CROSSWORDS

THE GESNERIAD HYBRIDIZERS ASSOCIATION

NEWSLETTER

VOLUME NUMBER 1 ISSUE NUMBER 4 WINTER 1977

DIRECTOR'S MESSAGE

In the closing weeks of this year, it appears that the G.H.A. has finally established itself. The correspondence from the members increased to the point that we have a backlog of material to use in the Spring, 1978 issue. Keep it coming and we will have a healthy association. I think we have made commendable progress, and judging by the enthusiastic letters received in this past quarter, I think we have passed the crisis and are now on our way to an enjoyable future.

Enough! We started the year with the statement that the G.H.A. is a non-profit organization. We were right, we operated at a loss. However we did anticipate this and have covered the loss as our contribution toward the promotion of the G.H.A. and of CROSSWORDS. We still want to be a non-profit organization, but at the same time a non-loss organization. Therefore the DUES for 1978 will be FOUR DOLLARS. [$4.00]

Back to the purpose for our existence. You will find, featured on these pages, a long planned article by our Consultant, Peter Shalit. His article entitled, BEYOND THE F1, comes to grips with an explanation of one of our most important phases of hybridizing. In the article he says, "Once you go beyond the F1 generation, you become more than a dabbler."

In another feature article in this issue, written by one of the most enthusiastic hybridizers I know, Ted Bona says, "Just before you apply the pollen to a receptive stigma---you have the whole world in your hands". His article, SOMETHING OLD AND SOMETHING NEW---AND SINNINGIAS TOO, gives an insight into the mind of a very dedicated hybridizer. Timely too, because the Sinningias won by a large margin in the preference project.

We do hope you are all able to rejoin us next year, and wish you all the best in the coming year.

Art Belanger

Director, G.H.A.

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BEYOND THE F1

Peter Shalit, Seattle, Washington

Originally I was planning an article explaining Mendel's laws of segregation and independent assortment. But as I thought more about it, I decided that GHA members need a discussion of the consequences of these genetic principles themselves, and their application. If you are interested in the principles themselves, they are explained very clearly in two articles in The Gloxinian by Bill Saylor: Jan/Feb 1971, pp. 27-30, and May/June 1971, pp. 21-24.

Here I want to put across one point: That it is extremely important to carry hybridizing projects beyond the first generation. The real power of plant breeding comes after the F1 generation. Starting with two dissimilar parents, it is theoretically possible to create a hybrid with any conceivable combination of their characteristics, but at least two (and usually several) generations of breeding are needed to accomplish that. In one generation, the most one can hope for is a hybrid that is approximately intermediate between the parents.

When two true-breeding plants are crossed, their first-generation offspring should all be nearly identical to each other. Only a few need be grown. If the members of this F1 generation are distinctive and desireable, there is no reason not to name and release a cultivar from this batch of seedlings. However, the real fun begins in the next generation. If the F1 is reasonably fertile, there are two ways to get a second generation, which should provide for a great deal of variation among the progeny. So much variation, that you could grow dozens of seedlings from one pollination, and still have no two sibling plants identical.

Assuming the F1 generation is reasonably fertile in the usual sense, the simplest way to proceed is to self the F1 plants to get an F2. This gives the widest possible spectrum of variation. If the two original parents were reasonably different from each other, then the more F2 plants you can grow, the better. Grow fifty or a hundred, if you have the room. (Does anyone have that much room?)

Or you can make a backcross, which produces a narrower spectrum of variation and hence allows you to grow fewer plants. To make a backcross, cross an F1 plant with one of its parents. The seedlings from the backcross will resemble that parent more than the F1 seedlings did. However, the traits of the other original parent will be much less apparent than they were in the F1.

Chances are that neither the F2 nor the backcross generations will contain exactly the plant you want, even if you grow up many seedlings. At this point, what you should do is choose the plants that are closest to your goals, and work with them. Once you have the F2, your options are greatly increased. You can backcross F2 plants to the original parents or to the F1 plant. You can cross various F2 plants with each other. You can self certain F2 individuals. Anyway, my point is that by the time you have an F2 generation, you have much more variety to work with than if you stop at F1. ONCE YOU GO BEYOND THE F1 GENERATION, YOU BECOME MORE THAN A DABBLER.

But anyone who hopes to be more than a dabbler in plant breeding must also learn how to select the best plants from a batch of seedlings. The ability to ruthlessly discard all but the best is the hallmark of a successful plant breeder. If you have the room, by all means grow 100 seedling Episcias or Aeschynanthus from one F2 generation. But don't keep more than five or so, if that many! Otherwise, your project will grind to a halt in a glut of plants. So save only the seedlings which could make a contribution to future breeding stock, or even merit release themselves. Choose robust, showy individuals.

Chuck out the weaklings, unless they have that rare trait that you've been looking for.

To get an idea of the importance of selection, I suggest you read the book Luther Burbank: A Gardener Touched with Genius, by Peter Dyer. This is a recent, candid biography of one of the greatest practitioners of the art of selection. Burbank was neither a botanist nor a geneticist. He was a plant lover who made crosses right and left, and imported new stocks from around the world. His genius lay in his ability to throw most of his creations onto the bonfire, and only release the really superior ones. A proof of his success is the fact that some of his introductions are important commercial crops to this day. I found the book in my local public library; look for it in yours.

Among gesneriad cultivars, there are numerous examples of crosses taken beyond the F1. Bill Saylor's work with Nematanthus and Aeschynanthys is a good recent example. Now Bill is exploring Streptocarpus subgenus Streptocarpella, with the promise of more adventures there. Others have begun to attack the restructured genus Gloxinia, which provides one detailed example of what can happen in the mysterious realms beyond the F1. Laura Progebin describes in the Gloxinian (March/April 1976, pp 8-9) the creation of Gloxinia 'Chic'. First, Iris August made a cross between what are now called Gloxinia gymnostoma and G. sylvatica. Lyndon Lyon was given these F1 plants and then he (quoting from the article) "backcrossed and selfed the hybrid seedlings, and then used the results in making crosses with a seedling of the original cross. From the hybrids he selected the best of the reds from among the siblings and crossed with these to produce a stable, productive, compact...hybrid...The final result of all this work is a cultivar showing marked improvement of color, foliage, habit, and stamina." Let that be an example and goal for all of our efforts.

My discussion up to this point has been based on three assumptions. First, that the F1 plants are reasonably fertile; second, that the F1 plants are not made into allotetraploids; third, that the original parents were true-breeding. Now I would like to discuss what happens when one or more of these assumptions does not hold.

Lack of fertility in the F1 can be a vexing problem. It is worst in the extreme case: where two distantly-related plants are crossed, and the F1 is completely sterile. In such a case, fertility can be induced by using colchicine, but that will not bring out variation in the F2. Instead, all the F2 seedlings will be identical, since a colchicine-treated plant of that sort is an allotetraploid, and behaves just like a true-breeding species. Useful if you want a true-from-seed strain, but of little value in increasing the amount of variation in your breeding stock. (Examples: Sinningia 'Cindy-Ella', xAchimenantha 'Diamond Lil'.)

In other cases, fertility of an F1 hybrid may be low, but the plant may not be completely sterile. Such a plant may be difficult or impossible to self-pollinate; it may in fact produce no viable pollen. Try backcrossing it with one of the parents, or both of them. The backcross generation should be more fertile than the F1, and you can continue your project from there.

If you start off with parents that are not true-breeding, a lot of what I said early in this article goes out the window. When the original plants are not true-breeding, you are already beyond the F1. Someone (maybe you) has created a hybrid plant, and now you are taking things further. Hence you can expect much variation in any "F1" between two non-true-breeding plants. In fact, you can self a non-true-breeding cultivar and get a lot of different sorts of progeny. Some examples: Nematanthus hybrids; Achimenes hybrids; Sinningia speciosa cultivars; fancy-leaved episcias; and of course the African-Violet, Saintpaulia. I would imagine that very few Saintpaulia cultivars are true-breeding from seed. So when you cross two named Saintpaulia hybrids, you can expect all sorts of different plants in the "F1".

DEAR MEMBERS
Georgina Bull; Regina, Saskatchewan, Canada

Your newsletters have sent me flying to the library, reading to a sore eye condition and very pleased that this member will soon have some very pretty gesneriads and full knowledge of their parentage. The problem being that there are too few gesneriad growers in Canada. Some do give, at times, incorrect names to their plants. The local food marts do have some gesneriads all named the same, but different?? Oh dear the fun starts. But now with the information given thru the newsletter regarding new hybrids and their full parentage and details, one has some chance at naming their new plants properly and understanding how they got that way (oh! my dear, you do look like your father). We also do learn the PROPER way to cross and to keep data and help each other. GREAT.

Now in response to the newsletters--Group Project--Please allow a greenie to go along with the majority preferences. Have a Saintpaulia 'Regina' (our Carefree Gesneriad Society group project) it has variegated leaves, these have grown--three variegated, three green, the next set of leaves variegated. Now have taken one variegated and one green leaf and obtained plantlets, so far they appear to be like the leaf and the variegated should come green shouldn't they? However if the variegation remains and if the first plant continues to send out variegated leaves, will then use this and keeping the variegation article* in mind will try to obtain seed. But dear oh dear! Now what do I do for a proper plant for the show. Before going further, I would like to thank the AUTHORS who have sent in such GOOD and INFORMATIVE articles. These people are great and provide enjoyable reading and much help.

Regarding the beginners project--as yet have not found a source to obtain Sinningia pusilla and S.'Snowflake' and at present there is only S. 'White Sprite' and S. 'Krishna'for the Sinningia cross. Will keep trying but should it not be possible to obtain tubers then it will have to be seed and therefore a delay, which is trying, and our very cold season will soon be here, therefore another delay. The problem in Regina is no source of gesneriads except from the grocery stores and other members, but our society is only two years old and all of us are not quite as mad as this one. Steal?* By gum if there were a few people here with a large gesneriad collection, there would be a giant sized box of chocolates, wine and seeing the person well settled and then!

Do have seedlings of Sinningia as above and S. regina, S. 'Cupids Doll' and S. 'Little Imp' If you would be so kind, some one suggest a substitute project and please be aware that I need to do a great deal of beginners work before becoming too serious about new hybrids.

* Summer issue, Crosswords, 1977.

FROM Gene De Mars, Grand Rapids, MI

I would be interested in hearing from other members who are working with Dwarf Sinningia speciosa slippers. Also anyone who has seed from the 'Slippertime' strain.

GROUP PROJECT
Peter Shalit, 1579 NE 172nd. St., Seattle, WA 98155

In the Summer 1977 issue of CROSSWORDS, I suggested a quick, rewarding project for those who are new to hybridizing. It provides practice in emasculating flowers, pollinating them, growing seedlings, and getting an f2; and as a bonus, it produces a type of miniature Sinningia not otherwise available. I urge all those who may be interested to refer to that article and begin the project. So that I will know where we are headed, please drop me a postcard if you are trying the project, and tell me what stage you are at.

PROGRESS REPORT ON GROUP PROJECT
Peg Belanger, Warwick, RI

It sounded so easy to cross Sinningia 'Snowflake' x S. pusilla... the group project suggested in the Summer issue of CROSSWORDS. It also seemed it would be less time consuming to make this cross, than the S. 'Bright Eyes' x 'Snowflake' cross that I made with the same lavender fringe in mind.

I finally have seeds from S. 'Snowflake' x S. pusilla after at least 30 attempts; it was far more difficult than expected. I have to wait now for the F1 bloom to verify a "cross" by showing a plain lavender blossom from the white, fringed seed parent. A white fringed blossom would indicate an inadvertant selfing of the seed parent. Has anyone else had difficulty making the first cross, or given it up as seemingly impossible, after making a few attempts?

[CROSSWORDS is very interested in hearing positive or negative comments on this project.] I would really like to know if I am the only one who could not make the primary cross easily.

POLLEN WANTED
Mary Ann Johnson, 78 Truro St. Chicopee, MA 01013

I would be interested in obtaining pollen from Sinningia tubiflora, Bellonia spinosa, and Bellonia aspera.

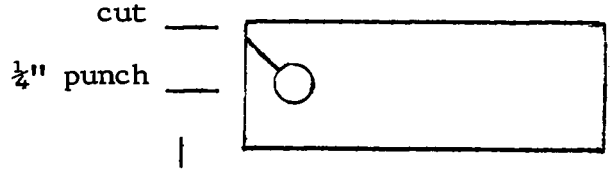
Also back in 1963 at the convention a pink flowered S. tubiflora was distributed. I lost the plant I had. I would like to obtain a cutting or some seed of this plant.

PROBLEM
Ruth Webster, Tilton, NH

I have a seed pod of what was Drymonia alloplectioides. It is like the Columneas, very moist and hard to dry out. It has not molded but it has been drying on the dining-room table for three weeks and still doesn't seem dry enough to separate the seeds. Do the seeds get too dry to germinate when exposed to air that long? How can I hurry the drying process without damaging the seeds?

IDENTIFYING CROSSES
Joseph L. Hargett, Ann Arbor, MI

I have a speedy way of identifying my crosses. I cut lengths of fairly sturdy paper 5 cm by 17 mm, punch a hole near one end, and cut the paper from the edge to the hole. The label allows me ample room to record pertinent data and will easily slip over individual flower stems.



RECORDING HYBRIDS
Jimmy Dates, DATES VIOLETRY, Sugar Grove, IL

My system of recording hybrids is similar to one in use in the 1950's at the University of Illinois.

The first digit in the identifying code is sequential, indicating the number of the cross. The second number indicates the year in which the cross was made. For instance, 1-77 indicates the first cross or seed pod planted from 1977; 2-77, the second one from 1977.

After germination, growth and blooming, the plants showing the best potential and the best commercial value are selected. These plants receive a third identifying number, indicating their position within each cross. For instance, prior to selection, each seedling in the first cross of 1977 would be 1-77. After selection, the first seedling is numbered 1-77-1, indicating it is the first plant of potential value in the first 1977 cross. The third digit, of course is also sequential.

Full records on each plant are kept in a card catalogue, which is sectioned into years. The card for 'Calico Wasp' (1-65-7) would show that this plant was a cross of 'Star Burst' (Lyon) 2-62-1 (later, 'Pink Wasp'). 'Pink Wasp' (2-62-1) was a result of 'Georgia Peach' x 1-57-2 (unnamed). Finally, 1-57-2 was from 'Georgia Peach' x 'Bustle'.

As a selected plant is proved and named, the name is entered in a log book with its assigned number. This provides a cross-reference system, permitting rapid availability of the complete background of each plant.

PARTICIPATION
Allen T. Hjelmfelt, Columbia, MO

I do wish I could write articles for CROSSWORDS. I am afraid that most of the readers have the same problem I do. We don't know what we are doing. My total experience with gesneriads is as follows:

My first try at seed propagation resulted in selfing Sinningia speciosa, 'Emperor Frederick'. I now have 'Emperor Frederick' running out of my ears. Florist gloxinias are very good to start with because all parts are well exposed. Next I tried crossing an unknown mini-gloxinia with an unknown florist type. Nothing happened; after reading CROSSWORDS I find that is what I should have expected. I am now working with several varieties of miniature gloxinias from Parks Seed Co. and making up a collection of gesneriads from various seed sources.

The result of all this is that I have nothing to discuss. CROSSWORDS is teaching me the botany that I should have learned before. It shows me that my failures are not all a result of my own ineptness. I will be happy to take on some of the GHA tasks if that will help.

(Allen just helped by illustrating how to write a short bit for us all to enjoy). ed.

WE SENT OUR MEMBERSHIP LIST TO PURDUE U. WE CONSIDERED THE BROCHURE YOU WOULD RECEIVE TO BE OF THE UTMOST INTEREST TO OUR MEMBERS. IF YOU WERE ABLE TO ATTEND, PLEASE REPORT ON THE PROCEEDINGS.

INTRODUCTIONS OF DR. WILLIAM C. NIXON
Randolph, MA

SINNINGIAS

1971 S. 'Poupée' Tetraploid S. ' White Sprite' x S. 'Dollbaby'

1973 S. 'Cindy-ella' Tetraploid of S. Cindy Reg # 72121
1973 S. 'Coral Baby' S. Modesta x S. cardinalis 'George Kalmbacher'
1973 S. 'Hircon' Tetraploid of S. 'Freckles'

1976 S. 'Mathild' S.'Ramadeva'x S. regina

1977 S. 'Golliwog' Tetraploid S. 'White Sprite' x S. 'Dollbaby'

WE NEED ARTICLES FOR CROSSWORDS
Sue Lasswell, Edmonds, WA

You say "I don't know how to write an article". It is a lot easier than you think. You begin at the beginning. Let's say it is about your hybridizing efforts. The first thing to say is " I started hybridizing in 19-- because.... The plant family that fascinates me the most is____ and that's why I hybridize it. The first thing you do is emasculate the flower....". Then go on to tell exactly how you do it. Tell what caused you to pick the parents for the cross. Was it because they were the only ones in bloom? Or did you plan the parentage carefully? Finish your article with the results of your cross. Did you get seeds or not and if you did what were the seedlings like? Were they self fertile? See? That wasn't so hard, was it?

Next article you can dig a little deeper into your knowledge and write one on the observed differences in the seedlings. For instance, if you crossed two species were all the seedlings identical or were there little differences among them.

Remember OUR newsletter is like a letter to all the members. Just write what you have to say any way you can. BUT WRITE!

NUMBERLESS SYSTEM FOR KEEPING RECORD OF HYBRIDS
Juanita Stone, Riverside, RI

I do not have a numbering system for my hybrids. As yet, I have had few crosses that yielded anything that I thought merited carrying very far--there are enough look alikes and dubious hybrids now. I hope sometime to have a plant with merit--well we all can dream now and then.

What do I do for a system? Well, two plants are crossed and the resulting f1 is given a name, for instance 'Alpha' and the name and the cross are recorded on a file card. From then on, 'Alpha' becomes the working name of that hybrid and of its generation f2. (for any of that generation that I save, and so on down the line). When and if I abandon that particular cross, it is so noted on the file card of the original cross. At this point I am ruthless and throw away all the working plant material, and note that. Then I erase from my mind all connotations of 'Alpha' and proceed to use the same label afresh for a totally different project. Why do I use this method? I wear trifocals and using a name, while taking more time to read, eliminates misreading an identifying number.

SOMETHING OLD AND SOMETHING NEW - AND SINNINGIAS TOO.
Ted Bona, Reading PA.

When some one mentions the name SINNINGIA to me, I seem to go off to outer space. I have been growing them for many years and find each cross more exciting than the last one. I have never taken these plants for granted; have never tired of them. When I got to know them, I always used the term xGloxineras. These are now named Sinningias. You know the old saying-- A Rose is a Rose is a Rose--etc. Name them anything. To me they are still, sub-consciously, xGloxineras. One thing you must have when growing and hybridizing these plants is patience, then even more patience.

Always keep a record of all your crosses. With a log, you know what you have accomplished. Watching these babies grow and mature, waiting for them to make their first flower, can be the most exciting thing in your life. I recall 'way back then' making straight crosses, that is Sinningias on the former Rechsteinerias, the first generation would produce some nice plants, crossing these F1's with each other gave me some more nice plants. Then I used these with their parents or another Sinningia or Rechsteineria. By continuing these crosses I got many nice plants which I have to this day. Please, if you are a novice, read as much on this as you possibly can. Read everything in sight, the more you read and digest, the better it shall be for you in the long run. Also keep your ideas on paper, do not trust to memory.

I became friendly with one of the nuns over at the hospital. She and one of the doctors offered to X-ray seed for me. We started with 200 rays which killed the embryo in the seed, result no germination. So we tried 175 rays, got some germination but apparently weak as they grew for a short time then expired. When we took it down to 150 rays, I had very good germination and got some very odd appearing foliage and flowers. Out of X-raying seed, I have some plants with a definite variegation in the foliage, S. 'China Seas' for one plant. I have some with flowers like S. cardinalis 'George Kalmbacher' and red; and also one in dainty pink on a small sprawling plant. Also got some plants with split corrolas with a tendency for doubling. These I am working with now, hoping for a double eumorpha-type flowers in a very short time.

Right now I am against a blank wall with one of my plants. It is a rather nice small growing Sinningia, with tubular flowers on the dark pink side, that refuses to grow on the greenhouse bench. But when under lights, it blooms its head off. Like you, I am an amateur hybridizer. I get so much satisfaction from growing these Sinningias. Perhaps I shall hear from another hybridizer, who can explain to me why this plant does not bloom on the greenhouse bench when the other ones do.

I can recall the time, right after getting a plant of S. 'Dollbaby' from Ruth Katzenberger, how I thought so much of this plant that I wanted to get some plants on the order of 'Dollbaby'. Well, I tried and tried and nothing much came out of the crosses, but more 'Dollbabies' Then a thought struck me, why not shorten the style on an xGloxinera

(cont.)

un-named and see what would happen. Nothing did for the first few crosses but eventually , a cross took and out of this cross came the little one named S. 'Love Song'. It just takes patience. I always say--I am not going anywhere in a hurry--take your time and eventually what you want out of a cross, you just might get.

Here is another story I would like to tell you about. I recall a convention at Cornell University. It was a lovely affair and we were waiting for Dr. Tom Talpey to arrive. When he arrived, he took me aside. He had brought along for me, in his coat pocket, a cutting of Columnea tulae 'Rubra'. At that time, we didn't have many Columneas to add to our collection and I liked Columnea Rubra very much. I had been growing Columnea 'Yellow Dragon' and thought how nice it would be to have those big yellow flowers on such a prolific bloomer as C. Rubra. I made the cross and out of it came Columnea 'Chanticleer'. Now how about another C. 'Chanticleer' on a much smaller growing plant? This is something to work on again. You see, when you hybridize, you can always find new things to do.

Always remember this--when you take a camel hair brush, put pollen on it and just before you apply the pollen to a receptive stigma--you have the whole world in your hands. It is something to think about. No one in this world can take the satisfaction away from you when you look at your seedlings growing...growing...setting their buds...waiting for the blooms to arrive and then... when they open--they are all Swans without one ugly duckling. This is the first time for you, when next you apply pollen, you will become more choosy. But then, you still have the world in your hands. Go to it and have a lot of fun but remember this, ALWAYS KEEP A RECORD OF YOUR CROSSES: You never know when you will have a worthy hybrid and we will all want to know its parentage.

NUMBERING SYSTEM FOR HYBRIDS

Corrinna Zerbel, Washington, CT

The system I have been using for the past ten years with some adaptations suggested by Dr. Clayberg at a Connecticut Chapter meeting has worked satisfactorily with Streptocarpus, Kohleria and some earlier crosses called xgloxinera. Simply stated it was a stud book listing: Acquisitions, necessarily by date, and a seed sowing list; crosses were recorded usually on seed packet but not numbered until sown. In addition, a 5 by 8 notebook for keeping ideas and comments and added to the above lists as desirable. This system worked well enough until recently when I became a 'beginner' with mini-Sinningias.

The request in GHA Vol. 1, No. 2, for information caused me to look over my system in an effort to see if I could improve it with some simple changes. Then it seemed desirable to try it out briefly, for looking ahead from June it seemed a long way till the Winter issue to begin a system.

The stud book which has been kept on a worktable, three feet from the fluorescent light shelf, need not be changed. Will change the numbering to the time I make the cross. Already I can see the advantage of a number on the seed packet, for the previous recording of crosses on the small packets has necessitated the use of a magnifier when searching for seeds to be taken out of the refrigerator container. Another simple change I have made is to keep the 5 by 8 notebook on a shelf over the radiator which is about ten inches below the light shelf. With pen chained to shelf there should be no excuse for not making notes I wished I had.

DISCUSSION OF ITEMS FOUND IN ISSUE 2 & 3 CROSSWORDS
Peter Shalit- Consultant, GHA

---Many of Bill Saylor's hybrids (listed in the Summer issue) are F1's. Ambitious growers might try selfing some of these to get F2 seedlings; there should be a lot of variation in the F2. Undoubtedly something interesting would result.

---Corinna Zirbel refers to a Sinningia 'Rex' which does not reflex its lobes. I have the same problem with a plant of S. aggregata 'Pendulina'. I think it is cultural, as the plant originally opened its flowers normally, but does not now. I don't know why.

---Ruth Zavitz asks about crossing Saintpaulia with other genera. Russell White mentions the possibility of crossing Saintpaulia with Streptocarpus subgenus Streptocarpella (the caulescent subgenus). Irwin Rosenblum has hinted to me that such a cross may be possible. At the 1977 AGGS Convention, Irwin told me of a theory that Saintpaulia and Streptocarpella are more closely related to each other than to subgenus Streptocarpus. This is supported by the chromosome numbers and other evidence cited by Russell White. Irwin suggests that people try to make a cross between the two groups. So if you have saintpaulias and streptocarpellas in bloom, get out those toothpicks and go to it! Of course, send your results to CROSSWORDS, positive or negative.

---Ruth Zavitz also asks about the sterility of Sinningia 'Tinkerbells'. It is a sterile diploid, and hence is self-sterile as well as sterile in every other way. It may perhaps produce a few viable egg cells now and then. Try piling fertile tetraploid pollen (eg. from S. 'Dollbaby' or S. 'Cindy-Ella') onto the stigma of S. 'Tinkerbells' and see what happens. You may get a pod with a seed or two in it. So far, I know of no one who has. The real answer to the sterility problem here would be to treat a plant of S. 'Tinkerbells' with colchicine, to create a fertile allotetraploid (like S. 'Cindy-Ella'). To my knowledge, no one has done this yet.

---In Art Belanger's Director's Message for Fall 1977, he mentions how hard it is to get people to write for CROSSWORDS. Even if you feel you are a real amateur, there still may be something of interest that you can contribute. Have you ever selfed a hybrid plant and grown the seedlings? Many people have done this with saintpaulias and florist gloxinias (Sinningia speciosa). If you kept records of what you got, I think it would be interesting to write it up and share it with the group via the Newsletter. I can start the ball rolling by telling you of my experience. When I first started growing gesneriads, a friend gave me a packet of seed which came from a selfing of Buell's Sinningia speciosa hybrid, 'Blue Delight'. He assured me that since the plant was a hybrid, all sorts of different colors and patterns would come out in the seedlings. I grew more than 20 seedlings to bloom, and they were all nearly identical. Every one had large, spotted purple-blue flowers. As each one came into bloom, I excitedly took my notebook in hand and described it in detail.. realizing only in the end that they were all pretty much identical. I had a similar experience with Sinningia 'Purple Dollbaby'. This plant was introduced with very little fanfare, and no cultural information, and I wondered whether it came true from seed. Well, after growing about 25 seedlings from selfed seed of one plant, I can tell you that it does come true. (Incidentally, it is a great little plant, not as widely grown as it deserves to be.)

(cont.)

---Vincent Flanders has an excellent idea, royalties for non-patented plants. It won't make anyone rich, but it might help pay for supplies for a few lucky hybridizers, and it would surely encourage people to try their hand at breeding better gesneriads.

---Barb and Ken Merwin: how about describing your new Sinningia and Saintpaulia hybrids in CROSSWORDS when you release them?

---Concerning the use of Sinningia pusilla as the female parent in crosses. If the male parent is another cultivar of S. pusilla (i.e., S. 'White Sprite' or S. 'Snowflake'), the F1 will look just like typical S. pusilla, since the traits of the plain, lavender-flowered type are dominant over the mutant traits (white or fringed corolla). However, if you use any other plant as the male parent, you'll know soon enough if you have a real cross, as the seedlings will quickly grow larger than mature plants of S. pusilla.

---Joni Hurley asks some interesting questions about Sinningia speciosa, and I am glad to hear of someone working with this species. I have not had trouble pollinating S. speciosa flowers, but if I did, I would try pollinating them when fragrant. It makes sense, biologically. I have noticed that the fragrance is strongest in the early morning, so that is when I would make the pollination. Some related questions come to mind. How about trying to intensify the fragrance of S. speciosa by a selective breeding program? I don't know whether it could be done, but it's worth a try. And, has anyone used S. discolor (a wild form of S. speciosa) in hybridizing? Its flowers have a definite fragrance of peppermint toothpaste. My plant never seems to produce any pollen, and I wish I knew why. Anyone have any comment on this?

---Jeff Ross asks about crossing an Achimenes with a Smithiantha. The chromosome numbers are not identical, but the two genera can be crossbred to yield plants called xAchimenantha, which are invariably sterile unless treated with colchicine to cause allotetraploidy. I have found that when making a wide cross such as the one under discussion here, sometimes what appears to be a good "take" is actually an empty pod filled only with dust and chaff. I would keep trying the same cross over and over, and at some point you should get some viable seed. You might try some to the tricks described in the summary of Dr. Clayberg's talk (CROSSWORDS, Fall 1977, p.10.) Incidentally, the choice of Achimenes 'Yellow Beauty' x Smithiantha 'Little Yellow' might make for a very nice compact, yellow-flowered hybrid. Being rhizomatous, it would be easy to propagate, so its inevitable sterility would not be a problem.

---Peg Belanger asks about crossing Sinningia hirsuta with species other than S. concinna. A search through papers by Carl Clayberg reveals that he was only able to cross S. hirsuta with S. concinna, and with no other Sinningia. This doesn't mean that other crosses cannot be made, but simply that they have not yet been made successfully.

---Dominance in gesneriads does exist, as indeed in every organism ever studied. Dr. Clayberg has studied the genetics of flower color in Sinningia speciosa, and presented his results at the 1976 AGGS Convention. Some genes are dominant, some are recessive, and some exhibit incomplete dominance or blending. The genetics of flower and leaf characteristics in Saintpaulia have been extensively studied by Dr. Sheldon Reed. Dominance and recessiveness are found in Saintpaulia too.

When making a wide cross, it is hard to see dominance/recessiveness, since so many genes are involved that it is hard to single out the effect of one gene pair, and the generally intermediate appearance of the offspring makes it look like blending has occurred. Long, involved studies, requiring many generations of plants, are required to determine dominance relationships. That is why these relationships have only been worked out for Sinningia speciosa, S. pusilla, and Saintpaulia, among

(cont.)

gesneriads. Incidentally, in a tetraploid, the usual dominance/recessiveness relationship becomes blurred, and it is very hard to avoid a general blending of characters. That is why much of the breeding of tetraploid miniature Sinningias ends up with plants with muddy purple flowers. It is very hard to recover the clear pink and clear lavender tones.

---Tim Ross asks about Paradrymonias. The genus is just waiting to be attacked by an ambitious hybridizer. I have seen forms of P. lurida which are beautiful, compact plants. P. hypocyrta, a recent introduction from Selby, is stunning, though large. I suspect that Mike Kartuz has all the species of Paradrymonia available. His catalog (1976) lists four species, including P. ciliosa. Send $1 for the catalog to Kartuz Greenhouses, 92 Chestnut Street, Wilmington, MA 01887.

---Concerning monocarpic Streptocarpus crossed with perennial ones, I suspect that the monocarpic characteristic can be bred out by backcrossing to the perennial species, with selective breeding over several generations. For example, all of the red-flowered rexii-type hybrids owe their flower color to some S. dunnii ancestry. S. dunnii is a red-flowered unifoliate, sometimes monocarpic and sometimes perennial. It is unclear whether the original plant of S. dunnii used in the cross was monocarpic, but in any case the unifoliate habit, the leaf coloration, and the flower shape of S. dunnii have all been bred out of the rexii and Wiesmoor strains, leaving only the red flower color.

HYBRIDIZING SAINTPAULIAS

Sue Lasswell, Edmonds, WA.

I began hybridizing Saintpaulias in 1965. I had my first success in 1966 when both my first bloom and my daughter arrived the same week. Of course the plant was named for her, 'Gem Gem'. It is not a big fancy one like many on the market now, but it was my first and I still have it. Since then I have made many crosses and grown lots of seedlings. None have been really top plants but I have enjoyed them and still have some of the better ones for future crossing. At least with these I know a little of their background.

If you are new to hybridizing I would recommend starting with Saintpaulias. They are easy to grow and set seed fairly well. The seedlings are all different so you never really know what the flowers will be like. Choose a single flowered plant for your first seed parent. the doubles are sometimes difficult because it is hard to find the necessary parts of the flower for crossing. I try to use a pink or white star type. These are recessive traits in Saintpaulia so that if I use a blue or dark purple for the pollen parent the recessives will come through. If you want pink flowers you must use pink or white parents and sometimes even these will surprise you.

The single Saintpaulia is a simple flower. It has the flower petal flared out flat so that the anthers and stigma are clearly visible. The Saintpaulia does not have to be emasculated because it does not shed its pollen spontaneously. I usually snip the anthers off the pollen plant and then open the anther with a pin. You will see fine yellow powder, that is the pollen. I smear the pollen on my fingernail and then touch the end of the stigma with the pollen. Be gentle, the time is right for crossing after the flower has been open for 3 or 4 days and the stigma is pointing outward. Before it is ready it is laying close to the flower petals.

I always mark my crosses with little tags that have the seed parent first and then the pollen parent. I also record the cross in my notebook and the date. It takes about 3 months to ripen so I know when to start watching for the stem to wither. I put it in a small glass jar without a lid to finish drying. In about two weeks it is ready to plant.

RECORD KEEPING/ SAINTPAULIA
Sue Lasswell, Edmonds, WA.

Record keeping is a very important part of hybridizing. Without it you would never know how you succeeded or failed in your project.

When I make a cross I mark it with a little tag. I make mine from a small thin plant marker. I punch a hole in one end and string it with sewing thread. I write the cross and the date on the tag and slip the loop over the flower stem. I also record the cross in a note book. Tha date and cross are listed. A week or so later I check to see if it has worked. In my notebook I mark as to whether it took or not. I can look back on my crossing sheet and readily tell which plants will not cross by noting how many times a cross has failed on certain plants. Also this page tells me which plants will make good seed parents, for those who might be partially sterile.

When the seed pod ripens I take it off and let it dry. When I plant the seed, I note this on a separate sheet, I record when it comes up. It is also important to me to know if it didn't come up. Some plants make lots of seed that never sprout for some reason, these do not make good seed parents, and if you know this, you won't use them.

When the seedlings become large enough to bloom, I really begin to keep close watch. I make a record of each one as it blooms. I use a piece of notebook paper ruled with columns. On one side I record details about the flower: color, size, number of blooms, double or single, etc. On the other side, I record the leaf color and size, size of the plant, and anything else that helps me to identify the plant.

Each plant has a code number. I use the initials of the parents plus the order in which they have bloomed. J/PS 4 would be 'Janny' x 'Pink Swan' the fourth to bloom. Each one gets a tag with the letters J/PS on it when it is potted up out of the seedling pot. It gets its number when it blooms. Any seedling considered for a name is noted on another sheet with its number and a new name, then it has to prove itself.

Record keeping is very important when you get to the f2 and beyond. From your records you know the parents and can make more intelligent crosses to achieve whatever your goal is. With African Violets you can only guess what genes might be in the plants you cross unless they are your own seedlings for several generations.

SAMPLE OF BLOSSOM SIDE

After Five x Coastline

No.	Color	Blossom	Edge	Frill	Buds	Size	Remarks	Date
1	purp.	single	none	yes	3	1½	like After Five	5/8
2	white	single	purple	yes	3	1¼	like Coastline	5/8
3	lav.	single	none	no	4	1	light edges	6/11

NOTE:

There will be more numbering systems in the Spring issue.

The following article was reprinted from the GESNERIAD SOUNDINGS Vol. 4, issue number 8, September, 1977.

ONE HYBRIDIZER'S DREAM
William R. Saylor, Brewster, MA

Nematanthus breeding has been a very satisfying occupation but at times it has also been extremely exasperating. On the plus side the compatibility between N. wettsteinii and very nearly all of the other species has made it relatively easy to produce compact, floriferous hybrids. 'Bambino' is a good example of what can be produced in two generations. N. fritschii and N wettsteinii were crossed to produce 'Bijou'and this was selfed to yield, among a variety of other things, a tiny leaved compact upright plant with colorful red splotches of the back sides of the leaves and flowers very much like those of N. wettsteinii.

One of the very elusive (and therefore exasperating) characteristics seems so far to be that for clear bright yellow or light yellow flowers, N. perianthomegus with its rather dull striped yellow might seem to be a logical starting point. However, it unfortunately appears to be particularly reluctant to mate with N. wettsteinii. Good seed is formed and germinates well, but every seedling dies before the cotyledons have fully developed. In other primary crosses the striping is prominently displayed and of course, the rather coarse stems and foliage show up regularly. What to do?

One can always attempt to breed out the striping and the lethal factor noted above, and perhaps "creep up" upon the pure yellow one wants. Two examples from further breeding in this direction are 'Moonglow', a creamy white with light red markings (replacing the stripes?), and'Butterscotch' a golden yellow self with faint ruddy tints. Neither could be described as a clear pure yellow.

An entirely different tack became possible when Hans Wiehler distributed cuttings of N.hirtellus a few years ago. This is another ungainly shrub with large, coarse leaves and woody stems, but it does have the dubious advantage of producing a miserly number of pale yellow, hairy, pouched flowers with dark maroon calyces on short pedicels in the leaf axils. The sad fact though, is that this plant is extremely reluctant to bloom and passes on that trait to its children. I was able to cross N. wettsteinii with N. hirtellus in 1971, but it took four years to bloom the hybrid progeny. The few flowers I have seen were good sized red-orange with a maroon calyx. The pollen was viable and many crosses have been made using this hybrid as the pollen parent. A large number of compact seedlings are being grown on, but not one has bloomed so far. An f2 generation from self-fertilization never materialized for me. Hans Wiehler has introduced 'Curitiba', an f2 generation selection from (N. fissus x N. fritschii) x N. hirtellus, with leaves reddish below, a deep maroon-purple calyx, and yellow corolla. I have 'Curitiba' and have used it in hybridizing, but it is not terribly floriferous and has not yet yielded yellow offspring.

Somewhere in this array of plants is the potential for a good compact plant with attractive clear yellow flowers. Maybe it will come next year. Meanwhile I can dream can't I?

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Virginia W. Strawderman	PO Box 36	Smyrna, GA 30080
STRICKLAND GREENHOUSES		
E Hardin Strickland 1. Streptocarpella	15980 Yellow Brick Rd. 2. Sinningia	Valley Center, CA 92082 3. Streptocarpus
Harry C. Stumpf 1. Streptocarpus	810 Carl Ave. 2.----------	New Kensington, PA 15068 3. ----------
Clorinda Temple	18 Heckle St.	Wellesley Hills MA 02181
Darrell Trout	6928 Loubet St.	Forest Hills, NY 11375
Beverly Van Ess 1. Sinningia	36 E. Burton Ave 2. Columnea	Dayton, OH 45405 3. Episcia
Jim Wagner 1. Sinningia	3284 31st. St. 2. Kohleria	L.I. City, NY 11106 Smithiantha
Carl Walker	PO Box 5545	Lenoir, NC 28645
Mrs. John F. Wanerka Jr. 1. Streptocarpus	149B Wilderness Rd. 2. Sinningia	Nissequoge, NY 11780 3. Achimenes
Ruth Washburn	Magzdore Rd.	Magzdore, OH 44260
Jim Watson 1. Columnea	9010 N. Mercer Way 2. Gesneria	Mercer Island WA 98040 3. Codonanthe
WEBSTER GREENHOUSES		
Ruth Webster 1. Gesneria	Box 203 School St. Kohleria	Tilton NH 03276 3. Smithiantha
Mrs. Robert Weir	2405 W, 104th St.	Shawnee Mission KA 66206
Larry Weissman	9724 Kirkside Rd.	Los Angeles, CA 90035
Sandy Weynand 1. Gesneria	309 Montauk Highway 2.----------	East Moriches, NY 11940 3.----------
Renee White	33 Social St.	Providence, RI 02904
Russel White	1172 Troy-Schenectady Rd.	Latham, NY 12110
Homer Whittaker 1. Columnea	PO Box 3334 2. Aeschynanthus	Seminole, FL 33542 3. Smithiantha
MARIE SELBY BOTANICAL GARDENS		
Hans Wiehler	800 So. Palm Ave.	Sarasota, FL 33577
Phillip J. Wilkinson	4306 51st. St.	Bladensburg, MD 20710
Doreen Williamson 1. Columnea	226 So Reno St. # 27 2. Streptocarpus	Los Angeles CA 90057 3. Achimines
WILSON BROTHERS		
Don C Wilson 1. Saintpaulia	2.----------	Roachdale, IN, 46172 3. ----------
Blair Winner	909 West Hickory	Lompol, CA 93463
Sandra J. Winslow Sinningia	136 John St. 2. columnea	New Lenox, IL 60451 3. Kohleria
Patrick J. Worley	Box 664	Mendota, MN 55150
WYRTZEN GREENHOUSES		
Jim Wyrtzen	165 Bryant Ave.	Floral Park, NY 11001
William R. Young	PO Box 1072	Arroyo Grande, CA 93420
Ruth Zavitz	RR2 Ilderton	Ont. Canada N0M 2 A0
Adele Zemansky	736 Rurland Ave.	Teaneck, NJ 07666
Corrinna M. Zerbel 1. Sinningia	PO Box 203 2. Kohleria	Washington, Ct 06793 3. Streptocarpus
Mary Zink	186 Brown Ave.	Hempstead, NY 11550
NEW MEMBERS:----------		
Emerich Bodnar	108 Hanson Rd.	Ont, Canada L5B 2E4
Mrs William G. Bowen	Savery Rd.	Searsport, ME 04974
John Brownlie	600 Silvercreek Blvd.	Ont. Canada L5A 2B4
Mark Emerson Sinningia	624582 C G4 Box 900 Episcia	Shelton, WA 98584 Columnea
Mrs. David S. Haven	1011 Savoy Lane	Manchester, MO 63011
Mary R. Henney	1187 Sagehill Dr.	Houston, Texas 77089
Mrs. Carl D. Jordan	2508 Elmira	Muskogee, OK 74401
Mrs. Robert Kahle	10224 112 At. SW	Tacoma, WA 98498
Sterling Levy 1. Episcia	Box 70 Site 14 2. Columnea	Nova Scotia, Can. B0N ZV0 3. Streptocarpus
Carolyn E. Neeson	26585 Rancho San Carlo	Carmel, CA 93923
Frederick Parker	4351 Porter Hollow	Rockford, MI 49341
George H. Pride	Arnold Arboretum	Jamaica Plain, MA 02130
Mrs. Eugenia Siracusa	15 Charles St.	Auburn, NY 13021
Pat Tracey	291 Pine Drive	Ont. Canada L4N 4J3

TABULATION OF THE GENERA PREFERENCES:

Two hundred and seventeen is the latest count of members in this third week of October, 1977. Eighty one active members sent in their choices of preferred genera. Forty two reported previous experience in hybridizing gesneriads.

In the following tabulation of the members choice of genera we have assigned a point value of 1 for each vote, whether it was first, second or third choice. The list only includes genera receiving votes and they are listed alphabetically.

Achimenes---7
Aeschynanthus---13
Codonanthe---5
Columnea---22***
Episcia---19
Gesneria---10
Gloxinia---3
Kohleria---8
Nematanthus---6
Saintpaulia---9
Sinningia---59*
Smithiantha---5
Streptocarpus---33**
Paradrymonia---1
Petrocosmea---1

Results marked with *
* Sinningia, first choice
** Streptocarpus, second choice
*** Columnea, third choice
There were also 4 who listed intergeneric crosses.

INTERNATIONAL REGISTRATION REQUEST

For Plant Names in the Family Gesneriaceae (Excluding Saintpaulia)

THE AMERICAN GLOXINIA AND GESNERIAD SOCIETY succeeded the American Gesneria Society as International Registration Authority for Gesneriaceae (excluding Saintpaulia) by action for the International Commission for Horticultural Nomenclature and Registration of the International Society of Horticultural Science meeting in Brussels in 1962.

The Society publishes and maintains the "International Gesneriad Register" containing names and descriptions of plants, especially those currently under cultivation. Name lists for the genera Kohleria, Smithiantha, Episcia, and Columnea are available from the Secretary. A revision of Achimenes and a list of Sinningia names are scheduled for publication.

Plant name Registration Certificates are issued upon request, subject to the RULES FOR REGISTRATION OF GESNERIAD PLANT NAMES adopted by the A.G.G.S. and the "Code of Registration Procedure" adopted 1955 by the International Committee on nomenclature and Registration.

Registered names are not available for reuse with new and different plants. Growers should consult the Register before selecting names for registration or publication.

The aim of registration is to promote uniformity, accuracy, and stability in the naming of cultivated plants and to discourage the creation of names which are unnecessary or likely to produce confusion. To carry out that aim, the Board of Directors of the A.G.G.S. have adopted these Rules for the Registration of Gesneriad Plant Names.

AMERICAN GLOXINIA AND GESNERIAD SOCIETY
RULES FOR REGISTRATION OF GESNERIAD PLANT NAMES

1. Names must be in compliance with the 1961 "International Code of Nomenclature for Cultivated Plants" or revisions thereof approved by the International Commission for the Nomenclature of Cultivated Plants of the International Union of Biological Sciences.
2. Names must be proposed by the raiser or sole stockholder or by another person who has his express permission. It is expected that plants bearing the registered name are commercially available.
3. In addition to recording the parentage or other details of origin, a word description of the plant, adequate to identify it and distinguish it from similar plants, must be supplied.
4. No "frozen" names will be reserved for future use by registration without assignment to specific plants or seed lines.
5. A fee of one dollar must accompany each name registration application. This covers the issuing of a Registration Certificate and partly defrays the cost of maintaining the Registry.
6. The identification of plants is not a registry function but care will be taken to avoid registration of synonyms for the same plant.

Detach and mail with registration fee to:

Mr. Paul Arnold, Registrar
26 Hotchkiss Street
Binghamton, New York 13903

APPLICATION FOR INTERNATIONAL REGISTRATION

Plant names in the family Gesneriaceae

Please register the Cultivar Name _____ Genus or Hybrid Genus _____

Name of Seed Parent _____ Pollen Parent (if known) _____ Date of Cross _____

State whether a clone (vegetatively reproduced) or a line coming _____ % true from seed

Year when Plant First Flowered _____ Name of Mother Plant (in case of a mutant) _____

Name of Raiser (if other than undersigned) _____ Address _____

Carefully describe leaf, flower, and habit of plant adequately to distinguish it from similar plants. Give chromosome count and plant classification if known. Match colors to the Nickerson Color Fan or specify any other color chart used.

_____

_____

_____

_____

If the name has been published in a periodical or price list, give title of publication, the date of issue and page number. Be specific. _____

_____

List all known synonyms. Give date and by whom published _____

Name and date of any awards given the plant _____

_____ Date of Application

_____ Raiser or Principal Stockholder

_____ Address

FEATURE ARTICLE FOR SPRING ISSUE, 1978

Do you recognize the form on the preceeding page? As a member of the G.H.A. you should become acquainted with it. When you know the reason for its use, the rules for the International Registration of cultivar names are more easily understood. This lead promotion is specifically aimed at each of you. Try to fill out the form with your own favorite hybrid. This should bring up a myriad of questions in your mind. Then wait for the Spring issue of CROSSWORDS, 1978 and read REGISTRATION FACTS AND FANCIES by Paul Arnold, Registrar of the International Registration Authority for the Plant Family Gesneriaceae.

COMING IN OTHER 1978 ISSUES OF CROSSWORDS

Bill Saylor has joined our staff as contributing editor. I feel confident that you will all be looking for his articles in the coming year.

Peter Shalit, our Consultant, and a prolific writer, is a good bet to produce more of his excellent material for your reading pleasure.

Frances Batcheller, without whose encouragement there probably would be no CROSSWORDS, will help keep us going.

Peg and I are researching the U.S.D.A. requirements of Plant Patents for asexually reproduced cultivars. We will also report on the 'Plant Variety Protection Act' in force since December, 1970. This Act provides legal protection to developers of new varieties of plants which reproduce by seed.

Our big deal for the new year will be the publishing in these pages of a Columnea Stud Book. It will take the utmost co-operation of all who know the names, parentage, and hybridizer, of any Columnea presently being offered for sale on any dealer's list.

PLUS--THE MOST IMPORTANT PART OF THE NEWSLETTER

Questions, answers, and letters of general interest will be published as they arrive from the members, new or experienced alike. We have some fine examples of what can be written by people who purport to have nothing to say. Look back in this issue and you will see what I mean.

GESNERIAD HYBRIDIZER'S ASSOCIATION MEMBERSHIP APPLICATION/RENEWAL
Please enroll me as a member of the G.H.A. Enclosed find $4.00 for a years membership and CROSSWORDS, the quarterly newsletter.
(based on the calendar year, 1978.)

Name Address City State Zipcode
Make checks payable to Arthur Belanger, 140 Howie Ave, Warwick, RI 02888.

G. H. A.
140 Howie Ave.
Warwick, RI 02888

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