

REQUIRED READING –

1. "The Peonies" by John C. Wister, \$3.50 from American Peony Society.
2. The Bulletins of the American Peony Society.

SUGGESTED READING –

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2. The Bulletins of the American Peony Society.

The PAEONIA is authorized by Miss Silvia Saunders.

Our leader and teacher in hybridizing is Roy Pehrson.

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

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Suggested yearly contribution to cover expenses of printing and mailing is \$2.00.

LETTER FROM SILVIA SAUNDERS, Clinton, New York, 13323
1977

August 26,

Dear Chris:

About my father's so-called Big Notebooks detailing his herbaceous crosses. We have only xeroxed Book I and Book III (Book II was a cross-index of Book I and I did not think it worth copying. In fact, it was jettisoned.)

We made two copies of Book I and two copies of Book III. The originals, in my father's handwriting, are in the Library of Hamilton College here in Clinton, so they are "safe and sound."

I thought one set might be housed with you and Lois and one set with the Secretary Editor of the Bulletin, for you are both "in touch" with the members and could mail them out, and perhaps even keep track of who has them.

I found them after quite a search (I wrote you about them last Spring) at Don Hollingsworth's. Roy Pehrson had sent them to him, and then, like me, forgot what he had done, so when I asked him, he said he had no idea! Meantime, Don Hollingsworth has had his own xeroxes of them, so that now, besides the Hamilton Library copies, there are three other copies that can float around and be used. Nice, I think.

Would you and Lois, as Editors of PAEONIA, be willing to care for one set? Perhaps say that you have them and then they can be mailed out to anyone wanting them? A set weighs nearly seven pounds and at present rate costs over \$2.00 to mail, over \$6 by air. It seems fair for you to ask a bit more "to cover handling and postage" as all such things ask.

I am writing this same letter to Greta, and hope to hear from both you and her that you will accept this burden. Then my mind will be clear of it, and also my house, which I continue trying to Empty Out.

- Silvia

ED: The two Big Notebooks are now in my possession and are being studied. You Paeonians can borrow them by paying the mailing costs both ways.

NOTES FROM 1977 PEONY TRIALS

by Don Hollingsworth

SOME HERBACEOUS PEONIES WITH BREEDING PROMISE

My 1977 pollinations are summarized on 4" x 6" cards and are still in order by date of first flowering, not necessarily typical flowering order, since several were divided last year and replanted in a colder—thus—later—site. Reviewing those cards in sequence calls to mind the following:

'**Nova**' - Clear yellow flower and large, coarse foliage; pollen; tetraploid; occasional seed; appears to be fertile on *Lactiflora* pods.

'**Laddie**' - Fine plant, scarlet red flower; substantial fertility for an F1 inter-species hybrid; have seedlings by '**Moonrise**' and of *Lacti* pods x '**Laddie**' pollen.

P. tenuifolia rubra plena - Open topped bud allows stigmas to dry out before the flower "opens"; overcome this by pollinating while in bud; pollen of double *Lacti* (stored since 1976) made incomplete seeds. Try other *Lacti* or tetraploid hybrids next time.

'**Roselette**' - Fairly fertile for an F1 triploid; should be worked more intensively with yellow flowered hybrids and white double *Lacti* peonies. Also, '**Roselette's Child**' and its F2's should be worked the same way; a probable source of yellow (in genetic makeup).

'**Moonrise**' F2 - Pollen parent of 'Roy Pehrson's Best Yellow'; good fertility both ways? early, right after the Triple Hybrids; strappy petals.

'**Firelight**' - A fine Quad Hybrid; vigorous; fluorescent pink with the darker flares that are the badge of this group.

'**Winged Victory**' - A dusky yellow Quad that nearly always makes some seeds if pollinated; short.

'**Cream Delight**' - Reath's, I'm hoping to have a plant of it this year; had pollen from Jackie Jansen in 1973 and am reminded of it by cards on the seedlings; very fertile pollen; source of genes for yellow.

Quad F2 and '**Rushlight**' F2+ - Since there are several advanced generation Saunders hybrids in circulation with similar tags, this entry is a bit lame. However, some of these are giving yellow flowered progeny when suitably mated. The '**Rushlight**' F2+ in my planting holds its foliage as good as any *Lacti*, right into the Fall season, a high achievement among many hybrids; flower is pink over fairly strong yellow; strappy petals are long lasting when the flowers are cut.

'**Archangel**' - Quite fertile when used with a tetraploid mate; Roy Pehrson produced a double flowered seedling of '**Archangel**' x '**Nancy**', significant of the genetic potential of both.

'**Moonrise**' - I had temporarily quit using '**Moonrise**', waiting for seedlings to develop for evaluation of its genetic potential; now Chris Laning has come up with fine things from it in yellow and it has given me a fine red single from '**Legion of Honor**'; so, it's time to put it back into business in a serious campaign.

- 'Red Red Rose'** - Some fertility both ways; its one flaw is that late freezes sometimes damage the flowers (as compared to other Saunders Lobata of Perry Hybrids); have some seedlings by **'Moonrise'**, both ways.
- 'Good Cheer'** - Much has been said here, already. Use it on double lacti whenever carpels are available.
- 'Walter Mains'** - will make a fine performer here; fertility not found so far.
- 'Paula Fay'** - Pollen takes well on **'Moonrise'**; either one of them is good pollinator for the F1 hybrids of similar parentage.
- 'Miss America'** - An early and fine Lacti Peony. Pollinate with something anytime a good carpel can be found (usually on the smaller flowers); accepts hybrid pollens better than many.
- 'Lovely Rose'** - One of the better seeders of the F1 SLP Hybrids, famous pod parent, **'Primevère'**.
- 'Constance Spry'** - Perhaps the most lasting foliage of the SLP Hybrids that I grow; fertility? not found.
- 'Cytherea'** - With podmates **'Ludovica'** and **'Paladin'** all having useable pollen (the latter often makes a seed when pollinated); here is great genetic potential for double progeny when crossed back onto Lacti Peonies - use the Lacti kinds with good carpels and free of Lacti crimson and purplish flower pigments. **'Laura Magnuson'** and her podmates have similar potential.
- 'Spring Beauty'** - A fine double light pink, early Lacti with pollen and carpels; side buds make good carpels; height and vigor. **'Mildred May'** is a white semi-double of similar promise.
- 'Gertrude Allen'** - By far the best pod parent for Itoh Hybrids found here; white anemone or Japanese type Lacti; early, no red pigments to mask the yellow Lutea Hybrid pigments.
- 'Big Ben'** - Early, red, Lacti bomb; carpels poor unless you force secondary stems, which give smaller flowers.
- 'Arcturus'** - Single, red Lacti; very long lasting as a cut flower, we need that in hybrids as much as in any other peonies. **'Kickapoo'**, another Auten single red is a fine Lacti parent.
- 'Dawn Pink'** - Extraordinary parent single pink Lacti; extremely vigorous; much to offer genetically to hybrid progeny. Try lavender toned hybrids on **'Dawn Pink'**.
- 'Kelway's Glorious'** - Exemplary double white Lacti; makes small carpels occasionally; pod parent of **'Laura Magnuson'**; use the more fertile pollens due to few ova in the tiny carpels.
- 'Garden Glory'** - Roy Pehrson thinks this may turn out to be a good breeder, although the form is not particularly good; very darkly pigmented.
- Single white Lacti such as **'Pico'**, **'Spellbinder'** and **'Le Jour'**, which have long petals and show winning form, look promising as pod parents for backcrossing SLP Hybrids of double form (**'Red Red Rose'**, the **'Cytherea'** group and the **'Laura Magnuson'** group).

'Karl Rosenfield', 'Sword Dance', 'Westerner', 'Miss America' and 'Christine' have given some fine warm colors by 'Good Cheer'.

'Lady Alexandra Duff' - Long reputed to be a good parent; this double Lacti produces useable carpels on the side buds; has given a very double yellow by 'Claire de Lune'.

'Snow Mountain', 'Charlie's White' and 'Jayhawker' - White and light pink progeny of 'M. Jules Elie', these offer absence of strong Lacti red pigments plus the lineage of their vigorous pod parent, which has been termed the standard of the cut flower trade for storage qualities; try these as pod parents for either Lutea Hybrids or Early Hybrids with yellow pigments and for 'Good Cheer' crosses.

Herbaceous 'Alice Harding', 'La Lorraine', 'Bowl of Cream' and similar double Lacti having show table quality are good prospects for pollen to be cured and stored for use on early kinds next year; also use the good semi-doubles above.

'Polar Star' - White Japanese type, not vigorous here, is reputed to be a seedling of 'Le Cygne' and pod parent of 'Mother's Choice'; makes big pods of seeds.

'Moon of Nippon', 'Shaylor's Sunburst'- Promising Japanese type whites; look out for self pollen on the Jap types that have thin staminodes; the former makes the biggest Lacti seeds in the patch, along with 'Jayhawker' and 'Spellbinder'.

Some other interesting Lacti for pod parents, are 'Golden Dawn', 'Mme. de Verneville', 'Avalanche', 'Primevere'.

My preference for white and light pink Lacti for pod parents comes through strongly above. This is because I'm giving preference to hybrid colors and, for the time being, have not experimented enough with what hybrid pigments may be complemented or supported by the presence of red and purplish Lacti pigments. Having seen some of the purplish pink Lutea Hybrids, I'm not interested in generating more than a few Itohs of those patterns.

'Good Cheer' is the only hybrid pollinator that has emerged as useful with red Lacti Peonies here. For this pollen I prefer the lighter, clearer reds because there are already a great many good red hybrids in the more crimson tones.

There is still time to add peonies this Fall. If any of the above items catch your fancy, then, by all means, push ahead to get them growing in your own collection.

FERTILITY OF LUTEA HYBRIDS – Don Hollingsworth

In PAEONIA of March, 1977, an article was published in which David Reath listed his experience in seed production of the first generation Lutea Hybrids. This gave me the necessary encouragement that I cut almost no LH flowers this year and pollinated every one of them that I could get to. Below are listed all of the Lutea Hybrids I have visited for pollen one or more times with summary of findings on both pollen and seed production. My own seed production is shown as "2 for 3", for

example, meaning 2 seeds for 3 flowers pollinated. Where no seeds were obtained from my crosses but others have reported seeds, the person's name is given. "-----" means no report.

POD PARENT	FIRM SEEDS OBTAINED USING F2 POLLEN	POLLEN OBTAINED
Age of Gold	9 FOR 14	no
Alice Harding	Reath, Michau	yes
Banquet	-----	sometimes
Black Pirate	Reath	sometimes
Demetra	2 for 3	yes
Gauguin	Armatys	yes
Hesperus	-----	yes
High Noon	5 for 15	yes
L JAFP	1 for 4	yes
Marchioness	Reath	no
Marie Laurencin	-----	no
Renown	Reath	usually
Silver Sails	-----	no
Thunderbolt	Reath	yes
Tria	-----	much
Vesuvian	1 for 3no	
Daphnis 105, F2	1 for 1	much
Daphnis 106, F2	-----	much
Reath A-197, F2	good	no
Reath A-198, F2	2 for 1	much
Reath A-199, F2	-----	much

Roy Pehrson's report of Lutea Hybrid pollens is elsewhere in this issue.

SOME INDICATORS OF HYBRIDITY PRIOR TO SEED GERMINATION – Don Hollingsworth

The Itoh cross helps perhaps more than any other cross to puncture the balloon of one's confidence that the seeds from hybrid crosses are genuine for the pollination that was made. More times than I am willing to count I have carefully harvested seeds, recorded them and nursed each lot through to germination, only to find the seedlings to be straight Lacti, not Itoh Hybrids at all.

Are there some indicators of hybridity, or lack thereof, that are apparent earlier in the sequence of events than the appearance of foliage? I believe the answer is yes and here are some possibilities:

1. Number of seeds produced; if previous experience has shown that the desired cross produces few firm seeds and one harvests many good seeds from a head, then this is a negative indicator.
2. Proportion of incomplete seeds (hollow, soft or atypical in other ways); if from a Lacti pod parent and it produces normal Lacti seeds by Lacti pollen (not all do) there will be near 100% sound, plump seeds. The same plant pollinated by various hybrids may give from some to

many incompletely developed seeds. Some of these will show up as obvious failures at harvest while others will look OK but fail at some point during germination. Thus an unusual proportion of failures may be seen as evidence the cross is working.

3. "Cracked" or "seamed" seed coats; these seeds are often invaded by fungus, but some may be brought to germination safely. The first time I noticed it I thought it to be a rupture due to regrowth of the endosperm when rains came after a long dry spell, and that was probably a contributing factor. However, since then I've noticed it often happens with hybrid crosses on 'Alice Roberts', a strong Lacti with big pink Japanese type flower. This is one of the few peonies I've left alone in its original site for 6 or 8 years, so get to make a lot of crosses, side buds and all. This year 3 or 4 Lutea Hybrid pollens gave a portion of seeds with ruptured hulls from 'Alice Roberts' as did pollen of 954, my new yellow single ('Roselette's Child' F2 x 'Cream Delight'). On a couple of other Hybrid pods No. 954 did the same, and 'Good Cheer' has done the same on a very few Lacti. I believe this should be considered a form of genetic incompatibility that is only partly lethal. It is not grounds for alarm, and so long as at least some seeds can be brought to germination, the cross is not a total loss. Whether to abandon it depends on whether other crosses of similar nature are available that "work" better.

There are probably other early indicators of hybridity, but these examples will suffice to suggest the form some may take and how one might project the probable effectiveness of techniques that were used to isolate the crosses from contamination.

* * * * *

A SUITABLE SITE FOR TREE PEONIES TO DO WELL IN MISSOURI – Don Hollingsworth

For the first time in the several years that I've been collecting tree peonies, I have a growing site that seems to meet their unqualified approval. Unfortunately the place is nothing at all like my backyard where I would rather have them growing.

The place is located on creek bottom soil just downstream from Missouri River bluffs, windblown glacial soil that is high in silt and rich in mineral nutrients. Internal drainage is excellent, comparable to the glacial moraine soils of more northerly regions.

Perhaps more importantly, the place has an almost perfect windbreak on the South, West and partly on the North. Humidity stayed good all summer and there was little effect of the hot southwest winds with which our home site gets blasted much of the time.

Unfortunately, this is a borrowed plot and I cannot count on having it continuously. This is a great opportunity, however, to study what one might do to trick the tree peonies on my hill into thinking they're as comfortable as those behind the windbreak in that nice creek bottom.

FORMER PLAINWELL MAN'S WORK MAY BOOST WORLD FOOD SUPPLY

Article from the Kalamazoo Gazette, Kalamazoo, Michigan, September, 1977

PLAINWELL - The work of a former Plainwell man, Stanley R. Ries, may one day help to increase the world's food supply for a hungry population.

Dr. Ries is a professor of horticulture at Michigan State University. His introduction to agriculture was on his father's muck farm near Hooper northeast of here. He is a 1945 graduate of Plainwell High School.

Ries and his colleagues at MSU are testing a substance they believe will stimulate plant growth from 10 to 40 percent over that of untreated plants.

Discovery of the substance, triacontanol, came in experiments using chopped alfalfa as a substitute for commercial nitrogen fertilizers. As tests progressed, Ries and co-workers pinpointed the active ingredient as triacontanol.

"It was just another obscure chemical in the alcohol family, known for its presence in beeswax and leaf cuticles," Ries says.

But miniscule amounts of the chemical, measured in parts per million, dramatically increased plant growth in the laboratory. Subsequent experiments proved it successful as a soil additive, a seed treatment, and a leaf spray.

"The effect is very rapid," Ries says, "more rapid than any treatment for growth increase that I know of."

With first publication of the findings at MSU, a triacontanol rage broke out, and soon the sole commercial supplier of the substance, Analabs in North Haven, Conn., said it was 10 weeks behind in filling orders and the calls were still coming in.

Tom Ferrick at Analabs said callers ranged from other researchers to major chemical manufacturers. California orange growers and Florida greenhouse operators called, and the ambassador from Romania even made an inquiry. A sample was taken to Red China as a goodwill token, with the approval of the State Departments and one misinformed Japanese called, hoping it would perk up his oyster bed yields. Triacontanol now goes for \$26 per milligram, enough to treat 12.5 acres adequately. Although Analab is the only firm now geared for commercial production of the substance, Ferrick sees no problems in the way of mass production and lower prices.

Ries, although excited about the potential, is hesitant to overplay the results until adequate field tests have been conducted. Ries himself was once the victim of a lab success that flopped in the field. An herbicide that increased corn protein by 10 percent in the laboratories failed large tests in Mexico, despite some success in Michigan and Costa Rica.

But it's hard for Ries to cover up his enthusiasm for the chemical. "Plants can increase within three hours and it's so surprising a lot of my colleagues had a hard time believing it," he says.

Not only do the plants grow more, they continue to grow in the dark, a violation of a basic tenet of plant biology. "Give us time and we'll know if it's good in the field," Ries says. Some field test results will be released November 1.

Ries is married to the former Mary Kinsel of Kalamazoo. They have three children, Carol, working on her doctorate at MSU, Cathy an MSU undergraduate, and Don who is beginning work on a master's degree in Texas.

ED: Dr. Stanley Ries, professor of Horticulture at Michigan State University, seems to have made a great discovery. While searching for a substitute for nitrogen fertilizer, he found a chemical that causes plants to grow faster and larger, but also continue to grow in the dark. Triacontanol is the name of the chemical — O.K., now where do you get the stuff and how is it applied? I don't know, and maybe I don't care. I am interested in experimenting with the material that he had used in the process of making his discovery, alfalfa hay.

Dr. Ries placed alfalfa alongside greenhouse seedling plants with control plants nearby for a check on, or comparison group. The plants having access to the alfalfa hay flourished compared to the ones without it. Results were so outstanding that the tests were repeated, then extended to plantings of cucumbers, lettuce, and tomatoes, all giving very encouraging results. Then, by using smaller amounts and checking results, found that the stunning results continued. Finally, so small an amount of alfalfa being used led to the conclusion that some material within the hay was doing fantastic things. The substance doing such great things was found to be triacontanol.

If triacontanol is really an unknown metabolic regulator in plants, permitting them to grow in the dark as well as in the light, a new avenue of research has been opened.

This is what I plan to do; Immediately after my peony seeds are sown, I'll apply a thin layer of alfalfa pellets on top of the ground. By regular feeding and weeding, hopefully sturdy plants will be produced by the end of the first season. Then by repeating this process on the one year olds after transplanting, results will be tabulated. Would it be too much to hope for most of them to bloom the third year? You try it too.

You doctors, chemists, and hybridizers who know how to work with chemicals, try working out a spray program and report your findings to the editor of PAEONIA.

- Chris

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P.S. A very interesting article on this subject is in the August, 1977 issue of HORTICULTURE, pages 8 and 10.

A LETTER FROM ROY PEHRSON TO DON HOLLINGSWORTH, dated September , 1977

Dear Don:

You're mistaken; we did not dig any Lutea hybrids. The Gratwick hybrids which I have all survived the winter perfectly and bloomed.

#291 - Very heavy stems, not too many, 5 yellow flowers with copious pollen. The 12 seeds enclosed came from pollination (I'm reasonably sure) with red Itoh. These seeds are probably all bad.

#222 - Quite a lot of stems making a large appearing plant. The flower is yellow. There is no pollen at all.

#223 - Only one stem from the ground, but had two quite double pinkish flowers. Plenty pollen.

#325 - Another rather good growing single yellow with a lot of pollen.

Here is something peculiar. Last fall the Luteas were protected as I had done several years previously, with rose cones, earth filled. The results were very different this time. As before, 'Alice Harding' froze down severely, but the Gratwick plants and F2A came through entirely undamaged and bloomed well. The dryness of summer '76 was very nearly a record breaker. Could this perhaps have forced an earlier, and more complete dormancy?

Then last winter was the coldest by far ever known here.

I could not bring myself around to cutting back the Luteas severely for scions. I'd like to test this survival bit through one more winter. - Roy

P.S. I would like to suggest that Garden Glory may be an exceptionally fine lacti parent though it is no candidate for show honors.

SEED DISTRIBUTION

Drop a note to Chris Laning if you would like any of the following seeds:

From Mrs. H.M. Titus:

1. White jap open. Large blooms with yellow centers.
2. '**Sea Shell**' - open pollinated - single pink lactiflora.
3. '**Krinkled White**' - open - single Lacti.
4. '**Rushlight**' F3 open pollinated - creamy white single. Beautiful foliage.

From Roy Pehrsons:

1. Seeds for pod (or seed) parent plants. These would be of greatest use by those who would like to have some very fertile tetraploid seed parent plants. Roy picked those mostly on plants which are at least reasonably good, healthy growers and with big, well filled seed pods. A few, some of them brownish in color, come from seedlings which are themselves seedlings of two triploids of Lacti x '**Moonrise**' parentage. It would be hard to guess whether these seeds might be diploids or tets; they could be useful either way. There should be a greater distribution of these fertile tets than there is at present.
2. '**Roy Pehrson's Best Yellow**' - Quad F2 x 'Moonrise' F2.
3. Roy's Second Best Yellow.
4. Big tet, very fertile.
5. Seeds from three tetraploid plants which have flower's with flares.

From Don Hollingsworth:

1. Advanced generation seeds from tet plants.

From Edward Lee Michau:

1. Mixed lactiflora (965 and 967)
2. '**Bea's Choice**' ('**Ruth Clay**' x '**Sarah Bernhardt**')
3. AS3 = Rushlight F3
4. Lacti - '**Festiva Maxima**' x ('**Ruth Clay**' x '**Alice Harding**' herb.)
5. 'Pageant'
6. '**Edulis Superba**' (open)
7. Lacti - '**Edulis Superba**' x '**Henry L. Burden**'
8. Lacti - '**Festiva Maxima**'
9. A.W. + Krekler lacti seedling (single pink)
10. Lacti - '**Hot Chocolate**'
11. Lacti - '**Orange Lace**'
12. '**Festiva Maxima**' x ('**Ruth Clay**' x '**Henry L. Burden**')
13. And many others of a few seeds each.

From Chris Laning:

- | | |
|--|--|
| 1. ' Minnie Shaylor ' - lactiflora | 8. ' Archangel ' x ' Nancy ' F2 |
| 2. ' Sable ' x lobata F2 | 9. Red Pod |
| 3. ' Sanctus ' x ' Rushlight ' | 10. P. lobata |
| 4. ' Roselette's Child ' F2 | 11. Quad F3 |
| 5. ' Serenade ' F2 | 12. Quad F3 x ' Moonrise ' (cream yellow flowers) |
| 6. ' Archangel ' F1 | 13. Suffruticosa (tree peony) |
| 7. ' Rushlight ' F2 | |

LETTER FROM Robert J. Geller,
504 S. Collinwood Blvd.
Fremont, Ohio

TO: Chris Laning

Dear Sir:

I recently discovered a source of species Paeonia seeds right here in our back yards. I made photocopies of the pages listing the seeds available. If you feel that any of the members may be interested, you might publish this information in the next issue of PAEONIA.

EDITOR:

Dear Mr. Geller;

Upon reading the information you sent, I ordered a few kinds of species Paeonia, found germination of them acceptable, though not excellent. Thinking that a price list could be sent to each Paeonian, I sent for 75 price list sheets. What did I get? Seventy-five catalogs from Mr. Goplerud.

See page 28, lines 15, 16, 17; and 181 and page 34, lines 9 and 10 of catalog.

Our thanks to Mr. Goplerud for the catalogs. He is now receiving copies of PAEONIA having recently asked that it be sent to him.