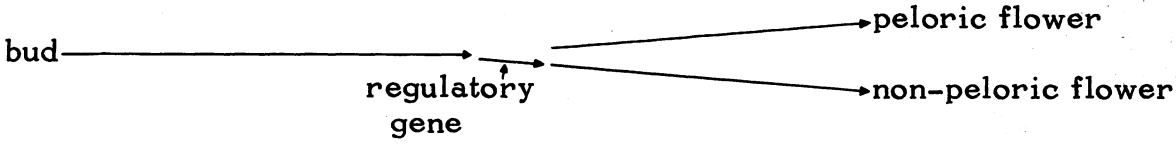
All Sinningias have the genetic ability to make either peloric (radially symmetrical) flowers or non-peloric (bilaterally symmetrical; hooded, or nodding) ones. There is a gene, called a regulatory gene, which at some point during bud development guides the flower to the path leading to a non-peloric flower, typical of the original species Sinningias. However, a mutation in this gene can permanently knock it out of commission; this means that the gene does not function properly to make the flower non-peloric, and in the absence of this genetic signal, the flower is peloric (see diagram). Such a mutation has occurred twice in Sinningia: in S. speciosa, forming the erect, "bell" or "trumpet" flower; and in S. cardinalis, producing the cultivar ' George Kalmbacher'. It may be that, in the tetraploid minis, the gene is not 100% efficient; every once in a while, it lets a flower slip by without influencing it, and that flower becomes peloric. Unfortunately, that form of the gene is nearly 100% efficient at causing non-peloric flowers, and selfing the flower does not alter that fact.

Incidentally, this unstable sort of peloria occurs in other gesneriad genera. Look at the centerfold photo of Columnea microphylla (The Gloxinian, March/April 1977, p. 21), and you will spot a couple of flared, peloric flowers on that plant. These arise in other genera (Streptocarpus for example), but are not stable. (However, there are radially symmetrical Saintpaulia flowers: eg., the "Star" varieties. Are these examples of the stable peloric gene?)

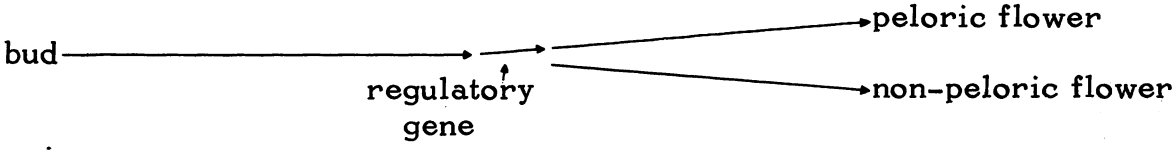
As Bill Saylor pointed out in Issue 1 of CROSSWORDS, the peloric trait found in Sinningia cardinalis 'George Kalmbacher' should be transferrable into other Sinningia species by crossing. I am presently working on this. My goal is to transfer the peloric gene into hybrids of S. eumorpha, which come in a wide range of colors and sizes. The two I am using are S. 'Purple Eumorpha', a large plant with lavender flowers, and S. 'Rex', a small, compact plant with large orange-red flowers. I presently have f2 seed, and this should produce plants with peloric flowers in a range of colors and sizes.

(Cont.).

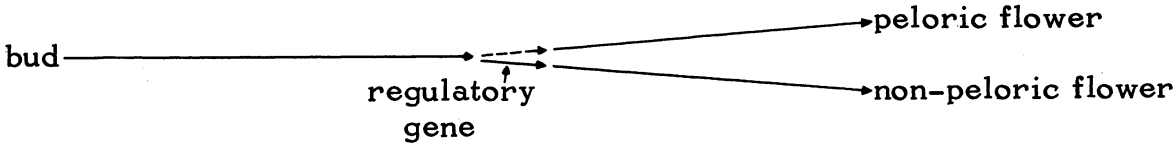
Flower Development in Sinningias



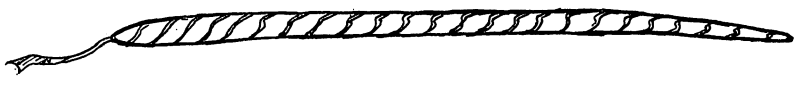
1) Normal development in a non-peloric plant



2) Development in a peloric plant (eg. S. cardinalis 'George Kalmbacher')



3) Occasionally the process jumps the track (as in S. 'Dollbaby') *



Some answers from Sue Lasswell, Edmonds, Washington

Variegation:

In plants the cells contain little bodies known as chloroplasts. These carry the chlorophyll necessary for photosynthesis. The plastids and their pigments are affected by mutation. Some of these mutant genes are transferable by ordinary crossing and are mappable by standard proceedures.

Some of the plastid characteristics do not behave in an ordinary manner. They are only transferable by the maternal parent. This is tested by reciprocal crossing and as noted in Saintpaulia the variegation is transmitted through the seed parent. This implies transmission through the cytoplasm. This is because the female gamete provides more cytoplasm to the seed than the male gamete.

The 'Tommie Lou' variegation seems different than the type that is decended from ' Wintergreen'.

(Ref: General Genetics by Srb, Owen and Edgar.)

Mutations:

If the mutations are gene controlled and reasonably stable they should be transferrable to F2. Selfing would consolidate the mutant gene so it could be singled out to test for dominance.

Algae:

Sterilization of soil would be a solution to algae. I use vermiculite for all my seedlings, a rather coarse grade.

G.H.A. STAFF 1977

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Anyone interested in taking on all or part of this task in 1978 please contact Art Belanger.

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GROUP PROJECT

Dr. Clayberg has suggested that we compile and publish a list of the member's preference of genera for hybridizing, along with name and address. Please fill out this form and mail back to us promptly as your part in this excercise. If you are a commercial member, include the name of your place of business and address.

Name Address City State Zipcode

Preferred genus Second choice Third choice

I have hybridized gesneriads.....[ ]
I want to learn about hybridizing.....[ ]

The purpose of the two bottom lines is to help us decide what kind of articles will suit the majority of the members.

GESNERIAD HYBRIDIZER'S ASSOCIATION MEMBERSHIP APPLICATION (OR RENEWAL)

Please enroll me as a member of the GHA. Enclosed find $3.00 for a years' membership and the GHA, Quarterly Newsletter. (based on the calendar year, 1977)

Name Address City State Zipcode

Make checks payable to Arthur Belanger, GHA. Latecomers will receive all previous newsletters of the year.

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