PAEONIA

Volume 13, No. 2 June, 1982

REQUIRED READING:

1. "The Peonies" by John C. Wister, $3.50 from American Peony Society, 250 Interlachen Rd., Hopkins, MN 55343
2. Bulletins of the American Peony Society.
3. History of the Peonies and their Originations.
4. The Best of 75 Years; 3 & 4 ed. by Greta Kessenich, and available from the American Peony Society.

Editors are Chris and Lois Laning,
553 West F Avenue,
Kalamazoo, Michigan, 49007.
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A SUFFRUTICOSA CHALLENGE

Ten to twenty thousand named varieties of iris are on record as named introductions in the iris world. This great number of entries blurs the picture for each individual introduction. To me, it would seem a checklist of this sort is counter-productive! Could this happen to peonies?

A different problem presents itself when dealing with tree peonies (P. suffruticosa). Their names, for the most part, are Chinese or Japanese — difficult to pronounce and meaningless as to description. Would it not be a good idea to produce and name and introduce our own tree peonies? A valid description of American introduced clones would be very desirable — almost a necessity. I have found that most (a high percentage) of seedlings of P. suffruticosa are beautiful. Also, over a period of years they tend to develop more doubleness. Probably the main reason for doubleness is the prolonging of the flower's life (doubles last much longer as cut flowers, also when retained on the bush). But for real beauty, singles at first opening are beyond compare. Paeonian hybridizers, we must lend ourselves to the hybridizing task of propagating tree peony seedlings! Seeds and instructions are available through our Peony Society seed distribution program.

Surely there is one great stumbling block in raising T.P.'s. They bloom so early in the season that at show time they are long gone. To hold these beauties refrigerated while in bud and held for a month or more lessens the ethereal and ephemeral glory that causes people to call them "King of the Flower." It may be that competition is not a necessary part of this endeavor but adds spice to the hybridizing hobby.

Letter from Philip Seitner

A new reader of Paeonia writes about his receiving back issues of our newsletter along with seeds and sprouting *P. lutea* species seeds.

Philip Seitner (that's the guy that received the stuff) is interested in magnolia species and hybrids. The success with the germination of their seeds (magnolia) and the process of overcoming their dormancy restrictions which he developed (maybe along with other hybridizers), makes him a likely tool in our further developing and improving techniques in peony seed germination. From his letter it appears that all the free time he has at his disposal could be made of good use to us eventually.

Please meet Mr. Philip Seitner!

> Dear Mr. Laning:
>
> Shortly before Christmas, when gift and greeting-processing anxieties were peaking, I found a notice at my door that a parcel addressed to me was to be picked up at the post office. I racked my memory for anything I might have ordered that would account for it and, when that failed, tried to imagine who could be sending what (and for Christmas?). Fortunately, the day after next was Saturday, permitting an excursion to my post office branch to see what it could be; it turned out (uncomprehendingly, at first) to be from you. Then I was stricken with a new anxiety — what could be so heavy and what had I written in my letter that might have been misinterpreted. Well, I took it home, opened its and. was stunned by what I found. Then came your letter.
>
> I should have written — ordinary courtesy should have dictated writing — immediately, to acknowledge receipt and to thank you. Instead, I permitted the Christmas crush (card and gift lists, guests here in Chicago the weekend before Christmas, not to speak of going to the job every day) to assume priority. It joined the list of things to be done immediately after I returned to Chicago after Christmas, when time permitted doing it properly.
>
> And now, nearly (unbelievably) three months later, there still sits at one corner all the Christmas greeting paraphernalia, on the forlorn premise that the final 15 or 20 persons still not ticked off my list might yet get their annual message on a card. It's a measure of the state of things.
>
> Suddenly, in early January, another deadline approached: getting my Magnolia seed crop to the Mag. Soc. Seed Fund in time to be included in the availability list. I pulled out my bags of stored seeds preparatory to sorting, re-packing, and shipping — and discovered some germination so unexpected I felt compelled to write acquaintances for any parallel observations (it seemed to be mostly restricted to Fl seeds from crosses I made last spring). This accounts for my

finding myself caring for about 15 pots of Magnolia seedlings since January. But I did get the seeds to the seed chairman in time. I saved a few of each for germination trial (to assure that my contributions were viable seeds when they left my hands). I noted that you have some M. loebneri Merrill seedlings; would you have any interest in a few seeds to start this spring — species enough winter-hardy for our area? Sent in April from refrigeration, they should germinate fairly promptly.

But to return to your package. The Paeonia issues: The material provides insights I was hoping for — and is enjoyable reading, besides. I've been in a quandary about what to do; my initial idea was to copy them and return the originals for someone else. Time hasn't permitted the systematic study of these documents that I need to do.

And the seeds, I'm not sure how to thank you; please believe they were appreciated. Your generosity is — unprecedented, I guess; I couldn't believe the luteas, having labored under the impression that no one could get them to grow on this side of the Atlantic (but, on reflection, I wonder if it wasn't ludlowii that Miss Saunders said failed for them and everyone else, in spite of all the European praises). Their germination (NOW) is a demonstration of what can be done in the winter following collection; I have to decide soon whether to begin potting this week or bargain for time until the ground is thawed and workable for a bed. I'll have to enlist some help to watch over them this summer.

I haven't tried too hard to assay your medium formula; it looked as if it were at least in part a shredded vermiculite - with some perlite, perhaps?

I would like to receive Paeonia as new issues are distributed during 1982,. I haven't known how to assess the value of the seeds nor of the back issues of Paeonia. Finally, I've decided to contribute a check of $25.00 for the 1982 issues, for compensation for the $1.63 postage of the December parcel, and the balance for the back issues (even if I return the originals after copying the set), and the seeds — not to speak of the time you spent packaging, addressing, and mailing that material (I know how much time that takes). I feel it is inadequate, but perhaps I can sometime provide something to you.

I was amused that you were amused at my suggestion that I had reduced Magnolia seed treatment to a "formula". What a choice of words that was. I'll try to run off a copy of a description of procedure which I've come to follow almost routinely - one somewhat forced on me by special circumstances of not living constantly with the garden, only on week-ends and scarcely every other week-end, at that. It was this more or less fixed procedure that I suppose I had in mind what I used the word "formula" and put myself in the hot seat. You're so right -

and Magnolia is not about to be restricted to any formula, although it may prove more amenable than does Paeonia. Actually, it seems to me it was precisely this attribute of variance I was addressing in a little study I made last winter; I finally assembled the results (prodded incessantly most of the summer by our editor and neglecting a lot of other things to get it written) for the fall issue. Then the fall issue didn't fall together until February. I'll run off a copy of that, too; you may find it of some-interest. As a follow-up, I've set up another set of units of seeds of a second species, for comparison. This winter has been so hectic, I'm finding it difficult to follow the protocol schedule, but a few interesting things have appeared, some of them unprogrammed and unexpected, such as the surprising hybrid seed germination when the seeds of the parent species retained dormancy under the identical treatment. Meanwhile, I have another article in draft (about the third stab at it, actually) I've promised the editor for over two years and I must find some way of driving myself to blinding myself to a few other things and concentrate on it and get it done.

One small peony accomplishment a couple of weeks ago: I've assembled onto 3 x 5 index cards what information I can pull together for the few forms I have, consulting Wister, Nehrling, the old 1928 checklist, old and recent catalogs of Saunders, Wild, Klehm, Smirnow, Reath, Lins, etc. and it still leaves gaps and unresolved discrepancies. Scarcely over a hundred., mostly "Chinese" and "hybrid", a few trees including luteas, scarcely any species. Nevertheless, getting parents, dates, originator name, descriptions, chromosome number, etc. took more evenings, brief as they are, than one would imagine. Days aren't long enough, up at 6:30, drive to work, drive home by 6:00, listen to news, dinner, TV, a semblance of social existence, etc., etc.- and the weekends flash by. But, we'll see what progress is made in the 1982 season-whenever it gets here; tonight the best we could be promised was snow again and temperatures back into the teens, just when I thought maybe the spell had been broken.

Thank you again; I'll eventually let you know the fate of your seeds. And if you should like to try the Magnolia seeds, please let me know.

Yours very Sincerely,

Philip Seitner
736 W. Waveland Ave.
Chicago, Ill. 60613

Letter from Joseph S. Majtyka

Dear Chris: May 12, 1982

I am writing to you after my first attempt to grow tree peonies from seed. Today I am wiser but sadder.

The sprouted seeds you sent me last season were so beautiful, I had, from those seeds visions of rows of tree peonies in bloom. I will give you a chronological report. You warned against letting the seeds freeze. Therefore I started to take precautions. I purchased milled sphagnum-moss and placed them in the "crisper" section of the refrigerator. I wetted the moss slightly and kept watch as to the condition of the seeds. In the meantime I sent to the Am. P. Society for the books "The Peonies" and "Handbook of the Peony" as per page #41 of Dec. Bulletin. By the time I got the books it was too late to follow instructions on pages #191 etc. in the book "Peonies" by John C. Wister, and by that time the sprouted seeds were having good size roots forming so I decided to plant the seed in individual pots and sphagnum moss and place them in an unheated basement. The temperature was steady at 36 to 40 above. Again I kept inspecting them daily. Then the winter really set in.

Old man winter was my undoing. The snow was deep outside and the winds were something else. The deep snow drove the field mice to seek shelter so they came to my basement. Checking daily the precious seeds, I noticed one evening the field mice found the seeds. I had the pots (with seeds) in flats and these flats I stacked criss-crossed on each other. There were three stacks with three flats each stack. The mice dug out all corners of the stacks. When I saw this damage I thought I'd s__, pardon my expression. It was past midnight when I finally salvaged what I could and covered each flat with boards. Next morning I went to the local hardware store and bought 20 mice traps and a pound of peanut butter, and put the baited traps around, the flats. The following three days I caught 17 mice. They were brown with white feet and white bellies. I never saw such a breed.

Old man winter had another punch. Couple days later a violent wind broke the window in the basement with a tree branch. This was again in a late evening, I heard the glass break and rushed to the basement. Snow was blowing in through the broken window. All I could, think was how will I prevent the seeds from freezing. Quickly as I could I started to move the flats into the upstairs. I closed off one room and placed the seed flats there. Then went downstairs to patch up the broken window in the basement. I have a thermometer and it was 11 above. After repairing the broken window best I could to keep the cold out, I checked the temp. in the room where I placed the seeds. It was 52 above.

Again, daily I checked the seed flats and saw sprouts from the seeds. You warned me to hold back the growth, but it was too late. So I brought the sprouted seed and placed them under "Vita Lights". In all there were 27 sprouts. One by one I agonized, watching them die. They just dried up. I kept watering them from the bottom of the pots in which they were planted. Well I moved them back into the basement and the weather was better and the temp. in the basement was between 40 and 45. In early May I saw one sprout! I moved the flats outside into a cold frame I built. But no more sprouts.

I am enclosing a picture of the sprout; I think it will not make it. Therefore I am enclosing also $3.00 for seeds in hope you may be getting this season's tree peony seed. Hope I did not bore you with my "tale of woe".

Yours truly,

Joseph S. Majtyka
28470 Haggerty Road
New Boston, RI 48164

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LETTER FROM MARI-ANN BERG

Dear Chris Laning, 16 November, 1981

Thank you for sending back issues of Paeonia. I find it very interesting to read about the results of the various crosses that you and others have tried and reported on. '**Mikado**' x '**Good Cheer**' is one such cross that I would like to try.

In Volume 10, No. 3 you write about peony goals. What I think of in particular here is II.B. Bicolors as in '**Picotee**' and C. Flares as in some hybrids etc. It would be very interesting to know a little more about this type of crosses. If one wanted to start on this line - I would if it is not too difficult - which are the plants that are hitherto known as providing the best starting-point and what is at the present stage the best way to proceed? In short, what is known about this today? If you mention plants that you know to be very difficult to locate, please say there it can be ordered from.

If it is not too late for seeds I would appreciate Quad F_3, Quad F_4, Quad F_3 x '**Silver Dawn**' F_3 and '**Moonrise**' F_2 x '**Archangel**' F_2. I have enclosed a check of $15 for the Air Mail cost for the back issues for Paeonia and for the seeds.

Sincerely,

Mari-Ann Berg
Carl Thunbergs vag 6
S-552 58 Jonkoping
Sweden

Reply - by Chris Laning

Dear Mari-Ann,

No report from Paeonia hybridizers has been forthcoming with regard to bi-colors so let's call this a "one Man Show", and the following account of my progress report on this topic.
There is a group of lactiflora clones (plants), the flower of which are white with red markings, or red ones with white markings — true bi-colors. These are appearing in my lactiflora beds. They do set seed though none of the resulting seedlings has yet bloomed.

Also, a piece of a plant that Catherine Brown of Pennsylvania developed and sent to me is bi-color. This one is a single red with white petals. It is quite similar to three or four plants that appeared in my seedling beds. She calls it "Eugene Screwball".

Probably the greatest find of this (1982) year is a true bi-color full double medium or large flower on an average size plant. The bloom opens as a glorious medium pink with lighter petals in the center which, before the flower is fully open, turn to pale yellow. Upon being fully open the flower is one-third pink, then one-third yellow, and the following third pink. Please understand that it is not the heart of the flower only that is yellow, the center section from and including guard petals and inner petals is yellow. It is a unique peony flower! I'd be willing to give a thousand dollars to be sole owner of this clone but since it belongs to me, I will have to give me nothing for it.

Many tetraploids have impressive flares. Through selection from a group of seedlings with very prominent flares, a nice group is being developed. I'm sending you tetraploid seeds from a clone with prominent flares. This may be another means of producing bi-color progeny. Plant these seeds in June or July; maybe August isn't too late. Little seedlings should appear above ground next year (March, 1983).

Shipping plants to foreign countries is a real task! Quarantines make this an impractical undertaking. If you have any thoughts on the subject, let's hear from you.

Sincerely,

Chris Laning

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LETTER FROM DON HOLLINGSWORTH

Dear Chris: April 8, 1982

I don't relish the role of kibitzer, but the way I understand what my references say about amphidiploid, you used the concept erroneously in your discussion leading up to the conclusion that one shouldn't waste time crossing advanced generation hybrids on lactiflora. This doesn't take anything away from your conclusion, but it does introduce an unproductive confusion about amphidiploid.

The importance of amphidiploid is that it is a classification of a desirable chromosome behavior in induced polyploids. The model (perhaps the only true application of the term) is that an infertile diploid interspecies hybrid is elevated to the tetraploid level through doubling of the chromosomes. This might be due to colchicine treatment or due to natural phenomena. What happens is that what would be a highly infertile hybrid at the diploid level becomes completely fertile at the tetraploid level. The reason is due to the need of chromosomes for an identical partner (or nearly so) for pairing at meiosis. The hybrid has one set of chromosomes (genome) from each species parent. The more poorly these sets match in the order of their genes, the more irregular is meiosis and the worse the fertility.

When both events — hybridity and chromosome doubling — occurs in the same individual, each chromosome immediately has a precisely identical partner and meiosis is entirely regular. The difference is dramatic — from poor fertility to species-like fertility. This contrasts with autotetraploidy in which there is one genome repeated four times. At meiosis there are four chromosomes trying to bond to each other. This sometimes causes trouble. Not all colchicine-induced autotetraploids are satisfactory breeders. The amphidiploids act just like a diploid species having two different genomes with two chromosomes of each kind in both genomes.

Getting back to the advanced generation tetraploid hybrid strains, these are neither amphidiploid (synonym allopolyploid) nor autopolyploid. Their chromosomes are a mixed bag of whatever is in their ancestry, possibly four or five species. This mix could be more or less like amphidiploid, but when it comes to crossing them with a diploid species the indications are that they are less like amphidiploids, not more, as they currently stand.

Amphidiploids act like a species in their fertility. Thus the ability to get fairly good crossing on lactiflora peonies would be an indicator of amphidiploidy, not a reason to theoretically abandon trying the cross. Amphidiploidy functions in nature. It is well accepted among plant biosystematists that amphidiploidy has been the source of origination of numerous species in the wild. It is a way that under natural conditions, unaided by manipulation, the genetic material of two species can combine and form the foundation of a. new species.

Amphidiploidy works just as well, theoretically, with triploids as it does diploids. A triploid F_1 hybrid from two species, if doubled, would be a hexaploid amphidiploid, where a doubled F_1 diploid becomes a tetraploid amphidiploid. Amphidiploid implies a desirable category of chromosome behavior and breeding fitness without limiting the ploidy level being talked about.

You asked me some other questions a while back that I didn't try to answer at the time I sent material for March Paeonia.

What I've been doing with '**Eclipse**' is to use it as pollinator for '**Lavender**'. I have two different clones of '**Lavender**'. So far there has been one seemingly good seed, but so far no indication that it is going to germinate. These plants all reached flowering maturity at the same season in 1979. Then my landlady died and the plants were moved just in time for the extreme heat and drought of 1980. They had a good year in 1981, but started from a pretty weak base. A regular comedy of misfortune on that project. But it'll work out sooner or later. '**Eclipse**' is one of the tetraploids that Roy Pehrson suggested would give good fertility when crossed on Lacti varieties (Bul. 194, Sept. 1969 and Best of 75, p. 139). However, I have not used it on anything else. I'm trying to produce the '**Lavender**' color in a fertile strain and will use other clones with '**Eclipse**', depending on color.

On introduction of my good Itoh hybrid #205, it will be a couple of years before I offer it, depending on how the propagation goes. I will be pleased for you to show it, however, at your discretion.

Of species I have a small plant of emodi, a couple of russi, and maybe arietina ... from seeds. They are very slow. However, everything did well last year and hopefully they'll get a good season again this year. Should be ready to make a substantial growth now. Also have a bakeri from plant sent by Smirnow, which has been slow but is coming much better looking this spring. This probably indicates it wants more humidity and less heat than we usually have for it in western Missouri. In trees, I have potaninii alba, a few mixed strain delav-lutea and two or three Ludlow, the latter of which, have never flowered. The one that did flower is possibly a hybrid with common lutea. Also have small grafts of Choni and Rock's from Reath's stock.

Some flower buds are as big as a nickel and we had 20 or below temperature Monday morning. I can't estimate yet what this has done to flowering on the early things, but almost surely there will be substantial loss.

I was expecting flowering on many seedlings which are long overdue owing to the adverse situation I've given them since about 1977. Quite a few of these are a month off and I am hoping they aren't far enough along to have been damaged. Others, such as early yellows, don't offer much hope.

There could easily be more flowering than I will have time to use, so I'm not going to worry about it!

- Don

ANOTHER LETTER FROM DON-Re: Seedlings of P. Wittmanniana and Rescuing Roy Pehrson's Remaining Plants

Dear Chris: April 14, 1982

On the behavior of those Wittmann peonies, they come from a pretty cold part of the world, but are probably protected by snow during the extreme parts of the year, perhaps many feet of it. We can simulate that protection by growing them in places where they can be enclosed and wrapped for the winter, as a cold frame type of situation — insulated as with microfoam. Another thing that would possibly be beneficial is to give light shade during the growing season. Then keep sprayed with fungicide to keep down premature leaf loss. These measures are probably appropriate with all species plants but the sort of thing we tend not to be programmed for since we are used to the sorts that are very vigorous and adapted to full sun.

Two other things come to mind. First, do they have adequate fertility in the potting medium? A slow-release fertilizer such as Osmocote would be ideal, also trace minerals, in moderation. The second point is not one that we can do anything about. I've often wondered the extent to which there is a problem due to inbreeding or simply because the population of peonies where the seeds are collected doesn't contain enough different plants to have a minimum gene pool present, so that the effect is the same as inbreeding depression — loss of variability in the gene pool down to below some critical point, When you study some of the research reports on meiosis in peonies, the amount of chromosome loss due to breakage would appear to be astounding. Of course, in a fair sized population, the strong seedlings, presumably representing the more viable combinations of genetic material, would be expected to account for numbers of progeny reaching breeding maturity in far higher proportions than the weaker combinations, therefore keeping the population as a whole fairly strong.

I have some research reports from Oklahoma State University on requirements for container production of nursery plants. They are pursuing questions pertaining to the media system (pore space, drainability, etc.), fertility system (including micro-nutrients), propagating systems and temperature control (in the rooting medium, for example). Dr. Carl E. Whitcomb is the research faculty, apparently. He has a prodigious amount of work going on, (so maybe he also dominates whoever else is in the faculty). They have been putting out an annual report of current research. By reading through two or more of these, the direction of their thinking comes through well and is better than a bulletin on one topic in some ways. Entitled "Nursery Research Field Day," 1981 is number Research Report P-818, 1980 is P-803, 1979 is ? (I thought I could pick it up out of an article, but can't tell for sure). You can obtain the most recent one, at least, by writing Dr. Carl E. Whitcomb, 360 Ag Hall, Oklahoma State University, Stillwater, OK 74078. If you send for these, ask also for "Understanding the Container System" dealing with the theory of water holding capacity and aeration in containers. I think you will find some very interesting and helpful information in these if you are using containers at all. It's information that I just wasn't running across anywhere else, (not that this means it isn't available elsewhere, I just wasn't in touch before).

'**Roy Pehrson's Best Yellow**' is a good propagator. When I dug the plant in 1980 that you sent to me in the fall of 1977, I must have made more than ten small divisions. However, there are only three or four remaining and these will have to grow a while before they can be divided again. The others were distributed during that season and last fall. I simply couldn't give them room in my crowded situation. I do not want to send out the ones remaining unless to someone special as an inducement to exchange for something and then I would not go below two plants in my own collection.

As to price, my inclination is to make it high if you would just as soon not move any - or only a plant or two. Then probably go for introduction at $25. You can further vary the size of the division to adjust the price. I think most people who want the plant and who are experienced would as soon pay $25 for a small division as $40 for one twice as big.

Also, you don't have to offer it at all. There is no necessary connection between registration and introduction. The reason for registration at this time being a memorial to Roy is sufficient. Let anyone who wants one ask for it, Then decide whether you want to discourage them by asking a large price. When you have enough stock to make a small offering, then decide how many you will let go and announce it. When the limit of orders is received, hold fast. Otherwise someone else will have all your working stock.

Best wishes to you and Lois,

Sincerely,

Don (Hollingsworth)
5831 N. Colrain
Kansas Citys MO 64151