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MY GARDEN IN MAY

Early and very early blooming peonies have performed beautifully in the cool of May days that have been warm and wet. Colors are at their best this year and the plants are more robust than usual.

If there is a way to describe colors of peony blooms, I don't know about it. The ever changing shades of color as the flower ages, this alone eliminates the use of descriptions such as red, white, pink, peach, etc. Besides, even an artist cannot capture the elegance and glory of the flower. (Well, maybe the Klehm catalog succeeds with its colored pictures and we'll consider this the one exception.)

Round-Up spray used in late fall and very early this spring did an excellent job of controlling perennial, biannual and annual weeds with no ill effects on the peonies since it leaves no residual to foul up the soil even in spite of a wet spring!

- Chris

June is a good time to plant peony seed. We still have a good supply of lactiflora, hybrid, and a generous supply of *P. lutea ludlowii* seed. The *ludlowii* seed came from Mrs. J. Allen of New Zealand.

DON HOLLINGSWORTH'S ARTICLE IN THE DECEMBER 1989 ISSUE OF "PAEONIA" SHOULD BE RE-READ AFTER HIS ARTICLE IN THIS JUNE ISSUE. (I goofed.)

FERTILIZER TO HELP GROW PEONIES — Don Hollingsworth
(Reprinted from PAEONIA, March, 1974 Vol. 5, No. 1)

The peony has a large appetite. It must have high fertility and hospitable soil conditions to perform well. The best of growing conditions are required in order:

1. to bring new plantings into early flower production,
2. to grow seedlings to flowering size in a minimum of seasons, and
3. to produce exhibition quality flowers.

Without reaching these achievements in a reasonable time, recently attracted enthusiasts may shortly turn to other pursuits in their quest for rewarding experience.

For twelve years I have aimed to grow specimen quality peonies, but I started with mostly subsoil that was left after the developer rearranged the local landscape when laying out residential building lots. Based upon this experience, I have come to realize that the practices of modern residential development may be one of the biggest obstacles the American Peony Society works against in trying to expand interest in the peony.

We have seen the membership of the American Peony Society decline in numbers during a time in which the popularity of suburban living and gardening activity have grown by leaps and bounds. During the same period hemerocallis and irises, both generally adaptable to poorer soils, have become immensely more popular. If we want to enlarge the market for peonies, it will be very useful to develop means to disseminate more adequate information on the requirements for overcoming problems of new residential gardens. This information will be useful for trouble-shooting problems found in other situations as well.

The standard publications of the American Peony Society, The Peonies and Handbook of the Peony, are excellent in many respects, but not much sensitive to the needs of inexperienced persons who do not already have suitable soils. I believe information for the benefit of such circumstances should be developed by the Society as a supplement to the other publications.

Perhaps the biggest problem I find with our standard literature is the de-emphasis of commercial fertilizers. On the other hand, reports from APS members suggest that at least some of them make extensive use of such materials. I recently decided for several reasons to experiment with high fertilizer applications during the coming season. In looking around for guidelines, I came up with the following which seem worth considering in the planning of specific treatments:

1. Dr. John P. Baumgardt, who answers garden questions in several publications, recently recommended to an inquirer who had some mature peonies the application of one-half cup of 5-10-5 analysis fertilizer in very early spring in a circle away from the crowns, followed by another half cup about flowering time. President Klehm recommended similar treatments at the Minneapolis APS meeting in 1972. If you allow for a 4-foot spacing and fertilizer weighs a pound to a pint, that figures to about 1700 pounds per acre for the year.

2. In The Peonies (p. 129) Rutgers University research on peony bud-blight is reported. It was found that low tissue-levels of potash was one factor associated with bud-blight. Another was nematodes, which are more damaging when fertility is low.

3. On soils in my area, tobacco farmers use up to 3000 pounds of 10-10-10 per acre. This crop makes all of its growth in 10 weeks or less and every effort is made to assure that a shortage of nutrients during that period does not limit growth. Apparently these levels of application do not result in a toxicity problem, at least for the plant.

4. An APS member was reported in a Bulletin which I read a few months ago and have not relocated so cannot give the issue. The member had used a high-nitrogen, mixed fertilizer, 10-6-4, on some peonies and said that for the first time certain plants gave flower colors comparable to that of the same variety seen at an exhibition.

5. Recent University of Illinois research showed that shrubs fertilized with nitrogen in early spring not only showed a growth advantage in the current season, but put out extra growth the following spring, as well. It would seem this has important implications for understanding the needs of peonies, which make growth only in early spring.

6. The University of Wisconsin bulletin on peonies which was recently mailed to all members with the APS Bulletin recommends: plant in rich soil, apply annually a handful of 5-10-5 or 10-10-10 in early spring, and, for bigger and better flowers, 2 or 3 applications beginning two weeks before flowering.

7. In a 1930 RHS Journal article on peony culture, the writer says, the first consideration is the soil; no fertilizer can give best results if the soil is lacking in humus; and exhibition flowers can be obtained only from plants that are strong, healthy and well established.

8. A local extension service publication, "Fertilizing Ornamental Plants," recommends for shrubs to use 5-10-5 or 10-10-10 fertilizer at 2 to 4 pounds per 100 sq. feet of bed area. The 4-pound rate would be more than 1700 pounds on an acre basis, which compares with item 1, above.

9. I have also consulted with the University extension horticulture agent assigned to my area and have had soil samples evaluated for basic requirements.

10. Also quoted in The Peonies is the writer of an early 19th Century Japanese manual who discussed approaches to overcoming native soil deficiencies, then stated that individuals must work things out for themselves.

We do have to "work things out for ourselves" and I will be guided in the current season by the references above plus any others I find that are interesting. I would be pleased to hear of experiences of others in overcoming soil problems of various kinds.

LITTLE ONES

It was about twenty years ago that the idea of dwarf clones of peonies occurred to me, but little progress has been made. Little ones - plants 12 inches high with 2" flowers is my goal, and while I'm in a wishing mood, make them stoloniferous too! Roy Pehrson gave me a piece of his seedling '**Laura Dessert**' x Emodi-Mloko about fifteen years ago. It is a good grower and divides well - there are ten bushes of it now ready to join my dwarfing project. This '**Laura Dessert**' x Emodi should be pollinated by Tenuifolia to try for a dwarf - I think I'll try this cross!!

Veitchi x Mlokosewitschii and Emodi x Mloko are growing well in my garden. Both fail to set seed but now that I find that Roy Pehrson had some success with Emodi x Mloko pollen, these two offer possibilities which will be worth trying.

Broteri x Mloko (about a dozen plants) sets seed which are all hollow. They evidently are self-sterile though I haven't tried other pollen on the blooms nor have I attempted to use the pollen on other plants that are seed fertile - I must try this too.

'**Halcyon**' = Albiflora (lactiflora) x Ozieri Alba. For a description of this cross see page 52 in THE PEONIES by Wister. Professor Saunders believed that Ozieri Alba belongs to the Coralline - Broteri - Cambessedesii group. This is a lovely plant though very sterile; however, Saunders did get an F_2 which is a real treasure and sets seed fairly well. The F_2 has a 4" flower at the top and little side blooms of maybe 1½ to 2 inches in diameter. Now the side blooms are of a size that I'd like on a dwarf plant - we'll have to work on this one too.

Decora is a short plant with very dark red blooms. This one will be used quite a bit since it is beautiful and fertile. The three plants of it in my garden were almost killed with a weed killer (Princep) - only two little pieces of it survived and maybe one of these will give a small bloom this year. I would like to buy another one this year, but where to get it?

If anyone of my readers has any ideas on this endeavor, please write for PAEONIA.

- Chris

p.s. '**Picotee**', Tenuifolia, and Humilis are on the list of clones to try.

A CHALLENGE FOR HYBRIDIZERS

THE DELAVAYI GROUP

Difficulties in propagation of tree (shrub) peonies have not been solved, indeed, scarcely diminished. Grafting, the method generally used ensures that the T.P. will continue to be high priced. A better way should be found!

STOLONIFEROUS:

P. delavayi, P. lutea, and P. potanini roots send out underground runners called stolons. These stolons could make propagation easier, less costly, and quicker. We are so enamoured with clones of beauty that nothing is being done to make the peony a popular home garden plant. Intercrossing these three varieties may be the first step in attaining this goal.

ELABORATION:

Potanini comes in various colors such as red, pink, white, and yellow. I have only the yellow one but would surely like to buy the other colors! Can any one of you Paeonians help me out?

No one has indicated to me that he or she has raised seedlings but any information on this point will be greatly appreciated. The P. potanini "Tall Yellow" that I have seldom blossoms. Can it be that "Tall Yellow" blooms only on old wood (last year's growth) which often freezes to the ground, thereby eliminating flowers? Three or four times I have planted it in my garden where it languished and eventually died. Last year an anguished plant was relocated to an area next to the house (actually on the south side) and is now growing beautifully though there will be no flowers on it this year.

P. delavayi, the mahogany maroon species, is easily raised from seed. The flowers are fairly small and vary in color from maroon to almost black - real pretty. It sets seed freely. Surely this is a good one to use in trying to cross with P. potanini.

P. lutea offers potentials in hybridizing since it crosses easily with P. delavayi and also sets fertile seed freely. Professor Saunders used lutea x delavayi and its reciprocal on many of his lutea hybrids with outstanding success. Now if something like that can happen with potanini, we will be well on our way to success with stoloniferous clones. Later, maybe we can add P. ludlowii: it too is stoloniferous and has larger flowers of bright yellow color. As almost everyone knows, it is not hardy - will not bloom in Michigan.

O.K., hybridizers, when you get this job done (completed), let me know and we will turn to a more elaborate phase of crossing our resulting success on the herbaceous peonies, first starting with P. lobata and P. tenuifolia, two herbaceous peonies that are also stoloniferous. Or, let us just point our goals in the right direction and let our descendants see to the completion.

LONG LIVE THE PEONY!

- Chris

SMALL FLOWERED PEONIES — THE PROSPECTS

Roy Pehrson

(Reprinted from Paeonia Vol. 3, No. 1, 1972)

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 too 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.

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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.

POSSIBLE RELATIONSHIP OF P. CAMBESSEDESII AND P. BROTERI

Nancy Ann Halas

First of all neither of these are grown enough for people to have a good first hand knowledge of them. The only significant mention of either is by Stern in his monograph. Stern was not either perfect or complete, but he was better than nothing since there really isn¡¯t much that is complete on the subject of peonies.
On page 2b of the Monograph Stern writes that P. Broteri appears to be a solitary specie unconnected to any other . . ." On page 30 of the Monograph the leaf description relates to shining green above. It is shiny green in reality and that is an accurate observation. It is as shiny as a freshly waxed floor or a waxed car surface literally. As it is with all of Stern¡¯s leaflet description, these are hard to follow, and more difficult to understand since many of his descriptions come from preserved flattened leaves, as you would find in a university collection. Most Peony leaves are not flat in life for reasons of vital importance to the plant in each case, which has to be described on a separate basis.

In the text Stern makes casual mention that P. Cambessedessii has shiny green leaves. And the leaves are very well shined, as neat as the kitchen floor of a tidy household would be. He fails to notice much significance to this characteristic, but it turns out to be rather interesting and in fact informative.

In nature, waxes grow on the leaves and stems of plants. These are reputed to reduce evaporation. However that is not all that the wax coating on the plant does. First of all the normally occurring plant waxes are organic salts with fatty acids and monohydric alcohol in the chain. The wax that we are most familiar with is carnauba wax which is the coating on the leaves of Brazilian palm leaves. This is processed to make waxes useful in floor and automobile polishes.

The characteristic of a wax is that when water drops on the surface some of the alcohol from the wax immediately dissolves in the water to create a membrane around the droplet and to give to it a type of skin. In that situation, by the process of osmosis, which equalizes the concentration on both sides of the membrane. The plant stem or leaf grips the droplets at the nerve locations of the leaves or the whole stem length. The concentration in the leaf or stem is very dry and so in time the nerves on the leaves and the plant stems will literally siphone all of the water out of the droplet. In time you will see left on the leaf what appears to be a waxy residue, this is all that is left of the alcohol membrane of the water droplet. I would suppose that every housewife has noticed the same occurrence on a floor where the water droplets will form into beads of water on a floor and after a period of time the fastidious housekeeper will wipe away the waxy alcohol residue. The men will see the same phenomenon on the surfaces of their car where the water forms into droplets or beads and in time there will be that waxy residue that a neat car owner wipes away with a dry dust rag, to just touch up the highlights of the shine on the car.

Both P. Broteri and P. Cambessedessii have this lovely polished leaf surface; no, it isn't carnauba wax, I don't know really what the name of the wax is but maybe someday we may find out. In any event Broteri has more leaflets than Cambessedessii, but they both have very beautifully polished leaf surfaces.

What if anything does this mean to the hybridizer? Well P. Mlkosowitschii and some of the other members of that family don't have a natural wax coating and so they need to have partial shade to protect the leaves from sunburning. Here is a plant that has its own sun tan lotion in the form of a wax and can take the heat of the sun quite well in the Mediterranean and in Spain.

Now that we have an appreciation of the talents that both of these peonies have in coping with a hot sun, it is something to keep in mind when you consider creating new hybrids that need some sun resistance. Perhaps a neat well polished tidy plant, that fits into the habits of the homeowners, who need spit and polished landscape to match the house and car decor.

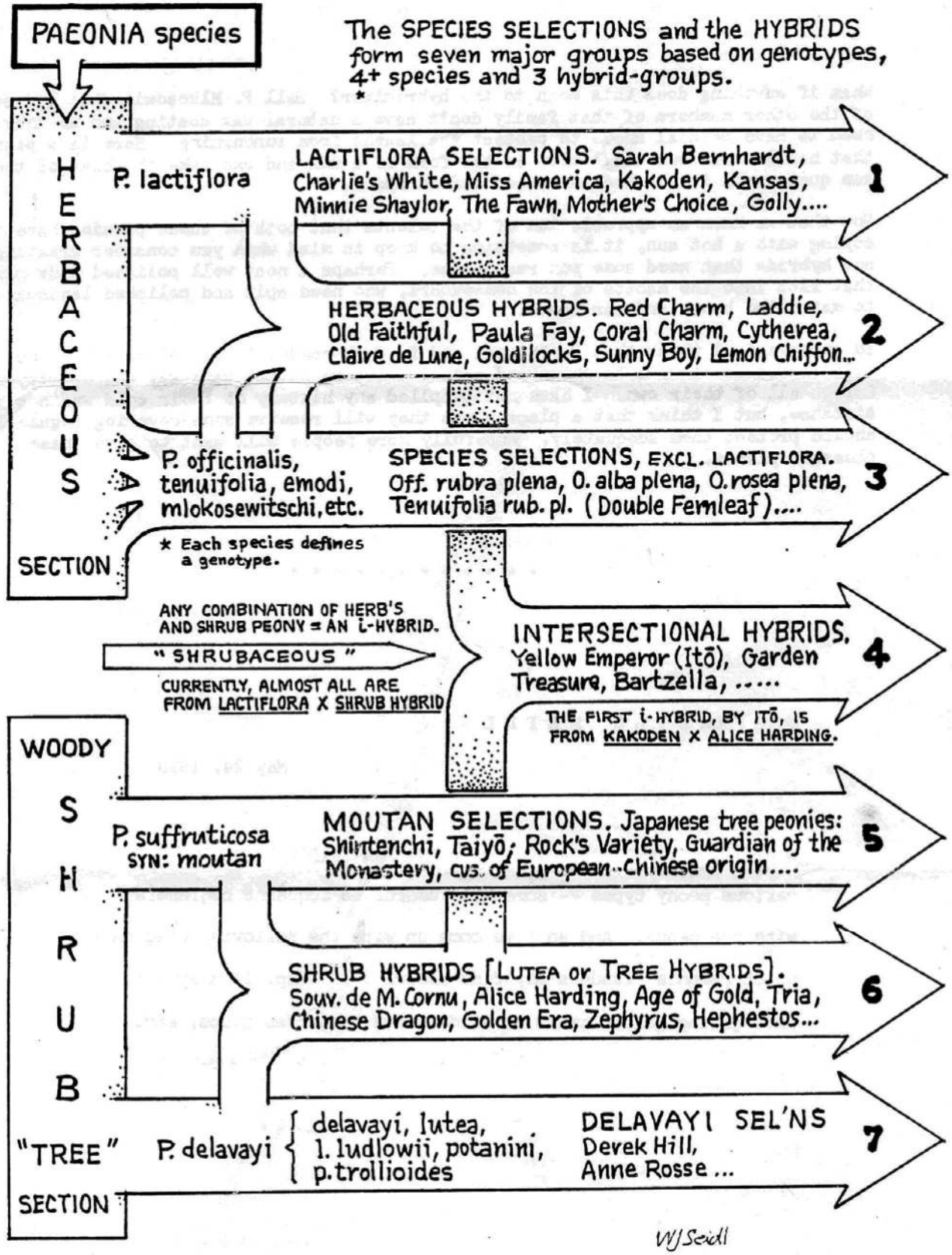
To summarize, I think that P. Broteri and P. Cambessedessii are close relatives and this is because they both shine and gather moisture in the same way and display a talent all of their own. I have not compiled any history of their cold weather resistance, but I think that a place where they will receive snow covering regularly should protect them adequately. Hopefully more people will want to have these pleasant plants.

* *

NOTE FROM BILL SEIDL

May 24, 1990

A N.Z. correspondent asked for a one-page diagram showing the various peony types — something useful to acquaint beginners with the genus. And so I've come up with the following diagram which Paeonia readers may find useful . . . esp. if they are into giving garden talks or slide shows to garden clubs, etc.


PAEONIA species
The SPECIES SELECTIONS and the HYBRIDS form seven major groups based on genotypes, 4+ species and 3 hybrid-groups.
*
HERBACEOUS
P. lactiflora
LACTIFLORA SELECTIONS. Sarah Bernhardt, Charlie's White, Miss America, Kakoden, Kansas, Minnie Shaylor, The Fawn, Mother's Choice, Golly....
1
HERBACEOUS HYBRIDS. Red Charm, Laddie, Old Faithful, Paula Fay, Coral Charm, Cytherea, Claire de Lune, Goldilocks, Sunny Boy, Lemon Chiffon...
2
P. officinalis, tenuifolia, emodi, mlokosewitschi, etc.
SPECIES SELECTIONS, EXCL. LACTIFLORA. Off. rubra plena, O. alba plena, O. rosea plena, Tenuifolia rub. pl. (Double Fernleaf)....
3
SECTION
* Each species defines a genotype.
ANY COMBINATION OF HERB'S AND SHRUB PEONY = AN i-HYBRID.
" SHRUBACEOUS "
CURRENTLY, ALMOST ALL ARE FROM LACTIFLORA X SHRUB HYBRID
INTERSECTIONAL HYBRIDS. Yellow Emperor (Itō), Garden Treasure, Bartzella, ...
4
THE FIRST i-HYBRID, BY ITŌ, IS FROM KAKODEN X ALICE HARDING.
WOODY SHRUB
P. suffruticosa SYN: moutan
MOUTAN SELECTIONS. Japanese tree peonies: Shintenchi, Taiyō, Rock's Variety, Guardian of the Monastery, cvs. of European-Chinese origin....
5
SHRUB HYBRIDS [LUTEA or TREE HYBRIDS]. Souv. de M. Cornu, Alice Harding, Age of Gold, Tria, Chinese Dragon, Golden Era, Zephyrus, Hephestos...
6
"TREE" SECTION
P. delavayi { delavayi, lutea, l. ludlowii, potanini, p. trollioides
DELAVAYI SEL'NS Derek Hill, Anne Rosse ...
7
W.J. Seidl