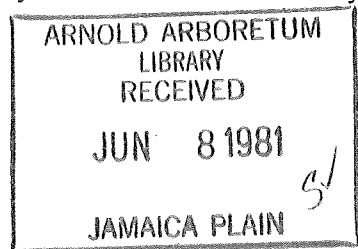


Spring is in the air. The sun shines, the tulips sprout, the air is rich with the earthy odours of nature's renewal. And *CrossWords* begins its fifth year of publication.

It seems appropriate that our annual renewal coincides so neatly with the season of nature's awakening. Just as in the depths of winter it can seem unlikely that spring will ever come, so it sometimes seems that we will never get enough material for the next issue of *CrossWords*. But spring comes, and so do the articles, nature carries on and so do we. Our thanks from all of us to those who have so generously contributed their time and experience to make this 'medium of exchange' a success, and an invitation to all the others to participate in the project.

Please note the new addresses for Peter Shalit and David Zaitlin. All correspondence about seed and seed exchanging should now be directed to David. He will be returning to *CrossWords* with a report on the seed exchange in the next issue. Don't forget to let the originator of any seed you have grown know the results of this work. Obtaining a broad base of information on the characteristics of this seed is beyond the resources of most amateur hybridizers unless they gain the cooperation of others.



Ron Myhr  
Anne Crowley

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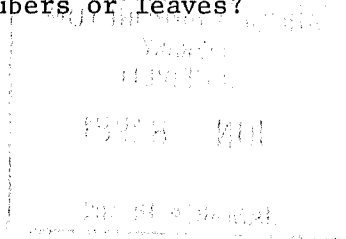
## QUESTIONS

Margaret Waguespack  
334 Halsey Dr.  
Harahan, LA 70123

- (1) After the third seed-sowing (three different batches of seed) I have several plants of *Gesneria humilis*, one of which is in bloom. I would like to use *humilis* in a hybridizing attempt. As I understand it, if it is used as the seed parent, the anthers must be removed. How early must this be done and what is the best instrument for removing the corolla?
- (2) Two authors, both experts, have described *G. humilis* as "very low-growing" and as "a tiny plant". My blooming plant is 6" tall (it is not "reaching" as it is 4" from the tubes) and the mature leaves are 4" long. This hardly qualifies it as a gargantua but I would not call it tiny. Oh, yes, the bloom stalks add another inch or so to the overall height.
- (3) What is a "swarm"? I gather that it is a more or less isolated group of plants (hybrids) in the wild that have resulted from a cross between two species, the pollination having been done by birds, bees, etc. Right? Wrong???

Would anyone know of a source for *Chirita asperfolia* seed or plants?

Or a source of *Sinningia* 'Alruth' tubers or leaves?



## POLLEN STAIN FROM THE CORNER DRUGSTORE

W. R. Saylor  
Brewster, MA

One of the inconvenient nuisances about checking pollen stainability, for the non-professional, is the relative unavailability of the aceto-carmin stain that is most frequently recommended. You usually have to go begging at a high school or college biology laboratory, or perhaps even send away to a biological supply house.

Well, a few days ago my dentist was talking about a "disclosing solution" to stain and reveal residual plaque on patients' teeth. That night the thought struck--If bacterial colonies (plaque) are selectively stained by this material, why not pollen? The trade name of the solution I found at the pharmacy is *Trace*. It is very concentrated and so works best when diluted perhaps 10 or 20 to one, but it *does* work and is only a trip to your pharmacy away. The active ingredient is the biological stain Erythrosin.

## GESNERIACEAE CHROMOSOME NUMBERS III. Conandron to Gesneria

Laurence E. Skog  
Washington, DC

The first two parts of this series on the chromosome counts of the species in the Gesneriaceae appeared in Crosswords, volume 4, number 3 (September 1980), pages 7-14; and volume 4, number 4 (December 1980), pages 6-15.

Chromosome counts are arranged below in alphabetic order by genus and species. The number as given by the counter in the original publication appears in the middle two columns,  $n$  or  $2n$ . References to the publications of the numbers are given in the right hand column. Full references will be given only in the part where first cited. Please refer back to earlier parts of this series for references not included here.

The names of the genera and species will be those currently in use, but the name of the plant under which the count first appeared will also be given with a cross reference to the current name of the species.

Typographical errors have been corrected where possible. I am especially interested in learning of counts or publications that I have overlooked or where an error has been made. My address is Department of Botany, NHB 166, Smithsonian Institution, Washington DC 20560.

Genus, species, author	$n$ =	$2n$ =	References
CONANDRON			
ramondioides Sieb. & Zucc.	16	32	Ratter & Prentice 1964
CORYTHOLOMA			
cardinale (Lehm.) Fritsch =Sinningia cardinalis (Lehm.) H. E. Moore	13		Eberle 1956
macropodum Sprague =Sinningia macropoda (Sprague) H. E. Moore	13		Eberle 1956
warmingii (Hiern) Tours. =Sinningia sceptrum (Hiern) Wiehl.	13		Di Fulvio 1967
CORYTOPLECTUS			
capitatus (Hook.) Wiehl. as Alloplectus capitatus Hook.	9		Eberle 1956
congestus (Linden ex Hanst.) Wiehl. as Alloplectus zamorensis Linden & Andre	9		Wiehler 1972

Genus, species, author	n=	2n=	References
<b>CORYTOPECTUS (continued)</b>			
congestus (Linden ex Hanst.) Wiehl. as <i>Alloplectus</i> sp. G-244	9		Lee 1962b
schlimii (Planch. & Linden) Wiehl. as <i>Alloplectus schlimii</i> Planch. & Linden	9		Lee 1962b
speciosus (Poepp.) Wiehl. as <i>Alloplectus speciosus</i> Poepp.	9		Lee 1962a
speciosus (Poepp.) Wiehl. as <i>Alloplectus vittatus</i> Linden & Andre	9		Eberle 1956; Eberle 1957a
<b>CYRTANDRA</b>			
nr. axillaris C. B. Cl.		34	Ratter & Prentice 1964
nr. biflora J. R. & G. Forster = <i>Cyrtandra mooreaensis</i> Gillett	17	34	Ratter & Prentice 1967; Ratter 1975
cordifolia Gaud.	17	34	Storey, in St. John 1966
ferruginosa St. John & Storey		34	Storey, in St. John 1966
garnotiana Gaud.		34	Storey, in St. John 1966
grandiflora Gaud.	17	34	Storey, in St. John 1966
latebrosa Hilleb.		34	Storey, in St. John 1966
mooreaensis Gillett as <i>Cyrtandra</i> nr. biflora J. R. & G. Forster	17	34	Ratter & Prentice 1967; Ratter 1975
aff. multibracteata C. B. Cl.	17		Milne 1975
oblongifolia (Bl.) C. B. Cl.	17		Ratter & Prentice 1967
oblongifolia (Bl.) C. B. Cl.		34	Ratter & Prentice 1964
paludosa Gaud.	17		Ratter & Prentice 1967
paludosa Gaud.		34	Storey, in St. John 1966
pendula Bl.		34(35&36)	Ratter & Prentice 1964
propinqua C. N. Forbes		34	Storey, in St. John 1966
radiciflora C. B. Cl.		34	Ratter & Prentice 1967

Genus, species, author	n=	2n=	References
CYRTANDRA (continued)			
sandei De Vries		34	Milne 1975
sandwicensis (Lev.) St. John & Storey	17	34	Storey, in St. John 1966
sororia Schltr.	17		Milne 1975
splendens C. B. Cl.		34(21)(+24)	Ratter & Prentice 1964
nr. splendens C. B. Cl.		34(27,36)	Ratter & Prentice 1964
stupantha St. John & Storey	17	34	Storey, in St. John 1966
spp. from New Guinea		32	Borgmann 1964
sp. from New Guinea C4376	17		Ratter & Prentice 1967
sp. from Soloman Is. C3782		34	Ratter 1963
DIASTEMA			
maculatum Benth.	13		Lee & Greer 1963
quinquevulnerum Planch & Lind.	13		Lee 1966a
racemiferum Benth. as Diastema rupestre T. S. Brandeg.	13		Lee 1966b
rupestre T. S. Brandeg. =Diastema racemiferum Benth.	13		Lee 1966b
vexans H. E. Moore		26	Fussell 1958; Wiehler 1975b
DICHILOBOEA			
speciosa (Ridl.) Stapf	18		Ratter & Prentice 1967
DICHROTRICHUM			
amabile S. Moore as Dichrotrichum sp. 60-811 =Agalmyla sp.		32	Ratter & Prentice 1964; Ratter 1975
sp. from Sarawak C4045 =Agalmyla borneensis (Schlecht.) B. L. Burtt	16	32	Ratter & Prentice 1964; Ratter & Prentice 1967

Genus, species, author	n=	2n=	References
<b>DIDISSANDRA</b>			
lanuginosa C. B. Cl.	10		Mehra & Vasudevan 1972
<b>DIDYMOCARPUS</b>			
alternans Ridl.	18		Ratter & Milne 1970
biserratus Barnett	28		Milne 1975
aff. bombycinus Ridl.		18	Ratter & Milne 1970
citrinus Ridl.	11		Ratter & Milne 1970
corchorifolius R. Br.	22		Ratter & Milne 1970
flavescens Ridl.	9		Ratter & Milne 1970
floccosus Thwaites	16		Milne 1975
innominatus B. L. Burtt	16	32	Ratter & Prentice 1967
"lavandulacea" =Chirita lavandulacea Stapf	18		Sugiura 1940b
malayanus Hook. f.	9		Ratter & Milne 1970
pedicellatus R. Br.	18		Mehra & Vesudevan 1972
pedicellatus R. Br.		24	Malla, et al. 1974
praeteritus B. L. Burtt & Davidson	12		Ratter & Prentice 1964
pumilus Ridl.	19		Ratter & Milne 1970
purpureus Ridl.	16		Ratter & Prentice 1967
reticulosus C. B. Cl.	9		Ratter & Milne 1970
rodgeri var. siamensis W. W. Smith	14		Ratter & Milne 1970
siamensis Barnett		54	Ratter & Prentice 1964
tomentosus Wight	27		Thathacher 1942
tomentosus Wight	<u>+45</u>	<u>+90</u>	Ratter & Prentice 1967
sp. from Thailand C4304		28	Ratter & Prentice 1967
<b>DRYMONIA</b>			
alloplectoides Hanst. as Drymonia sp. G-365	9		Lee 1962a; Wiehler 1972

Genus, species, author	n=	2n=	References
DRYMONIA (continued)			
coccinea (Aubl.) Wiehl. as <i>Alloplectus coccineus</i> var. <i>fusco-maculatus</i> Leeuw.		18	Gadella & Kliphuis 1964
macrantha (J. D. Sm.) D. Gibs.	9		Wiehler 1972
macrantha (J. D. Sm.) D. Gibs. as <i>Drymonia</i> sp. G-196	9		Lee 1962a
macrophylla (Oerst.) H. E. Moore		18	Rogers, in Lee 1962a
mollis Oerst.		18	Ratter 1963
parviflora Hanst.	9		Lee 1966b
serrulata (Jacq.) Mart.		18	Ratter 1963
serrulata (Jacq.) Mart. as <i>Drymonia</i> sp. G-747	9		Lee 1964; Wiehler 1972
stenophylla (J. D. Sm.) H. E. Moore	9		Lee 1962a
strigosa (Oerst.) Wiehl.	9		Wiehler 1972
sp. G-102	9		Fussell 1958; Lee 1962a
sp. ML61-2000		18	Ratter 1963
EPISCIA			
cupreata (Hook.) Hanst.		18	Rogers 1954; Ratter 1963
cupreata (Hook.) Hanst.	9		Eberle 1956
cupreata (Hook.) Hanst. 'Emerald Queen'		18	Fussell 1958
cupreata (Hook.) Hanst. 'Silver Sheen'		18	Rogers 1954
cupreata (Hook.) Hanst. 'Splendens'		18	Rogers 1954
cupreata (Hook.) Hanst.		18	Rogers 1954
dianthiflora H. E. Moore & R. G. Wilson	9		Fussell 1958
fulgida (Linden) Hook. f. = <i>Episcia reptans</i> Mart.		18	Rogers 1954

Genus, species, author	n=	2n=	References
EPISCIA (continued)			
<i>lilacina</i> Hanst.		18	Rogers 1954
(?) <i>lineata</i> G-359 = <i>Paradrymonia lurida</i> (Morton & Raymond) Wiehl.	9		Lee 1962a
<i>melittifolia</i> (L.) Mart. = <i>Nautilocalyx melittifolius</i> (L.) Wiehl.	9		Lee 1962a
<i>punctata</i> (Lindl.) Hanst		18	Rogers 1954
<i>punctata</i> (Lindl.) Hanst.	9		Eberle 1956
<i>reptans</i> Mart.		18	Rogers, in Lee 1962a
<i>reptans</i> Mart. as <i>Episcia fulgida</i> (Linden) Hook. f.		18	Rogers 1954
<i>reptans</i> Mart. 'Lady Lou'		18	Fussell 1958
<i>tesselata</i> Hort. ex Lem. = <i>Nautilocalyx bullatus</i> (Lem.) Sprague	9		Eberle 1956; Eberle 1957b
'Tetra'	9		Fussell 1958
sp. FP/60-3121 = <i>Rufodorsia minor</i> Wiehl.	9		Ratter 1963
EUCODONIA			
<i>andrieuxii</i> (DC.) Wiehl. as <i>Achimenes andrieuxii</i> DC.	12		Cooke, in Lee 1962a; Cooke & Lee 1966
<i>verticillata</i> (Martens & Gal.) Wiehl.	12		Wiehler 1976
<i>verticillata</i> (Martens & Gal.) Wiehl. as <i>Achimenes bella</i> Morton	24		Cooke & Lee 1966; Lee 1966b
<i>verticillata</i> (Martens & Gal.) Wiehl. as <i>Achimenes ehrenbergii</i> (Hanst.) H. E. Moore	12		Cooke, in Lee 1962a; Cooke & Lee 1966
<i>verticillata</i> (Martens & Gal.) Wiehl. as <i>Achimenes ehrenbergii</i> (Hanst.) H. E. Moore		+24	Fussell 1958



Genus, species, author	n=	2n=	References
<b>FIELDIA</b>			
australis F. v. Muell.		<u>+80</u>	Ratter 1963
<b>GESNERIA</b>			
acaulis L. var. acaulis	14		Lee 1966a; Skog 1976
acaulis var. glabrata L. Skog	14		Skog 1976
albiflora (Decne.) O. Kuntze =Gesneria pedunculosa (DC.) Fritsch	14		Lee 1964
christii Urb.	14		Lee 1966a
citrina Urb.	14		Lee 1966a
cuneifolia (DC.) Fritsch	28		Lee 1964
cuneifolia vel aff. "El Yunque Variant" =Gesneria reticulata (Griseb.) Urban	14		Lee 1966a
exserta Sw.	14		Lee 1966b
jamaicensis Britt.	14		Lee 1967
pauciflora Urban	14		Lee 1966a
pedunculosa (DC.) Fritsch as Gesneria albiflora (Decne.) Fritsch	14		Lee 1964
pumila Sw.	14		Lee 1966a
reticulata (Griseb.) Urban as Gesneria cuneifolia vel aff. "El Yunque Variant"	14		Lee 1966a
sintensisii Urban =Gesneria viridiflora subsp. sintensisii (Urban) L. Skog	7		Nevling 1969
tomentosa L. =Rhytidophyllum tomentosum (L.) Mart.	14		Eberle 1956
ventricosa Sw.	14		Lee 1966b
viridiflora subsp. sintensisii (Urban) L. Skog as Gesneria sintensisii Urban	7		Nevling 1969

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*STREPTOCARPUS* 'CLAREMONT HYBRIDS'

Ron Myhr  
Claremont, Ontario

For some time now I have been working with various *Streptocarpus* hybrids and species, in several distinct breeding programs. The first 'commercial' results of this work are now at hand. C. A. Cruickshank Ltd. (1075 Mount Pleasant Road, Toronto, Ontario), a bulb specialist carrying a range of tuberous and rhizomatous gesneriads as well as a selection of gesneriad and other seeds, has listed seed supplied by me as *Streptocarpus* 'Claremont Hybrids' in their Spring 1981 catalogue. These are described as "...a floriferous strain producing well-shaped flowers in shades of lavender, pink, purple and white on relatively compact vigorous plants. Stems are long and sturdy, splendid for cut flower use. Very free blooming. We recommend *Streptocarpus* as one of the most satisfactory of house plants."

A number of cultivars were used in this breeding program, including 'Wintermint', 'Essue', 'Starlite', 'Moonbeam', 'Paula', 'Frisled Purple', 'Margaret', an unnamed deep red Wiesmoor hybrid, and an unnamed white hybrid. A number of crosses were made among these plants, and individual seedlings selected for flower and vegetative characteristics. These were then used in additional crosses with each other and back to the original stock. Subsequent observation of the characteristics of the resulting seedlings has informed the production and mixing of the 'Claremont Hybrids' seed, and the characteristics of the mix are fairly predictable.

Approximately 50% of the seed will produce plants in the range defined by the Hunter and Innes hybrids. That is, flowers are smaller and more numerous than on standard 'Rexii' or 'Wiesmoor' hybrids, and most will be conspicuously striped or lined in attractive fashion. Plants are relatively compact, although not 'dwarf' in the usual meaning of the term. An additional 20% of the seed will produce plants with large and shapely flowers bred from the Lyon hybrids 'Frisled Purple' and 'Frisled Pink' and from the unnamed red and white hybrids identified above. These will produce plants more compact than typical standard hybrids. Another 20% will be intermediate between these two types, and are a consequence of breeding between them. The final 10% is composed of crosses to the species *johannis*, with both the F2 generation and a cross back again to *johannis* represented. This latter portion is a product of another breeding program designed to produce small-flowered very floriferous plants in a range of colors, and was included here for variety.

*Streptocarpus* 'Claremont Hybrids' are representative of the recent advances in streptocarpus breeding. Continuing refinements are planned, and progress is being made in other directions.

## CANADIAN CAPERS UPDATE

Ruth Zavitz  
R.R. 2  
Ilderton, Ontario

While indulging in my favorite winter sport (re-reading all my old Gesneriad magazines) I came across a letter I wrote to *CrossWords* (V.2, No.2). I thought perhaps you might be interested in an update.

My *Sinningia cardinalis* X 'Purple Mini' ('Purple Beauty') which looked like 'Patty Ann' was 'Patty Ann', apparently dropped in from somewhere. How do you guard against getting these fine seeds in the wrong place? They seem to travel on clothes and fingers as easily as spider mites do.

*S.* 'Coral Mini' X *S. concinna* was apparently selfed as F2s were all the same. The only thing I cannot explain is the increased flowering and general vigour.

The spotted *Sinningia* 'Dollbaby' was indeed a cross but with *S.* 'Cindy-ella', not *S. concinna*, proved by the F2. I could not get any seed until I crossed it back to *S.* 'Dollbaby'. Now it sets seed if hand-pollinated - very rarely spontaneously. That is a plus. It makes a much better commercial plant as it does not self and then drop its flowers every time it is moved.

One very nice one has dark foliage like the parents, a flower the shape of *S.* 'Dollbaby' with the petals a little more 'squared', the top two petals are a rich red/purple and the bottom ones are white with just a suggestion of a dot here and there. Does anyone know if this one has been named? How many generations would it be likely to take to make it come true from seed? It is reasonably fertile. I have just planted the first batch of selfed seed from it. Do you call them F3 or S1?

I also have endless variations of lilacs, purples, banded petals, yellow throats, different coloured dots, etc...It is very difficult to decide what to discard after you get past the faded colours and unthrifty ones.

As for the *Streptocarpus* 'Ultra (not Netta) Nymph' X Giant flowered, I lost the whole seeding plus a lot of other plants in a disaster which I am still trying to identify. I planted another batch of the seeds which are just coming into bloom. The first one is white with a large greenish yellow patch in the open throat and the second a fluorescent pink, also with yellow throat. They seem to have reasonably strong stems and the yellow throat, two of the traits I was after. Time will tell if they are too large. From this same batch of seed I have some with two or three leaves the longest only a couple of inches, whether these are really small or only slow only time will tell - no buds showing on them yet.

If any of you have a *Streptocarpus* 'Good Hope', plant a few seeds. The next generation has some gorgeous specimens. I have one lilac, one with two different coloured spots in the throat, one set dark purple, one set very pale. The flowers are 1½" long, up to 8 to a stem. It makes a beautiful basket plant as the plant stems tend to grow down and the flowers are on 6" stems. I have named mine *S.* 'Canadian Hope'. Another I call *S.* 'Summer Skies' is an upright plant with flowers like *S.* 'Good Hope' but larger, and more of them. Both of these are constant bloomers under lights, or with a couple of hours of sun.

I have acquired a plant called *Isoloma* 'Jac'. It obviously belongs to the *Kohleria* family. It will grow very large. I saw a four foot one in a greenhouse. It has beautiful dark green velvety leaves with saw-toothed red edges, very strong red, hairy stems and gorgeous red velvet coloured spotted flowers. The only way I have found to control its size is to root budded tips or put a great many rhizomes in a basket so that the competition keeps it small. Can anyone tell me if it is now in the *Kohleria* family and if so what is its current name?

#### A NON-TRADITIONAL BREEDING CHART FOR *xCodonatanthus*

W. R. Saylor  
Brewster, MA

It is difficult to realize that almost a year and a half have gone by since my last report on the *xCodonatanthus* breeding program. If you want to refresh your memory you may want to reread the article on Pages 5 and 6 of *CrossWords* Vol. 3, No. 3. Since that time several intergeneric hybrids in the *xCodonatanthus* complex have been registered, to wit:

xC. 'Fiesta'	Reg. No. 80188
'Tambourine'	80190
'Antique Gold'	80186
'Aurora'	80187
'Springtime'	80189

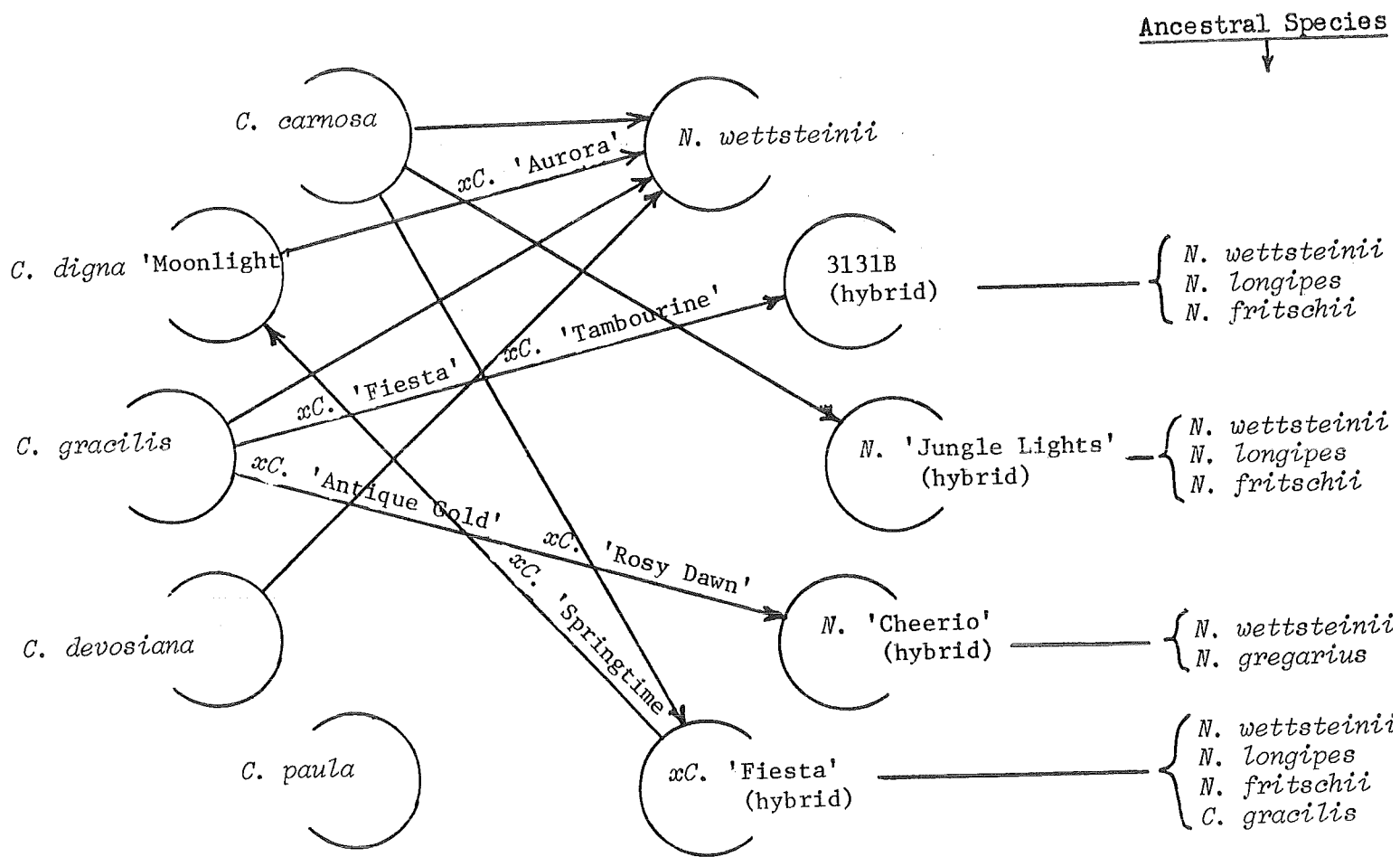
The last two selections are noteworthy particularly because: (1) 'Aurora' is the first *primary* hybrid to be named, carrying the pedigree *Nematanthus wettsteinii* x *Codonanthe digna* 'Moonlight', and (2) 'Springtime' is the first F<sub>2</sub> *xCodonatanthus* with *C. digna* 'Moonlight' the seed bearer and xC. 'Fiesta' the pollen parent.

'Springtime' has impressed me from the time of its first flowering with its many sterling characteristics. It is a vigorous trailer with shiny green leaves and the attractive red splotching inherited from its ancestor *N. fritschii*. Its flowers are clean and bright with rose tubes and flaring white limbs, and they develop in the leaf axils often in clusters of two and three which come to bloom in sequence over a very long season. The plant blooms heavily for me in full sun, under lights, and also even on a north-facing windowsill where it never gets any sun. It is in bloom at this writing on our glassed-in breezeway where a max-min thermometer shows that during the last month the high was about 52°F and the low was 38°. No leaves have dropped so far although I doubt that these low temperatures will make for the very happiest of plants come spring.

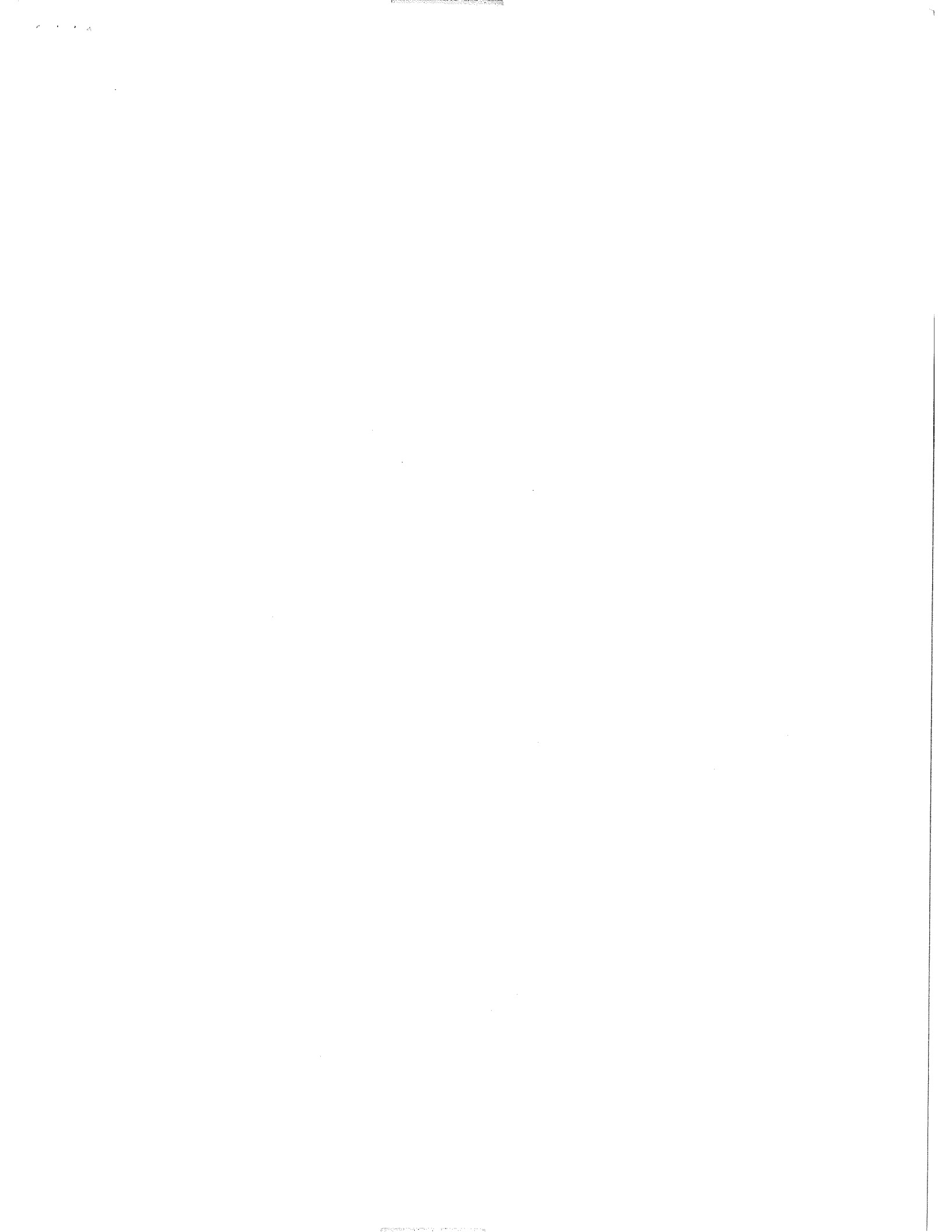
Now, for the breeding chart. Most of our *CrossWords* members are at least casually familiar with the common interspecific hybridizing chart where the various species in a given genus are displayed at intervals around a circle and each successful primary cross is shown by drawing a line between the two species involved. You probably also can see that any attempt to show F<sub>2</sub> and succeeding generations this way can become hopelessly cumbersome.

Actually the intergeneric breeding of *xCodonatanthus* is showing some puzzling anomalies. Even interspecific breeding of *Codonanthe* is a chancy thing at best, and *xCodonatanthus* appears to yield only one successful cross in many tries. So far only two F<sub>2</sub> populations have been produced and nothing further has shown up. I have therefore, as an expedient of the moment, chosen to include the southeastern Brazilian species of *Codonanthe* (which are the only ones so far involved in my breeding program) and the *Nematanthus* and *xCodonatanthus* cultivars (hybrid or otherwise) which have been used to date. The chart displays every cross I have succeeded in making, shows pod and pollen parent (the arrowheads point to the pod parents), lists the intergeneric selections which have so far been named, and shows the ancestral species contributing to the genetic makeup of the hybrid cultivars which have been selected as parents.

The fond hope, of course, is that this chart will soon be outdated and of little value because of further breeding successes within the *Codonanthe-Nematanthus* complex. Patrick Worley reports having bloomed at least one *xCodonatanthus* seedling and I know of two graduate students in botany who are reported to be working on some of the problems presented by these interesting Brazilian epiphytes--so it will not be surprising if other worthwhile cultivars are introduced before long.



*x*CODONATANTHUS BREEDING CHART



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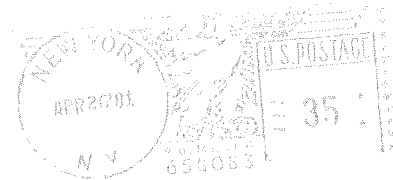
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