PAEONIA

Volume 3, No. 1 March, 1972

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 —

1. Srb, Owen and Edgar — Advanced Reading on Genetics, 1965
2. Srb, Owen and Edgar, Facets of Genetics, 1970, Readings from Scientific American

The PAEONIA is authorized by our Miss Silvia Saunders.

Our leader and teacher in hybridizing has been, and will continue to be, Roy Pehrson.

Editors are Chris and Lois Laning,
553 West F Avenue, Kalamazoo, Michigan, 49007. Suggested yearly contribution is $2.00 to cover expenses of printing and mailing.

CORRECTION of December, 1971, Issue

Re - letter from Mr. Edward Auten, Jr.
"In my report in Vol. 2, No. 4, Sec. VI, it should read - 'Why put in pots, why force? I love many different flowers. For me, peonies and narcissi are my No. 1 spot, and roses are No. 10.'"

OF INTEREST IN KALAMAZOO —

Today, Saturday, is a beautiful 11th of March. Temperature is 6l °F, and the crocuses are just now starting to bloom. Snow is about gone, causing our thoughts to turn to spring.

TABLE OF CONTENTS

Resume, Boy Pehrson _____ Page 2

Small Flowered Peonies
– The Prospects, Roy Pehrson ___ Page 3

Windflowers, Silvia Saunders _____ Page 5

For Beginners. Chris Laning _____ Page 6

For Beginners, Breeder Plants.
Roy Pehrson _____ Page 9

Observations by Roy (Pehrson) ____ Page 11

ATTENTION -

Are any of you people looking for a chance hybrid of *P. californica*? Seeds sent by Mr. Emery this past January really and actually did germinate in six weeks I And he wrote that more seeds might be available if we need them. So why don't you write me and ask for them.

- Chris

SWAP !!!

Leo J. Armatys is willing to swap!

He writes:

"Will trade division from Daphnis back-cross seedling #249 or #28? or #237 for division of #257 or #258 or #259, or what have you?"

L. Armatys, Box 147, Central City, Nebraska, 68826.

RESUME BY ROY (Pehrson)

With our newsletter now into its third year of publication it seems appropriate to review in our minds what we have done up to now. We should try to determine whether the things we write about best satisfy the needs of all our readers.

I believe there is a weakness. I think we have been a little too sophisticated. In our vanity we try to write things which we think will make significant contributions to the total fund of knowledge of. the peony.

This is very good. It should not be abandoned. Many facts and ideas developed as a result of experiments or by extensive reading can be put to practical use, sometimes immediately, but often only over a longer term. It is the sophisticates and the experienced who can do this. The neophyte will benefit very little.

Do the majority of readers want a change of emphasis in our letter? Possibly, but we can't really know because they don't write to tell us. It would be very discouraging to learn that once interested persons commence to lose that interest because of- shortcomings in this letter, and gradually drop away.

Among our members there are surely as many degrees of motivation as there are people. Even so it is not too far-fetched to set up just a few broad categories and guess that each one of us fits reasonably well into one of them.

1. The scholar:
   Realizes his greatest satisfactions from the intellectual side. Studies, researches older published information, correlates it, arrives at logical conclusions and writes it up. Will do some hybridizing with the intent, mainly of adding to his knowledge, not as a seriously dedicated hybridizer. *We need him — Mendel started all this!*

2. Dirty Fingernails –
   The "hard core" hybridizer. May date his interest back to childhood. Not entirely pleased with any peony. Knows that without the largest possible population, something good will be missed. Knows also — though he may not like it — that the marketplace is the only fair judge of his productions. *This manic state is shared by a sub-group -- those introverts who work alone, never asking for help and seldom volunteering to give it.*

3. The Novice -
   It's hard to understand how he may have become-interested. There may be various reasons. Whatever these may be, his motivations are sure to be less impassioned than are those in Group 2. He won't usually search out all available information to build a solid background for this work. Still, because of his numbers, he is needed most of all. He should be helped in every possible way, and eventually he may become more successful than some of us "crazy ones". In the beginning he is likely to appreciate very definite recommendations and instructions. Then, as his experience increases his own imagination will play a greater role, and who knows, he may become one of the new "master hybridists" of this century. There's still time enough left.

SMALL FLOWERED PEONIES - THE PROSPECTS

by Roy Pehrson

If dwarf growing, small flowered, peonies of just the right type could be developed they might eventually establish a "Pride of Place" right alongside of the "Ito hybrids". Certainly some hybridizers are now thinking along these lines. It may be quite possible for a few younger workers to make a "breakthrough" in this direction if they are diligent.

There's no present hint as to how the plentiful lactifloras could be used directly in this program. Since there may be no such possibility it becomes obvious that some freely fertile "breeder" strains must be developed to begin with. This will take quite a long time to accomplish, the whole project so slow that it may prove much more difficult even than the introduction of new colors through the use of tree peonies. Nevertheless it surely can't be impossible to produce these little ones, and so it becomes interesting to examine those prospects which can now be recognized.

The two Saunders' "Windflowers", their species parents, and the four existing F-2 plants must be considered first of all.

The two original Windflowers are not in the pattern we envision, for while the blooms are small enough and very charming in form, the plants are much to tall and massive. This would not rule them out as prospective parent material except that they are very seed sterile and may be worthless as pollinators of lactiflora too. This will be explained later in this account. To repeat, the crosses which produced them would be of slight help as these hybrids would be sterile too. These species could not be obtained in quantity anyway, some of them perhaps not at all.

Read about this group of species in The Peonies. There are *anomala*, *beresowskii*, *woodwardii*, etc., and with this group Saunders (in disagreement with Stern) also included *emodi*. He believed it belongs there because it crosses with the others and also no doubt because it behaves in the same way in crosses on lactiflora.

It is this behavior which probably eliminates lactiflora as an intermediate in this quest. The seedlings have pronounced "multicarpy", are described as very ugly, and are probably all sterile. The four F-2 plants would probably do the same if crossed on lactiflora.

The prospects are not as dim as they may seem up to now. There are those four Windflower F-2. Probably all of them are at least somewhat fertile. Silvia sent me one a few years ago. It is pink, somewhat of a maverick because it has quite large four inch flowers, and the plant is heavy in stem and leaf. It makes seeds.

Then there is '**Sparkling Windflower**' which David Reath had at the show. It is small and red. I don't know how it grows.

There are two others, but I am asking Silvia to write something about the Windflowers to go with this account. She knows better than I do what they are like, where they are, etc.

While *emodi* and the others behave badly when crossed on lacti, there just may be promise in another direction. The Saunders hybrid emodi-mloko looks perfectly normal. Six years ago I

used its pollen on lacti '**Laura Dessert**' and obtained just one true hybrid which bloomed last summer. The up-facing purplish red flower is only a little bigger than '**Late Windflower**'. In everything else it is much smaller. It is shorter. Stems very slender. Foliage considerably dissected, but much different than the Windflowers; delicate looking. Carpels and the seeds in them are tiny. Perhaps if this kind of cross were repeated, other similar fertile plants might be obtained. I should be able to supply some emodi-mloko pollen to a few persons to try.

So what other prospects do we see? There's the small-flowered lobata, of course. And the yellow tree peony species. Possibly ether things too. Finally, it may happen that in any large hybrid seedling population a small flowered "freak" plant may appear. Such plants should be given to those who decide to tackle this difficult job.

Surely, prospects should look better in time, so someone should give the project a good try.

****

Here is something odd!

I've had a plant of '**Chalice**' for, I suppose, more than ten years. In all that time this Saunders triploid hybrid of '**Primevere**' x macrophylla had never produced a seed— until this last season. I was very surprised to find on it a single capsule containing no less than 8 fair-to-excellent looking seeds. At this writing (late December) some of these are showing cracks preceding emergence of hypocotyls, so they are sure to grow.

Very strange! Which of you can explain it?

In another space I shall tell about the breeding possibilities in a little hybrid I obtained from a cross of '**Laura Dessert**' x Emodi-Mloko. There was only this one true hybrid in this group but the others — lactifloras —— were interesting too.

'**Laura Dessert**' is an oldie, a smaller than average yellow centered white jap which has very well formed carpels, and sets seeds well. I made the cross six years ago at Brand's Peony Farm. Not wanting to disfigure their show garden I did not strip or bag the blooms. There was much bee contamination from nearby singles.

Several seedlings were very pretty white japs with yellow centers — nicer to my taste than the parent. I think I dug and saved two of these. The real prize was a completely full double (no stamens or carpels) pink ball of smaller size (about four inches) than any named lactiflora double I know of. Very pretty! I've given it the garden name "Junior Miss" for now. It may be my best seedling of 1971 unless a big pink jap from '**Archangel**' x '**Nancy**' should eventually take over this spot.

I feel sure that any beginner who has not stocked up on all the lacti breeders he wants could find '**Laura Dessert**' suitable.

R. P.

A FEW NOTES ON THE "WINDFLOWERS"

by Silvia Saunders

Roy Pehrson has asked me to write something about "The Windflowers" to go with an article he has written on "Small-Flowered Peonies; the Prospects". This, of course, I am most happy to do.

First let me quote my father's remarks, taken from his own wonderfully detailed and readable notebooks on the two first-generation plants, '**Early Windflower**' and '**Late Windflower**'.

> "12591-604: No. 6515 x Emodi (but 6516 is Species Tibet!). In 1938 all these were grouped together, to be called Windflower." (My father must have thought he was using *woodwardi*, and then found upon looking in his own records, that the seed parent was Species Tibet. He later concludes that Species Tibet is indeed *woodwardi*, but that this plant is extremely variable). "My plant has pink stigmas, and is taller and more vigorous than *woodwardi*", he concludes.

So, after thirty years of our cataloging '**Early Windflower**' as Veitchi x Emodi, it appears that it is actually Woodwardi x Emodi. Alas! Well, what's done cannot be undone.

I will continue with father's notebooks:

> "12212-233: Beresowskyi x emodi. All these plants were grouped together as '**Late Windflower**'. Very little fertility; a seed only very rarely."

There were also two little F-2 seedlings at one time, but whether their parent was the Early or the Late, he did not know, and they never lived very long.

As we went on thru the years both the Windflowers were widely distributed to people's gardens. In I960 I began to move all the more precious hybrids from our old nursery up College Hill (and called "The Ribbon" from its shape) down to my "new" one in our garden round the house. In the course of time we have had many big plants of both varieties blooming here through all the days of spring. Instead of Early and Late, they should be called Very Early and Early! Early Windflower is always among the very first hybrids to open: some years on May 16. In a late season, the Early may not open till May 25. Late Windflower comes along about 8-10 days later, so that in a cool spring we have Windflowers in bloom for three weeks, I'd guess, and a delight they are, the entire time.

Apart from the difference in blooming seasons, I have never discerned any real differences between them. Some plants (and I think they are the "Early") have bright scarlet sepals in the fall, making a very pretty gay effect like tiny red autumn flowerets. Perhaps this is true simply of one clone; since there were originally something like 35 clones, thrown together into two large groups, I suppose this could easily be the case.

I don't think I myself have ever raised a seedling from the Windflower seed. I have gathered and planted a very few in my 20 years here, but had no germination. However, there were plants in the old nursery labelled "Windflower F-2" — perhaps four of them. They were carefully moved down here, and then I began to offer them to "special" people who I felt were particularly interested, and "deserved" them! One of these F-2's I sent to Roy Pehrson in 1965 I believe. I do

not recall its color, but he has since told me it is a pale pink. The first F-2 to really strike my eye was a little red one. A perfect replica of a Windflower, but in a matt deep cerise rose when fresh. Small gay blooms of about 9 petals. Outer white flares. Petals edged white as they age. Stigmas pale pink; carpels pale green. Filaments short, fine, white; disc white. Very gay charming thing and quite unique." Where did the red come from? Who can tell, indeed? About two years ago I sent my entire plant (saving a little division for myself) to David Reath. This past spring, mine had 6 blooms on June 9 (we had an extremely late season), and I noted: "One bloom has one white extra little petal with a red stripe in it. Obviously Windflower F-2's are interesting and varied." This plant was in bloom a week.

Two other F-2s are in a bed together, side by side. They could hardly be more different in plant habit, though the flowers are pale peach and ivory. One is very tall, has the peach-colored blooms, has lateral blooms too. The other-one is extremely dwarf, with small ivory flowers; its petals are long ovals, prettily rounded.. With its center in all gold and white, this is a very dainty little plant.

I cannot range these in the order of their blooming, but I think '**Sparkling Windflower**' (the red one) is last to bloom. I had its chromosomes counted, and they were reported to be 20. It is therefore a tetraploid if the count is correct.

It took me some years to recognize that, as a Family, this is an extremely interesting and varied one, and I wrote in my Special Breeders' List in the fall of 1971, drawing attention to them and recommending them for Breeders. Even with the extreme sterility of the first-generation plants, clever hybridists can no doubt manipulate them into setting seed. I suppose they have some pollen.. Look at the Lutea Hybrids as a group: sterile as stone (almost), yet they have been made to yield an amazing new race these past years. And who of us is to say whether this new race isn't the first of a long series of brand new, undreamed-of peonies which are just now beginning to stir; and whether the next twenty-five or fifty years won't bring forth miracles — many of them.

FOR BEGINNERS WHO DON'T OWN "THE PEONIES" (John C. Wister)

Chris Laning

PLOIDY

Diploid - Representative - Albiflora 10 Chromosomes
Tetraploid - Representative - Officinalis 20 Chromosomes

What is a Chromosome?

I. Thread-like strand located within each and every cell of the plant which is the bearer of heredity — the sum total of all characteristics that the plant possesses.
   A. Diploid has 10 such strands in. each cell of the plant.
   B. Tetraploid has 20 strands.

For reproduction (setting of seeds).

1. Diploid pollen has one-half the number of chromosomes that a regular cell possesses, or 5.

When pollen cell (5 chromosomes) fertilizes the ovum or egg cell (5 chromosomes), the total 5 + 5 = 10. Now you are back to full count and have the diploid plant.

2. Can you do the same thing for the tetraploid? Maybe it will be wise for me to do it for you. Tetraploid has one-half as many chromosomes in the pollen grain as each tetraploid plant cell.

The tetraploid plant, having 20 chromosomes, will produce pollen grains with one-half as many chromosomes as cells in the plant, which means 10. And the egg cell has one-half as many chromosomes as the plant — which makes it 10. Pollen cell + egg cell = plant (10 + 10 = 20). Now you are back to the full count — tetraploid.

3. What happens when a diploid (10) is crossed with a tetraploid (20)?

a. Diploid - pollen grain — 5 chromosomes
or - egg cell — 5 chromosomes.

Tetraploid pollen grain — 10 chromosomes
or egg cell — 10 chromosomes.

Pollinate diploid 5 with tetra 10 = 15 and the triploid plant results. <u>No problem</u>.

b. A triploid plant has 15 chromosomes —

But a triploid plant ordinarily can't reproduce! Can you see why? If a pollen grain or egg cell has one-half the number of chromosomes that the plant cell has, how many chromosomes will the egg cell have? And the pollen cell? The answer is easy enough – 7½ chromosomes. Now that problem wasn't difficult, was it? The unfortunate thing about this answer is that you can't have ½ chromosome so you can't have 7½ either. So now you know why a triploid is not fertile. There are exceptions, of course, and if you want to know about them, get a stack of books on this subject (genetics) from the library — and start studying.

End of Lesson 1

<u>Now for Lesson 2</u>

What is the difference between diploid and tetraploid plants? Are tetraploid plants bigger, or better — maybe superior? Surprise! The tetraploids are not of greater size and they are not superior. I will admit to this, though, they are easier (less difficult) to work with. But what about Dr. David Reath's tetraploid lactifloras? Aren't these plants of greater size than a regular diploid lactiflora? Yes! And they are a wonderful advancement for the peony world. Also they will give very great advantages to the hybridist who is fortunate enough to own one. But I like to think of these great plants as Double Diploids. They do have 20 chromosomes in every plant cell just like the regular tetraploids have, but the big difference is that they have a double dose of chromosomes. Let us say two of each of every chromosome of the original diploid (10) lactiflora. Think of it this way; not 20 individual but 10 twins.

#1 chromosome - 2 strands or 2 chromosomes which are identical
#2 chromosome - 2 strands or 2 chromosomes which are identical
#3 chromosome - 2 strands or 2 chromosomes which are identical
#4 chromosome - 2 strand^ or 2 chromosomes which are identical
etc. through all ten.

So the <u>double</u> diploid lactiflora has 20 chromosomes and so has a tetraploid according to count, but different (I hope) in effect when using it in hybridizing.

Lesson 3 - Triploid F-2 plants and species hybrids.

Do you have "The Peonies" by Dr. John C. Wister? Well, get it! You can't hybridize effectively without owning this book. And when you do get it, turn to page 56 and read what Dr. Saunders. has written on his findings with regard to species crosses, also with the triploids — I can't wait for you to purchase the book, so here is what was written:

> "'Mloko' crosses easily with 'Tenui' either way, and their hybrids follow the rule: the first generation plants are almost wholly sterile, but with age, they do produce a few seeds. 'Indeed I am being driven to the conclusion,' wrote Professor Saunders in the early thirties, 'that all peony hybrids eventually produce seeds, given a fairly large number of plants and sufficient lapse of time. Every year seed is produced in my garden by hybrid plants which have previously been entirely sterile.'
>
> "So it is with the 'Mloko' - 'Tenui' hybrids: seeds were eventually set, and in the resultant second generation the natural fertility of the species is restored: they all set seed fairly abundantly."

Mlokosewitschi and Tenuifolia — Both are diploids and the offspring of this cross are diploid, yet very nearly sterile. Also with many species crosses the same results are obtained. You may think: well, so what? What can we do about it. Just this we will do; recognize that Professor Saunders has done the hard work for us and we will build on his accomplishments. If we were to make species crosses and then wait twenty years or more for the resulting crosses to mature, producing a seed now and then, valuable time would be needlessly invested. So we will buy and use Saunders' F-2 plants which are fertile — producing seeds and producing valuable "blood lines" of the species.

Most of the plants I bought are the Saunders F-2s and F-3s. I am happy with these plants and now feel that species plants (for me) will be used only in backcrossing, also with herbaceous x suffruticosa crosses.

Note: To many people, this article has much redundancy, but for the beginner, repetition is needful.

Addendum — Not for beginners!

1. Lutea - is a tree peony species - diploid - (10 chromosomes)
   Suffruticosa - a jap tree peony - diploid - (10 chromosomes)
   Lutea x suffruticosa - called lutea hybrid. We would expect the hybrid to be a diploid — maybe not! Lutea hybrids may be found to be triploids!!

2. Lactiflora (herbaceous) x (Lutea x suffruticosa) known as the "Ito hybrids"
   Lactiflora (diploid) x Lutea hybrid (chromosomes ?) = "Ito hybrid", a diploid. Or is it? Will the chromosome count show it to be a triploid?

3. Could these difficult crosses take place only when unreduced gametes are involved?

FOR BEGINNERS — BREEDER PLANTS

Roy Pehrson

A reader would like to have something written about plants with breeding potential. I'll try to do this, starting here and continuing in future issues.

None of this should be taken as gospel. Experience comes so slowly that firm knowledge is still scarce. Much of what follows will be strongly colored by personal prejudice.

OFFICINALIS

In the earlier part of this century when serious hybridizing began, it is probable that the only species readily available would have been lactiflora, officinalis and tenuifolia. Since the first two of these could be crossed quite readily it was only natural that such early workers as Saunders, Auten, Bockstoce, etc. would have made many hybrids between them. They are good plants, and quite a large number have been named and marketed. One of these is the famous '**Red Charm**', possibly the best hybrid to date.

Because of this large number of hybrids I decided early in the game that I would not repeat the cross. I haven't even obtained a plant for my garden, even though it would probably be very useful in other kinds of crosses.

Officinalis blooms quite early and may be gone before the lactis bloom. This would be no obstacle to crossing them if a single form of it were used, because the pollen could be stored. The good red double form "off. rubra plena" has no pollen but will make seeds. To make seed on it with lacti pollen it might be necessary to obtain the pollen from a garden farther south.

The hybrids of course are sterile triploids. There must surely have been some F-2 plants but I don't know of their existence unless '**Sanctus**' is truly one of these. '**Sanctus**' itself is near-white and does not seem to transmit any red color it might have inherited from officinalis.

It may be worthwhile crossing officinalis with any of the fertile "advanced generation" Saunders Hybrids. Here, however, my own preference would be to use as pollinators one of the Saunders' "Little Reds" or '**Nancy**'. These are one-half officinalis and might transmit better colors from "the other parent.

DECORA

Mentioned only because I have a plant of it. It's said to be closely related to officinalis. The foliage is distinctly different. My plant survives OK but increases slowly. The color is purple. I feel that breeding-wise it t is probably inferior to officinalis, so I no longer use it.

'DIANTHA'

This is a Saunders hybrid between officinalis and a white form of *decora*. It's a modest sized plant with good lush foliage. Flower is a nice pink. My plant became established slowly and has not been a profuse bloomer.

It has set some seeds which I have not succeeded in germinating. I have not used the pollen extensively, but have some seeds -- only a few. I may still use it in a few selected crosses but I'm quite sure there are other plants of greater promise breeding.

'SABLE'

Advertised as an F-2 '**Otto Froebel**' hybrid. The plant looks like a real tall lacti, but with a barely detectable difference in the foliage. The single flower is of fair size and when first opened it has without doubt the "blackest color of any herbaceous peony. Grows well in every respect. It makes a pretty good crop of exceptionally fine seeds which also germinate and grow well. I think it is a diploid.

I've bloomed no seedlings from it up to now. It's the sort of peony which a fancier would enjoy having even if it should prove to have little value as a breeder. It may still be quite scarce and expensive.

'CHALICE', 'ARCHANGE'L, AND 4992

These three have the same basic parentage -- lacti x macrophylla. There are others in this group of Saunders hybrids, but I know these best. All these are white. '**Chalice**' is an F-l and therefore a sterile triploid. '**Archangel**' is F-2 and a reasonably fertile tetraploid. 4992 is also an F-2, but a diploid, also fertile.

'**Chalice**' has quite large foliage, medium green, stems arching. The bloom is very large. Its pollen works reasonably well on lacti. These seedlings being 3/4 lacti look just too much like lacti so I've quit making this cross. It may make more interesting hybrids if used on some 'fertile hybrid-parents', but as '**Archangel**' has better pollen I use that instead.

'**Archangel**' has very large dark green leaves. Bloom a little smaller than '**Chalice**', stems also arching. Reasonably seed fertile but not outstanding. Pollen very profuse. Behaves like '**Chalice**' in crosses on lacti. Should be used in crosses with other tets instead and may be outstanding. A cross with '**Moonrise**' made 5 plants, one or two of these good enough to save for breeders. Crossed with '**Nancy**' there were only two plants, one a very large, very full formed pink jap which may be excellent. The other was a very large pink single — somewhat jappy. Both are seed fertile.

4992 has flowers of ordinary size, but the stems are nicely upright. It is said to be a great seed maker, but I haven't put it to the test. I've just never gotten around to work with it when it's in bloom. My neglect is due in part to its diploid count.

The late Sam Wissing had an unexpected result with this one. He inbred it by using '**Chalice**' pollen. One of the seedlings had a very light "orange" shade. This could indicate that macrophylla has a well hidden factor for yellow that was brought out in this cross. So there may be three herbaceous species with yellow in them — mloko, lobata and macro. I keep this in mind in making crosses.

ANOMALA

Read the description of this species plant in "The Peonies". Note that the blossom is "side-facing'.' or "nodding".

If you have purchased as *anomala* a plant whose flowers face up in the more usual manner, it is probably the hybrid "Smouthi" or something very similar. I suspect the true *anomala* a is very scarce, possibly unobtainable.

SCARLET TANAGER

One of the Saunders "Little Reds" and, I feel sure, a plant which will become very important to hybridizers.

Some years ago a grower supplied a very different plant under this name. This plant is a tall vigorous grower and I feel reasonably sure it is a lacti-Officinalis hybrid; possibly one of the Saunders "Challenger" strain. I suppose that sometime soon the true '**Scarlet Tanager**' will be available from Dave Reath. Possibly others have it too.

The growers responsible for these mistakes should not be accused of perfidy. These mix-ups can occur. Also the confusion over *anomala* particularly is of long standing and is mentioned from time to time. This misunderstanding could be easily resolved by looking for those nodding blooms and correcting one's opinions accordingly.

OBSERVATIONS BY ROY

Health

On visits to Brand's Peony Farms during several successive seasons, I paid particular notice to two large clumps of '**Red Charm**' in the show garden.

One of these plants, like my own, had somewhat mottled foliage. The other had clear green leaves and grew perhaps a little taller.

I have wondered whether perhaps peonies may occasionally be infected with some mosaic producing virus. If so, it appears to do little harm except to disfigure foliage somewhat. I've seen these symptoms on no other peonies.

Rusty

I have a plant with very unusual foliage. I noticed it first as a two year seedling — from a supposed, though unprotected, cross of '**Nippon Beauty**' x '**Belinda**'. It was the only plant from the cross.

Commencing shortly after blooming season very small russet-colored spots appear on the upper surface of the leaves. These increase in number until, by late summer, the leaves are entirely brown. Some green color still remains on the undersides.

The plant is fertile and its health seems unaffected. I think that this is not disease, but that something in its genetic makeup is the cause. Sometime I suppose I'll give this to someone who might enjoy growing unusual plants. The flower is smallish; red-purple much like '**Belinda**' itself. I call it "Rusty".