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MLOKOSEWITSCHII x MACROPHYLLA - Roy Pehrson
(From the Peony Newsletter, Volume 1, No. 2, August, 1970)

I have a very strong hunch that the "mloko x Macro" hybrids may have a rather special property. They may be what is known as Amphi-diploids, and so, in effect, a new species. They are 4n; and I believe have the full complement of Mloko genes in double dosage. While it is going to be a slow process obtaining truly yellow hybrids from the two species, Mloko and Lobata, I do believe that these Mloko x Macros may be better for this purpose than Mloko itself. A. P. Saunders had 4710 and 9037 from this breeding. He also introduced '**Nova**', which is a strain consisting of the better selections from this cross. I believe a serious breeder should try to get at least one of these if possible.

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This article by Roy Pehrson as recorded in the Peony Newsletter (now Paeonia) needs an update. Now, nearly twenty two years later, I find similar results with the mlokosewitschii x tenuifolia cross. This cross gave '**Playmate**'. The next generation resulted in '**Nosegay**'. Seedlings from '**Nosegay**', now growing in my garden, look like P. mloko, but flowers are not quite as yellow as is the mloko species. The reciprocal of this strain is tenui x mloko which in the third generation gave '**Daystar**'.

'**Nova**', '**Nosegay**' F_2, and '**Daystar**' all are tetraploids. Someone should cross and re-cross these three clones which are fertile. Then through selection the outcome would be a TETRAPLOID MLOKOSEWITSCHII!!

Maybe Don Hollingsworth won't agree, but for me the macro and tenui species have dropped out through chromosome segregation. Maybe later he will write something on this topic.

- Chris

Dear Mr. Laning, McLewis and Sahin:

All of you have formerly received seeds of *P. tenuifolia* 'Rosea' from me and today I want to inform you about my seedlings that bloomed this year for the first time. I'm sorry to tell you that all four plants I raised from seeds from my P.t. 'Rosea' turned out to bloom red like a normal *P. tenuifolia*. I called Leo Fernig about that and heard that the seeds he got from me and gave to the Botanical Garden Geneva bloomed there this year and turned out to be red too.

The problem now is:

- did I mix the seeds? I don't believe that.
- did bees do the pollination from my normal P. tenuifolia planted about 10 m apart?
- and the big question: what is P.t.'Rosea'? Is it a true species, is it a hybrid or what else? Is there any literature available about this plant?

The P.t.'Rosea' plant in my garden I bought from the nursery of Heinz Klose, Rosenstr. 10, D 3503 Lohfelden/Kassel, Germany. I don't know whether the Kloses are able to ship overseas but their list of hybrid peonies is one of the largest in Germany and the whole family are passionate gardeners.

I want to apologize for all the troubles you had with the seeds from me. Next year I plan to pollinate by hand. The results of this selfcrossing we will see as early as 1996, if everything goes well.

- Irmtraud Rieck
Friedrichstr. 8
6927 Bad Rappenau-Babstadt
Germany

Dear Mr. Laning,
I'm sending a copy of this letter to Mrs. Kessenich too, together with slides of p.t. 'Rosea'. She made copies of our slides of *P. clusii* from Crete and asked for more pictures of species.
Your seeds of tetraploids germinated this year and the seedlings were surprisingly much stronger than all the species ones I already sowed. I'm afraid I planted them too tight together and plan to replant them in fall '92.
With all the best wishes,

- Irmtraud Rieck

ED. NOTE: I think P. tenui is only a chimera and therefore the seedlings revert back to P. tenui — the red one. What do you think? I want to give good information!

If you give protection to the *P. tenuifolia* "Rosea" and obtain a good crop of seeds, will you give me a couple or a few? Also, any other seeds you can send for our "Seed Distribution Program" will be greatly appreciated.

- Chris

Don Hollingsworth
5831 North Colrain Avenue
Kansas City,, Missouri 64151

December 5, 1991

Chris Laning
553 West F Avenue
Kalamazoo, Michigan

Dear Chris:

Responding to your recent letter, specifically the problem of red flowered seedlings from pink fern leaf peony reported in correspondence from Irmtraud Rieck, I have the following.

Background: Seeds were collected from pink flowered *Paeonia tenuifolia* rosea. Plants of these seeds which have reached flowering and reported to Ms. Rieck have all had red flowers. Two open questions are posed by Ms. Rieck and a third is yours.

"...Did bees do the pollination from my normal *P. tenuifolia* planted about 10 meters apart?" Easily, unless deliberately prevented from doing so. Ten meters (about 33 feet) is no barrier at all to honey bees, as I observe their activities in my garden. Furthermore, I note that they are especially active on peonies while the early kinds are in flower, tending to maximize the possibility of an outcross to something else in flower at the same time- (Nothing more than gravity or wind is needed to effect self pollination.)

If the red flowered progeny are indeed the result of a bee cross between the pink and red forms, what does this suggest about the mode of inheritance of red (or pink) and, more importantly, what are the implications for the production of additional pink flowered clones of fernleaf peony? There are two preferred strategies for diagnosis. First, controlled self pollination should be tried. If inheritance of the pink flowering trait is not complicated, pink flowered forms should appear among the progeny.

Secondly, back crossing the present progeny to the pink parent should test the same mode of inheritance — relatively straight forward Mendelian dominance or partial dominance.

If various depths of color are observed among the offspring, then dosage effects would be indicated. This is also called genetic redundancy, in which the intensity of the color (ranging from pink through red in this instance) results from repetitions of the gene(s) responsible for production of the pigment — as I have suggested elsewhere (The American Hybrid Peony. 1990, pp 120-121).

The second question "Is it (P. t. 'Rosea') a true species, is it a hybrid or what else? Is there any literature available about this plant? A. P. Saunders, in his summary notebook on species x species matings, cites various crosses using pink tenuifolia peony. These notes show that he raised second generation plants (F_2's) of the cross red double x pink. However, he gives no descriptive notes about the progeny of these crosses. Should we assume he

found nothing unexpected about the progeny? In the Saunders chapter on species in Boyd, ed., Peonies; Manual of the American Peony Society, 1928, he includes "rosea" as a variety, along with others then in the trade as *P. tenuifolia*, some of which were subsequently shown to be inter-species hybrids (Stebbins, G. L., Jr., "Notes on Some Systematic Relationships in the Genus Paeonia", 1939, Calif. Publications in Botany).

In Wister, ed., The Peonies, 1962, p. 56, Silvia Saunders, in discussing her father's work, "It (P.... tenuifolia) occurs in several forms: Rubra [single], Rubra Plena, Rosea, and Rosea Plena." I find no other reference to a double pink form. Did Professor Saunders obtain a double pink form among his second generation plants of the double red x single pink referenced above?

Ms. Rieck notes that pink tenuifolia is presently listed in the catalog of Heinz Klose (Germany). I further note that it is included in a recent listing of the Michel Rivière peony collection (France). It was formerly offered as a species in the USA by the now defunct Atha Gardens, West Liberty, Ohio (previous to 1974). No special comment nor statement on origin or on qualification of species status appears in any of these.

However, the F. C. Stern monograph, The Genus Paeonia (1946, Royal Horticultural Society) is entirely silent with respect to existence of a pink form of *P. tenuifolia*. Nor does it appear in Index Kewensis, which lists published botanical taxons, insofar as it is evident from my file on that publication. Index Londinensis, of botanical illustrations from the 18th and 19th century publications, has 35 listings on *P. tenuifolia*, including P. t. plena, but no rosea as such.

Is that all there is? While the botanical references seem to be silent on *P. tenuifolia* rosea, gardening literature leaves no doubt the form exists and that there is no controversy concerning its perceived status as a variety of the species!

The third question, yours Chris, is whether pink tenuifolia is a chimera. (A chimera has two distinct genetic lineages in the tissues of one individual. Here, presumably, a tissue producing pink petals surrounding a tissue which produces pollen and ova capable only of giving red flowered progeny. While my knowledge of histogenesis does not enable me to reason whether such a chimera is plausible, I feel it is much less likely to be the explanation for pink tenuifolia than is ordinary genetic variability. However, if plants can be produced from controlled self pollination of the pink form and they are all red flowered, then that would certainly be consistent with the idea the plant is a chimera.

Hope this will be helpful. Sincerely, Don Hollingsworth

PEONY BREEDING RECORD KEEPING
Tracking Breeder Plant and Seedling Performance

Don Hollingsworth

When bringing more than a few peony seedlings to flowering maturity and when some prove desirable,, eventually someone wants to know where the desirable qualities came from,, e.g., parent(s), species ancestry. Elsewhere for this newsletter I have discussed the need for seedling identification systems for peony breeders. (See also The American Hybrid Peony, APS 1990, pp. 121-23 and 142-43).

Tracking, as used here, simply refers to keeping track of desired information on a seedling or variety and accumulating it in a manner that facilitates retrieval. The question is how to do it with the least amount of tedium, yet in a manner so that the information is not lost, and is reliably retrievable when desired.

How this is done is a personal matter, the form depending on why the information is wanted. How someone else does it suits that person's goals and doesn't dictate how the next person does it. Nevertheless, it may be useful to relate the basic features of a working system which has met my own needs for more than 20 years.

There are two basic features of my system, which together enable the coordination of any information I wish to retain either on particular seed lots or particular plants (unnamed seedlings or varieties).

The first is a number identification (ID) system in which each different peony coming into the collection is assigned a number. These index numbers have been assigned in rotation beginning with one (1), kept on ordinary ruled sheets, which I call my "serial number log" or "catalog". This is not an innovation with me. It is commonplace with many collections because it is useful for the purpose, whether an arboretum, art works, etc. Professor A. P. Saunders used such a system to track his peony breeding activities, as is revealed by his summary notebooks.

In my list, a one-line entry gives identity (e.g., name, when the subject plant is a known variety), along with source and year acquired (year the number is assigned in case of home originated plants). There is also room for some additional information, such as APS class, pedigree or other descriptive note.

The second basic feature is a seed batch ID number. This number goes with a particular seed lot through germination, seedling development and eventually becomes part of the ID entry when a permanent serial number is assigned for each survivor. This serves as something unique for each batch by which notes may be coded for future reference. A batch serial number is clear, simple and reliable. I create the number using the last

two digits of the year in which the batch is produced or obtained, followed by a dash and serially assigned number.

Underpinned by these two ID series, my field notes become a database which is very flexible. For example, a card file system might be created to accumulate observations, either in hard copy or in a computer file. I am not now doing that, however (top priority for time goes to the breeding and production). Field stakes are marked with number, whether or not other information is included (repeat the number on the part of the stake that is in the ground to defeat fading). Until a seedling gets its own ID number it can be kept tracked individually by extending the batch number to include a row position number. And so on.

I do very little copying over of notes. Season notes are made on a tablet carried in the field. The sheets are generally marked with year digits and page number, with daily entries by date. But sometimes sheets are marked only with month/day/year. And, whether or not I post any of this to individual variety records, the raw notes are kept permanently, using one or more year-marked file folders. Season notes are in diary format. In practice, pollination entries become mingled somewhat with other flowering season notes, these generally on numbered pages to help with retrieval. In summary the whole system is geared to reliable retrieval, not to bookkeeping niceties!

Some particular procedures and goals might be useful. No matter how many times I may obtain plants under the same variety name, each new acquisition usually gets its own ID. An exception might be made when it is a repeat from the same source within a year or so. Anyone can make a mistake. However, after sufficient observation to be satisfied that two plants of different ID really are equal, then they may be merged under one number for convenience.

The majority of seedlings which I grow are of deliberate crosses. These are not necessarily rigorously controlled crosses, although when I depart from rigorous control it usually means I have concluded (through application of logic and common sense) that I have a reasonable chance of obtaining seeds of the desired cross within the degree of control used. This gives me a foundation from which to make informed estimates of where the desired genetics came from and thereby an informed conjecture as how to repeat the performance, perhaps with even better results.

My intent is to be as reliable as possible in the variety names under which I grow the plants and to maintain as much pedigree history as can be established.

The details of any individual system is a personal choice. You do what helps get at the answers to questions that can be helped from your records.

Dear Chris, Mr. Laning: December 20, 1991

Thanks for everything and I hope you have a great Christmas and a wonderful 1992. May all your flowers bloom their heads off!

The peonies arrived last evening, the 19th. All present and correct and are now planted! I did as you suggested in your letter — dig the hole and brought the earth inside (10 days ago) — it's black, 2 ft. down. Went out today — I'd left the garden spade in it so I'd know where the hole was, scraped back about 18" of snow and dug out the snow in the hole, and lo and behold, the ground wasn't-isn't frozen, so I was able to enlarge it a bit and loosen up the sides more, stirred it up and added some of the unfrozen earth from the bucket I'd had waiting in the kitchen — so hopefully the buds will be approx 1½" under ground level, piled the rest in plus a 2 gallon container of potting mix I keep on hand for winter gardening — on the kitchen table — then, as the peat outside was frozen (we'd had rain, then cold – 18°C), I have peat in the basement so got a bucket of that and dumped it on top for the 4" of mulch you suggested, then replaced the snow. They have zinc markers so hopefully I'll know which is which when they do come up. I realize you gave me a break on the price for which I thank you, and with any luck at all just maybe they'll flower — one each? — next year. Keeping our collective fingers crossed. I've planted bulbs when there's been perhaps 2" of frozen ground and they've always done well but this is a bit different. The delay was with our own Agriculture Canada not sending the necessary permits fast enough. I began in early September — better late than never.

They took 14 days to get here — the mail is atrocious these days — and smelled slightly mouldy but going straight into good earth like that should be OK; only slight indication of mould on the lower stems. Good buds too, nice, and tight — look OK. I hope to go to the UK in early April and return in May sometime so I'll have 2 springs! In time to remove the mulches of the peonies for growing, otherwise they'd be too far down. I usually use the hose for that kind of thing, moving plants as well as it washes off the earth clinging to the roots and I can see what I'm doing. Supposed to have a green Christmas — we can't depend on our snow cover all winter unfortunately for perennials so I have straw strewn all over for a little extra protection. It's easy enough to remove with a grass rake and roots easily. If they do flower I'll send you a snapshot — I like the look of 'Honey Gold' too — it's in Taylor's perennials and Klehms have it. I have a permit for them too but will wait and see. It came a long time after yours. Someone else sent me a short catalogue — typed — one of theirs was described as a good yellow but '91 sold out at $125 US, a bit much for my pocket. Being a pensioner isn't all it's cracked up to be, though I'm lucky as I still have reasonable health and can do my gardening which is why I like low maintenance, tough type plants. I give my peonies a top dressing of bone meal for good behavior just as the ground thaws and stir it in slightly and then I don't bother them — have loads of cut flowers, specially the secondary blooms which are slightly smaller and if cut early last a long time in water.

Do you have anything else other than peonies? Last spring I obtained a few hemerocallis to follow the iris. The new types are certainly worth while. Small plants, lots of flowers. Those I have were fantastic, light peach tones, etc. I think I mentioned before I garden in patches — mostly lilies — 1 long raised bed - iris - a triangular one, raised, and a big curved mixed perennial affair, mostly phlox of my own growing. No real plan to it. Loads of spring bulbs in front of the house — all kinds but no big plain yellow trumpets — all bi-colors.

I do have one big trumpet — enormous flowers, yellow and near red trumpet — called Fortissima — it spreads readily too which is nice. Also tried a few different types of alliums - med. height - not the gigantea.

Well, better close now before you are bored to death. I thank you again. Lots of my friends think I'm a bit mad - as in crazy - re. my plants, pets, etc. The living room is like a greenhouse. My answer is of course — well if you don't intend to look after them, don't have them — that cute pup ends up as a large dog and they need feed, care and training — like my Alsatian, sorry, German Shepherd — he's friends with everyone large or small — a refugee from the local Humane Society but he's so good & had obviously had some beginning training so I decided to keep him. It was either a gun or a good sized dog so as I'm the type who would shoot first and ask questions after, the dog seemed the better option. My son says all the British are bloodthirsty!! So much for the calm stiff upper lip view generally held.

Enough of this. If anything interesting comes your way I'd be only too happy to have your views. I've started as a "Master gardener - training programmer" — joke! Some of their ideas are a bit weird but as the new kid on the block I kept my mouth shut and thought a lot. Stumped them anyway with a fall aster I have, grows 5 ft., loaded with sky blue daisy type flowers and privet-like leaves. Supposedly A. laevis Climax but in all the years no one has been able to pinpoint it.

'Nuf said —have a great '92. Happy Gardening —

Margaret Wormworth
90 Carling Terrace
Wingham, Ontario, Canada N0G 2W0

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Oct. 29, 1991

Dear Mr. Laning,

Thanks for the APS peony seed. I have become aware (through talking with Don Hollingsworth) that you edit a hybridist's newsletter called Paeonia, which I would like to subscribe to, or be on the mailing list of. Can you give me details? Also back issue details?

I have been a member of the APS since 1983. Part of my reason for having written to you a few weeks ago is this: In January 1985 (I think) I wrote to you asking if, as the seed chairman, you might have any seed "left over" from the seed distribution program. Thereupon you sent me a rather amazing quantity of seeds in a small cubicle box. These I planted outside the next summer and now have as a result somewhere around 250 plants. The seeds were kept separate, but in groups of the same named type, with ID tags. My particular favorites of these groups are those which I call VAN #1 through #150, which are from a group labeled '**Vista**' x '**Archangel**', and '**Archangel**' x '**Nancy**'. I am familiar with '**Archangel**', having had this for 5 years, but wrote hoping to find a source of the hybrid plant '**Nancy'**, since this is an important part of the hybrid group (most seedlings are somewhat pink in flower).

At any rate, my primary interests are in hybrids and hybridization. I am hoping to add more obscure plants to the gene pool which I use for producing hybrids. Don Hollingsworth has been a valuable source of material, and I do wonder what you have which might become available for interested people such as myself.

Could you also clarify the parentage of a seed in the APS seed listing such as '**Archangel**' x '**Nancy**'. Does that mean, as it would seem, a hand-crossed seed; or is it the result of an open pollinated plant of '**Archangel**' x '**Nancy**' (hence F_2)? Also, if reference is made to a "Quad F_3", is this from a known or unknown QUAD line? i.e. are some named Quads better at making F_2's x F_3's? (Perhaps these questions are already answered in Paeonia.)

Thanks again for the seed.

Peter Waltz
84 Brentwood Rd.
Exeter, NH 03833

ED. Note: The Saunders Quads are sterile but after some years an occasional seed is produced. Seedlings from these treasured seeds have given the Quad F_2 and F_3 and F_4, generally of open pollination.

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November 8, 1991

Dear Mr. Waltz:

Seeds sent out by the Peony Seed Distribution program are for the most part open pollinated and are now a composite of about a dozen species. The gene pool is far too complex to tabulate. The F_2, F_3, F_4, etc. are now grouped together and are now known as ADVANCED GENERATION SEED. Even where a species is dominant, as mlokosewitschii, macrophylla, officinalis, lobata, albiflora, etc. the resulting seed parentages are so mixed up that due to the recessives there is no predicting what the results will be.

Seeds of the 1992 collection will be listed by colors and earliness of flowering rather than by their distant relatives. And in another three or four years plants from this group will be named and later introduced. This is like starting all over again with the nomenclature since today's listings have lost most of their meanings; for example, '**Archangel**' x '**Nancy**' F_2 or F_3 is genetically meaningless!! Only the original cross gives some measure of genetic contents.
Please see Don Hollingsworth's article in our new American Peony Society handbook of the peonies. The article to be stressed is on pages 89-90. "What is a backcross and what is F_1, F_2, F_3, etc?"
You don't have the book? Well, get it!!

- Chris Laning

ED Note: Hybridizers, don't forget that when hybridizing using lactiflora as one parent, the resulting seedlings will be triploid which will be almost sterile. Maybe after 10 or 20 years a seed or two will develop — too long for most of us!

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SPECIAL PLANTS — GOOD FOR HYBRIDIZING

1. Sunny Girl - a nice double with yellow flowers - pictured in the American Hybrid Peony, page 62.
2. mlokosewitschii x tenuifolia - a group of seedlings about two feet tall having pale single flowers, being a good seed producer with fertile pollen. This group is of Nosegay parentage.
3. Dad F_2 - a tall (too tall) lobata hybrid that has fertile pollen and sets seed. Has single red flowers.
4. Sable x Super "D" - Super "D" was one of the earliest of the advanced generation tetraploids (doubles) that proved to be fertile. Sable, a Glasscock introduction, is a tall hybrid with dark red (almost black) flowers. Sable by Super "D" cross gave two seedlings that Pehrson gave to me which I numbered #113 and #114. The flowers are similar to the dark red America and Burma Midnight.
5. Baby Ribbon pink - a semi-double lovely pink tetraploid that could be described as lovely!

This is a list of plants you can buy at $50. each.

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SEED DISTRIBUTION:

There is still a quantity of seeds of the following:

lactiflora	tetraploid
macrophylla hybrid	suffruticosa (T.P.)

June is seed planting time for peonies!

"CALLING" PEONY SEEDLINGS
Some Guidelines for Clear Communication

Don Hollingsworth

The English language offers plenty of opportunity for making communications more or less clear. Even when talking to our colleagues it is necessary to conform to mutually understood meanings if the receiver is to understand what the sender wants understood.

An old story goes something like this. Two men were talking about the supposed accomplishments of their youngsters. The first man says, "My boy sure is good at calling in the hounds." The other says, "Well my boy sure can call cars." The first one snorts, "You can't call cars." The second, quite indignant, "We'll see." Whereupon he takes his boy out to the public road. The youngster points to passing autos, "Ford...Chevy... Buick...." Well, I sure don't "call" cars very well any more, but I do have some confident notions about "calling" peony seedlings.

There isn't a problem once a selected seedling gets a name, which following our adopted rules has been legitimized by a qualifying published description. Thereupon all users have a common term which refers to that variety and that variety only, to which other comments may be attached as needed to serve the purpose at hand.

The seedling nomenclature problem is more or less limited to those of us who want to discuss breeding results. Sometimes we want to talk about seedlings as soon as they flower the first time; with some crosses we may want to compare notes when the seeds first grow! The variety nomenclature rules don't help at that point.

What we need are some agreeable guidelines for how to say what we want about a seedling without having to write a paragraph of history every time we want to mention it.

This need didn't just come up. Growers have been giving seedlings unique number IDs for a long time. The utility of doing so is self-evident and the use has been routinized to some extent. For example, one of the questions included on the Peony Society application for name validation (registration) asks the seedling number. Accordingly, most anyone is subject to assigning a number when it becomes time to register, whether or not one has been used before. Others have made a number ID an integral part of their system for tracking particular varieties or seedlings in their own records. Professor Saunders did so, assigning in excess of 17,000 numbers to seedlings and acquired plants. I find it to be a very serviceable approach, because I make written notes as I go along. Using ID numbers is a convenient way to avoid taking up a lot of space to identify the plant when an observation is noted down.

Numbers not only enable simplification, they can also lead to confusion. When several growers are assigning them then we might all have the same numbers in use. So, when we share information we need to also make a distinction between growers. Thus the plant 4992 distributed by Silvia Saunders to many of the current breeders cannot be distinguished in print from another plant numbered 4992 unless it is written as Saunders 4992. This is a rule we should have no trouble putting into use.

Then there is the matter of what are the origins of a particular seedling, almost always a matter of interest to breeders. Most of us have had access to The Peonies, John C. Wister, ed. If the account of the Saunders work has been read there or from APS Bulletin articles, we are likely to already know that Saunders 4992 is a fertile second generation plant of the group commonly known as the Macro Hybrids. However, if I want to mention Hollingsworth 877 in a writing, and if I care whether anyone understands, I must say something about its origins or a description of the flower, whatever is relevant to the purpose of the communication. This is just common sense, but it is surprising how often explanatory statements are omitted.

In the case of Hollingsworth 877, it's pedigree would be the most specific about its origins (CHARM x CARINA). To say CARINA back-crossed on a Japanese type lactiflora peony (or Chinese peony) could be almost as specific, depending on the purpose of the discussion. To say a Saunders Lobata of Perry Hybrid backcrossed on a lactiflora variety would not only be less specific, but quite wordy as well. A few words of explanation are needed.

One of the problems we still have in talking about some of the Saunders-distributed plants that originated after Professor Saunders' days has been the practice of using F numbers to identify the descendants of certain hybrid groups or individual parents. By "F numbers" I refer to the scientific notation code from genetic science, e.g., F_2.

The problem has arisen when distinctly different individual plants, both genetically and outwardly different, have been distributed under the same designation. An example is the numerous plants being used by breeders and designated only as Quad F_2, F_3, F_4, etc. (short for Saunders Quadruple Hybrid, with a generation code attached.) Some have proven to be valuable parents as attested by the wanted qualities of some of the progeny attributed to these general identities, some for this and some for that. But not all of them are of equal provenance.

It can be seen now that it would have convenient for these plants to have come with unique Saunders numbers. Inasmuch as they were not previously numbered, however, they can still be numbered in the system of the breeder using them. The best ones ought to be named. Only in these ways can the good breeding performances be tracked to specific plants for the benefit of future breeding decisions.

My advocacy is that all plants used in breeding and all seedlings, at least those selected for further observation and increase, should have an assigned number for records purposes and to follow them when they are distributed. This might apply to all plants used for breeding or just to those which do not also have a validated name. My preferences and solutions for this in my own collection are discussed elsewhere under the title "Peony Breeding Record Keeping".