CROSSWORDS

THE GESNERIAD HYBRIDIZERS ASSOCIATION

NEWSLETTER

Volume 3, Issue 3, Fall 1979

CrossWords is in trouble. As you will notice, this issue is composed of 12 pages, rather than the usual 16. Of these, 4½ are 'business' items from the publication committee and 2 are composed of material written several months ago. One page is empty. There are only 4½ pages of new material and this includes an article from a current non-member who lives out of the country and has not seen an issue for at least a year.

The figures speak for themselves, and there is very little more for us to add. We need more copy if we are to maintain *CrossWords* as a viable and useful publication. This material need not be in the form of complete articles, but may be simply a question or a series of questions, observations about plants, brief comments describing your own experiences or anything else you would like to share or which you think might be useful to others. Those who find writing a difficult process should feel free to ask for editorial assistance - we will be happy to help polish your writing if you think it necessary.

It does get tiresome for us, and presumably for you, to have to keep repeating this message of member participation. Help us eliminate the need for nagging and we will all be happier.

On a brighter note, it was very nice to see such a fine turnout for the GHA meeting at the AGGS convention. A lively discussion took place, portions of which are reported elsewhere in this issue. Also at the AGGS convention, Patrick Worley received the GHA award for best new hybrid for an unusual and delightful double *Achimenes*. Of almost equal interest were his unusual intergeneric hybrids, which will be reported on in future issues.

A number of people have expressed interest in working on the problem of recognizing meritorious hybrids through a relatively long-term selection process. Expect to hear some suggestions before long.

Ron Myhr
Anne Crowley

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GHA FINANCIAL REPORT

Peg Conner, Treasurer
Huntington, NY

Balance as of June 20, 1979		$ 1,008.02
Deposits	$ 15.00	
Interest	4.35	
		1,027.37
Expenditures		
Printing & postage CW 3(2)	126.42	
To J. Morton for index cards and notebook	3.00	
To AGGS at Convention	100.00	
Balance as of July 20, 1979		$ 797.95

THE STATUS OF THE GHA

Peter Shalit
Seattle, WA.

At the GHA membership meeting during the 1979 AGGS convension last July, the question of the status of the GHA came up for debate. Right now we are an autonomous group, affiliated with no other group, and having no bylaws or written rules of any sort. It was brought up that we owe a debt to AGGS, since many (most?) of our members are affiliated also with that organization, and since AGGS has provided a meeting place for GHA members at its last two conventions.

The question of whether the GHA should affiliate with any national gesneriad societies was argued. The consensus seemed to be that we should do nothing that would compromise our independence. We do not seem to need bylaws at present, nor do we want to be governed by the bylaws of another organization. There seemed to be no point in affiliating with national gesneriad societies, except to support them, perhaps by buying a token membership in each one. In any case, Jimmy Dates is researching the possibility of the GHA becoming affiliated with AGGS. His report will be published in *CrossWords*, and then GHA members can decide.

In any case, our debt to AGGS for providing us with meeting space was acknowledged. The GHA membership voted a donation of $100 to the AGGS Fund For Progress, in appreciation of what AGGS has done for us. In the future, when GHA members have a meeting at a national convention of AGGS, AVSA, or SI/GSI, arrangements and payment should be made beforehand. Any GHA members who are contemplating such a meeting should write to Peter Shalit, Coordinator.

GHA SEED FUND

Ron Myhr
Claremont, Ont.

The establishment of the GHA seed fund was discussed at length at the GHA meeting at the AGGS convention in Danvers. The controversial issues were; 1) Mechanics of the exchange; (2) Hybridizer's rights; and (3) Conflict with the seed funds of other organizations.

After considerable discussions a clear consensus was reached on each of these issues. The members present felt that the GHA should not become involved in building a central repository of seed, nor should there be any money changing hands along with the seed. Rather, it was felt that a listing of seed available with subsequent contact between prospective growers and hybridizers was the most desirable course of action. A list of seed available and seed desired, along with the names and addresses of the individuals having or wanting, will be published in subsequent issues of *CrossWords*.

This effectively resolved the concerns of some persons about conflict with other seed funds. Some still felt that including seed of non-hybrid gesneriads (such as distinctive strains of species) was inappropriate, but no agreement was reached on this point, so such seed is still "fair game" for the GHA exchange list.

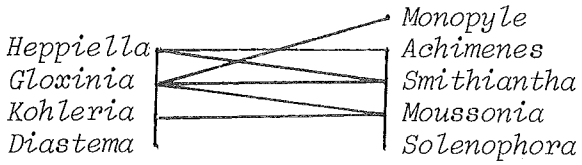
Strong feelings were expressed by some members about the problem of hybridizers' rights when seed is distributed in this manner. Should the hybridizer retain the commercial rights to a plant grown by another person? Is such an arrangement even feasible? One point of view held that the person who went to the trouble of making a cross should retain a proprietary interest in the end product, even when it is grown by another person. Some held that this was clearly impractical, and pointed to the situation in, for example, the orchids, where unflowered seedlings are often sold by hybridizers/growers who do not retain the rights. It was ultimately decided that there should be some sort of informal agreement between hybridizers and growers concerning the rights of the hybridizer, perhaps limited to acknowledgement of the source of the hybrid seed. It was also agreed that the grower had an obligation to report to the hybridizer, and to *CrossWords*, on the results of their growing.

We are consequently officially in the seed exchange business. If you have seed of your crosses, of interesting species variants or hard-to-get species, or of irradiated or otherwise treated seed, or if you would like something in particular, please do send the appropriate information to David Zaitlin. Any correspondence concerning the seed fund should also be sent to him.

A BREEDING PROGRAM FOR GAMBLERS

Walter Pickett
Maradi, Rep. du Niger

According to an article by Frances Batcheller in *CW* 2(3), the following intergeneric hybrids have been made:



At least one hybrid, 'Diamond Lil', from *Achimenes* X *Smithiantha*, is a fertile tetraploid. Perhaps by treating F1 fybrid seed, or rhizome scales, with colchicine one might obtain tetraploids with some fertility.

The next step is what fascinates me. It would seem possible to cross these amphidiploids (polyploids which have a diploid set of chromosomes from each of two or more species and therefore act like diploids) to produce 4-genera hybrids, e.g.

(*Achimines* X *Smithiantha*) X (*Heppiella* X *Gloxinia*)

These polyhaploids, if possible to obtain, may or may not be attractive, may have extreme hybrid vigour, or may be very weak due to the different genomes interferring with each other. And just how close would such hybrids come to the average of the four grandparent genera? I expect some surprises, but maybe that is just wishful thinking.

Another possibility would be to cross these amphidiploids with another diploid plant, either one of the parent species, a different species of one of the parent genera, or even a different genus.

If this works, it would most likely give a sterile triploid, and I doubt that a fertile hexaploid could be obtained from it, although the only way to find out is to try.

Still another possibility is to cross an amphidiploid with an autotetraploid, e.g. tetraploid (*Gloxinia* X *Smithiantha*) X tetraploid *Moussonia*. Or one could cross two amphidiploids that have a genome in common, e.g. (*Achimenes* X *Heppiella*) X (*Smithiantha* X *Achimenes*). Both these would give auto-allotetraploids, if anything. Sometimes, in other families, auto-allotetraploids are fertile, sometimes they are sterile, often they have a little seed fertility but are pollen sterile.

As I said in the title, this breeding program is a gamble. I have done two years graduate work in genetics, and now am a professional plant breeder, but I cannot predict exactly what will happen, not even which crosses are possible. Indeed, until tetraploids of two-genus hybrids are made, we cannot be sure that they will be fertile in the first place. I could refer you to the extensive literature on 3 and 4 genera hybrids in the orchid and grass families, but these families are quite different from the gesneriads and I am not sure that it would help.

A somewhat more conservative approach might be to cross two amphidiploids made from different species of the same two genera. Such hybrids would likely have some fertility, and the F2 should segregate, giving variation from which to select improved types.

Anyway my curiosity is in full gear, and I am trying to assemble a collection of tetraploid intergeneric hybrids and tetraploid species. If you have any that you are willing to share seed of, my address is:

Walter Pickett
BP 153
Maradi, Rep. du Niger

I would also like to hear from you if you have sterile intergeneric hybrid clones that you might share when I get back to the U.S.A. in about a year.

One final word. An iris breeder once said, "If you don't have much room, try the more difficult crosses. Then you won't be crowded for space so soon, even though you're always making crosses." But then, I cannot even say for sure that these crosses will be difficult.

MORE ON X *Codonatanthus*

Bill Saylor
Brewster, MA.

It seems appropriate at this time to review what has been done in my *xCodonatanthus* program. Others very possibly have attempted crosses in the year and more since 'Fiesta' was first announced--and it is almost certain that at least some will have had a degree of success. I will tell though the direction my thoughts have carried me and what successes have resulted.

As has been related before, the first *xCodonatanthus* cross was between a nematanthus seedling *N. wettsteinii* x ('Green Magic' x 'Black Magic') and *Codonanthe gracilis* ( ). This produced *xCts.*'Fiesta' and a second selection called *xCts.*'Tambourine' with a clearer cream-colored limb and green leaves (no red on the underside).

At almost the same time *Nematanthus* 'Cheerio' was pollinated successfully by *Codonanthe gracilis* with about two dozen seedlings resulting. These I think were particularly interesting because of the range of variation of flower size, color, and form. Many seedlings had varying amounts of speckling outside the tube as well as in the throat (*Codonanthe* inheritance). The predominant color ranged from a pale golden yellow through creamy yellow, usually with overtones of rose or red, to a clear attractive rose or white. Flower size varied considerably from under 2 cm to perhaps 2.7 cm. The blossoms were all pouched as in the *Nematanthus* parent but to a lesser degree and the limbs ran from 6 to 12 mm in diameter.

Primary hybrids between *Nematanthus* and *Codonanthe* have since been attempted with effort concentrated upon use of *N. wettsteinii* as the pod parent.

The following have been successful to date with those that have flowered marked by the letter (F):

N. wettsteinii x *C. devosiana* (F)
N. wettsteinii x *C. gracilis*
N. wettsteinii x *C.* sp. 'Moonlight' (F)

Why was the *Nematanthus* chosen as a pod parent? Probably one personal reason is that I have had so much experience in pollinating *Nematanthus* flowers that I feel more confident and "at home" when I am working on them. Another more generally valid reason relates to the fact that *Codonanthe* pollen is much drier than that of *Nematanthus* and it is therefore much harder to prevent self-contamination of the *Codonanthe* stigma.

As might be expected the above three F1 crosses involving species (not hybrids) resulted in offspring which showed a minimum of variation among siblings. The seedlings of *N. wettsteinii* x *C. devosiana* showed foliage and habit very much like that of *C. devosiana*. Three siblings have bloomed, although sparsely up to now, with small (16 mm long by 10 mm wide) flowers intermediate in configuration between the two parents and having a rose-red tube and cream colored limb. *N. wettsteinii* x *C.* 'Moonlight' produced a population of seedlings with hirsute foliage looking very much like the *Codonanthe* parent. The flowers are not far different from those of the *N. wettsteinii* x *C. devosiana* population although in bright light the rose color is much diluted revealing what seems to be a white background.

The *N. wettsteinii* x *C. gracilis* cross produced only five seedlings which look alike with small shiny elliptical leaves dark-green on top and red underneath. The plants look as if they will have a much daintier habit than that of their *Codonanthe* parent.

And now to conclude with a short report on the first second-generation *xCodonatanthus* to bloom. In *CrossWords* 3(2) I gave the story of that cross, although the seedlings had not flowered at that time. You will remember that *C.* 'Moonlight' was the pod parent and *xCts.* 'Fiesta' the pollen parent. Even now just one of the population of 25 has come to bloom. It is interesting particularly because of the clarified color it presents, with a light rose tube and a large really white flaring limb (flower dimensions--16 mm long by 16 mm wide). The foliage is dark green on top and much lighter green beneath. The shiny leaves are ovate in opposite pairs and, while it is still early to say just what the mature habit will be, the young plant so far presents a spreading trailing silhouette.

NOTES FROM SASKATCHEWAN

Georgie Bull
Regina, Sask.

Here we go again but there is a small difference, things are finally working out.

1) Have a nice yellow flowering *Smithiantha* from crossing two *S.* 'Parks Little One' two of which had some bright yellow with pale irregular orange color marks; this is nothing special but it seems that we do not see a yellow Smithiantha on any gesneriad lists in Canada and soon the

members of Carefree Gesneriad Society here in Regina will grow some pretty yellow smithianthas.

2) Some time ago selfed *Streptocarpus* 'Electric Blue' there was a large seed pod and many plantings and many purple seedlings that have been thrown out. Never thought that I would throw out any gesneriad but they were so ugly! From the latest planting there is a very pretty *Streptocarpus* with flowers held like S. 'Electric Blue' and with that same glow or iridescence.

COLOR - RHS chart - corolla - Fan #2 - 72 B
throat markings - Fan #2 - 64 A
unlike *S.* 'Electric Blue' there are white markings in the throat, not yellow

This plant is very much a seedling, only four small leaves and in a three inch pot but it has been blooming for weeks. It must be pot bound to bloom? This feature has gained my interest and now need help. It did bloom very early. Does anyone know the parentage of Streptocarpus 'Electric Blue' perhaps the yellow will be gained through a back cross? Any suggestions? Do I need yellow, perhaps not?

Our Society President asked me to name a good seedling from S. 'Electric Blue' and have said yes, we now have a Streptocarpus named S.'Max Dekking' and I will carry on with testing this plant and using it in other hybrid efforts if there are any that interest me.

3) Now don't faint. I have finally settled down on the beginners project suggested by Peter Shalit, have crossed *Sinningia pusilla* x *S.* 'Snowflake' and there are fat seed pods on several of the F1 plants.

4) I have plans to cross several of the mini Sinningias but it is not even down on paper and I will not bore you, also there may be a good Sinningia in the fat seed pods and this will send me off on another round, hopefully.

Have read again the full number of *CrossWords*, here and there is always something to learn but noticed the recent issues and the possible seed fund. Great idea. Wish I could help out in some small way.

Also noticed the mention of testing gesneriad hybrids under varying conditions, and perhaps this is one place I may help, there are a number of growing conditions here. A greenhouse, a special cool area for the alpine gesneriads, a plant room with the proper humidity and temperatures for gesneriads and windowsills used both winter and summer. If anyone has any job for a person miles away just ask, would like to share in helping GHA.

BUD DROP IN RESPONSE TO AIR POLLUTION: GENETIC INFLUENCES

Peter Shalit
Seattle, WA.

Bud blast, the dropping of unopened flower buds, can be a problem with many gesneriads. Jeff Ross (*The Gloxinian*, November/December 1977, pp. 35-36) has found that indoor air pollution caused by incomplete combustion of heating gas can cause buds to blast. I have found the same is true with the forced-air oil heat I have in my house. During the heating season, some of my plants blast most or all of their buds, but they bloom normally when the heat is off.

(This effect is probably caused by ethylene gas, given off by combustion of fuels. Natural gas burns cleanly and does not give off significant amounts of ethylene. Ethylene is a potent plant hormone, involved in growth, ripening, and ageing. It should not be surprising, then, that too much ethylene can cause buds to age prematurely and drop.)

My plants seem to vary quite a bit in their response to this seasonal, indoor air pollutant. In nearly every case, there are related susceptible and resistant individuals. For example:

Sinningia. All of the miniature and intermediate hybrids are oblivious to the oil heat fumes. So are most species. However, *S.* sp. 'New Zealand' drops its leaves prematurely once the heat goes on in the fall. A series of hybrids between *S.* 'Rex' and *S. cardinalis* 'George Kalmbacher' shows a range of susceptibility, ranging from plants which drop every bud, to plants which don't blast at all. Neither parent is susceptible.

Smithiantha. *S.* 'Yellow Hybrid' (tough strain, previously suspected to be pollution-resistant, offered through the AGGS Seed Fund) blooms well. Other *Smithiantha* clones have dropped every single bud since I have been in this house. Unfortunately, their blooming season occurs during the heating season.

Streptocarpus. *S.* 'Cape Beauties' (hybrids between *S. cyanandrus* and *S. erubescens*, see *CrossWords*, Vol. 2, No. 2, p. 7) bloom incessantly throughout the winter. *S.* 'Love Is' , which has *S. cyanandrus* and *S. erubescens* as well as other species in its background, bloomed once in September, before the heat went on. Since then it has sent up scores of flower stalks -- it seems to want to be very floriferous -- but the buds fall off without opening.

Winter bud blast is not a matter of temperature; year-round, there is little variation in the daily temperature range of my plant-growing areas.

Prognosis. The difference in pollution susceptibility of related plants indicates that pollution resistance can be selected for, and can be "bred into" one's breeding stock. I am trying to breed pollution-resistant *Smithiantha* hybrids by crossing the hardy *S.* 'Yellow Hybrid' with a pollution-sensitive, red-flowered hybrid. The F1 was pollution-sensitive. Out of 10 F2 seedlings, four budded this year, and they dropped every bud. But I'm still hoping. If I ever get an F2 plant to bloom, I plan to backcross it to *S.* 'Yellow Hybrid', to strengthen the pollution resistance.

In the *Sinningia* breeding program deriving from *S.* 'Rex' and *S. cardinalis* 'George Kalmbacher', I am trying to select for further work only those plants which never blast their buds during the heating season. Of course, it seems that the individuals with the showiest flowers are the ones that blast the most.

Since gases that cause bud blast can be present both in heating fumes and in outdoor air pollution, it is important that we all pay attention to pollution resistance in our gesneriad breeding programs. Some of us (me for example) are forced to, since under our growing conditions, the most sensitive plants never open a flower to serve as a source of pollen or as a seed parent. Those who live in areas with mild ethylene problems should keep an eye out for plants that seem sensitive, and if possible remove these plants from the breeding stock. Unfortunately, there is little indication that air quality is going to improve in the foreseeable future, so resistance to air pollutants is an important trait for new gesneriad hybrids to have.

Dee Bundy
Manchester, MA.

After receiving the last newsletter, I guess you finally persuaded me to put my "two cents" worth in about what I have or have not been doing. I enjoyed Georgina Bull's letter from Canada, since her notes remind me very much of my own. I first started working with *Episcias* trying to set seed, and/or cross them. I had very unsuccessful results using *E.* 'Tri-Color,' *E.* 'Moss Agate,' *E.* 'La Solidad,' and *E.* 'Sundog'. Perhaps some advice as to how to set seed by professionals is needed in this area.

I have also been working with *Streptocarpus* and the results are much more satisfying. I seem to end up with *thousands* under lights. The first seeds I started came from the Seed Fund and resulted in mostly dusty rose shades with deeper markings in the throat. I then selfed a large white ruffled with a yellow throat (unknown) which resulted in a pleasing pure white. The flower is not quite as large, but is ruffled and minus the yellow. I am waiting for the next generation, and will try to cross the F1 with the original unknown.

Since *Kohleria* 'Longwood' was one of my first gesneriads, I crossed this with *K. eriantha*. The seedlings are quite vigorous, but do not retain *K. eriantha's* red coloring on the leaves. I am hoping that some might not be as leggy as both parents, but they have not flowered yet, and so I have no idea what they will resemble. Will keep you informed if I get anything great.

GHA AWARD -- AGGS CONVENTION, 1979

Achimenes 'Rose Bouquet', a new double-flowered compact hybrid produced and exhibited by Patrick Worley, won the GHA-sponsored award at the 1979 AGGS Convention in Danvers, Massachusetts. The award was given for the best new hybrid, displayed by the hybridizer. (At the banquet, the award was mistakenly presented to Peter Shalit for *Sinningia cardinalis* 'Redcoat'. This was due to a mistake by a clerk; Patrick's plant scored higher. In addition, the hybridizer of 'Redcoat' is unknown. The mistake was later corrected.)

Patrick Worley also exhibited several other new hybrids, including some exciting intergenerics, making the show very interesting for GHA members. He has promised to describe some of his new hybrids for *CrossWords*.

There were some very real problems in judging the New Cultivar section of the AGGS Convention Show. Frances Batcheller mentioned that this category will be revised and split for future AGGS shows.

WANTS

Fran Baschnagel, 5 Bruce Street, Tewkesbury, MA 01876, would like *Petrocosmea* pollen from any species. She also suggests an updated list of chromosome numbers would be useful, if anyone has such new information.

Ron Myhr, Box 245, Claremont, Ontario, Canada L0H 1E0 has had difficulty selfing *Streptocarpus Johannis*, although pods have formed when foreign pollen is administered. He would appreciate seed or pollen from fully fertile clones of this species, either white or blue flowered. He would also appreciate hearing from anyone who has had hybridizing experience with the *Eucodonia* group.

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