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SOME THOUGHTS I HAVE BEEN THINKING:

Hollingsworth calls it a "nick", a combination that gives outstanding results whether it be in the plant or animal line. Roger Anderson has a plant that appears to be outstanding as a pod parent for the Itoh cross! '**Martha W.**' produces seeds, sometimes many, when pollinated by Reath's lutea hybrid #198 — so says Roger. He came to our 1983 National Show with a good collection of pictures of Itoh seedlings, the outstanding feature of which was the great range of colors. While the flowers were mostly singles, as one would expect on young plants, the color range is perplexing though since they were developed from '**Martha W.**' x Reath's #198 lutea hybrid. If any deep thinking person will come up with some logic on this strange occurrence, we will be grateful! In line with this unexpected happening, I'd like to add this thought: From Gratwick's advanced generation hybrids came #258 which is 95 x Choni (#95 is '**Red Cloud**' x F_2B). It has plum purple single rather large flowers. I suppose the richness of color stems from the lutea parent since it is quite different from the purple of suffruticosa. Such results give meaning to Roy Pehrson's suggestion: "Try anything and everything since you never know what you will get". Surely there are many factors involved in the production of colors and combinations of colors that theory fails to elucidate.

Quite likely the time has come to do some thinking on improving, or rather expanding interest in our National Peony Show. I have one idea that should interest hybridizers: Let us place the "best seedling of the year" in the Court of Honor, as judged by our seedling committee (composed of Marvin Karrels and Gus Sindt). A seedling such as this could be a good attention getter even for the general public since it would offer a peek into the future of peony progress. As of now the best, and only recognition a seedling can get, is a Certificate of Merit or Honorable Mention at the discretion of the judges. Can you imagine what great impact the Court of Honor could give to such an entry? Nor would this high praise be undeserving since it is no small feat to develop a new and beautiful clone.

Our 1985 National Peony Show was beautiful and the facilities excellent! The air-conditioned rooms provided were all that heart could desire. The botanical gardens were interesting and the Lake of the Woods Museum people were so gracious, pleasant and helpful that we'll do well in trying to go there again.

Just a short drive from Mahomet to the Klehm Nursery and you are in Peony Land. The blooming season had passed so only a few stray blooms from late varieties greeted us, but the sight of Klehm's peony patch was an eye opener —— especially if one used his hind legs to walk to the far reaches of the farm.

- Chris

Mudan: the king of flowers:

Tree peonies are grown commercially in China for a root extract of medicinal value. Stephen Haw, who studied there in 1982, writes about the history of the species and varieties grown in China.

Mudan (formerly often a transliterated "Moutan") is the Chinese name for the tree peony, Paeonia suffruticosa. More poetically, it is also known in China as the "King of Flowers", and is considered to be the symbol of spring and of good fortune. As such, it is a favourite subject in Chinese art, and those familiar with Chinese porcelain may well have recognised it as a decorative motif which frequently appears on pottery. Its position as one of the best-loved ornamental plants in China is certainly well-deserved, for the size and beauty of its blooms combined with its elegance of foliage makes it one of the finest of all garden flowers.

It attracted the attention of Europeans quite soon after their ships began trading at Chinese ports during the sixteenth century. The first Dutch embassy was allowed to proceed to Beijing from Guangzhou in 1656, and returned with laudatory reports of the Mudan. It was, however, not until the great British plantsman Sir Joseph Banks took an interest in the tree peony that it finally arrived in Europe. He was able to plant the first specimen to reach Europe alive at Kew in 1789. It flourished, and by 1829 was reported to be 8 feet high and 10 feet across (2.5 x 3m), but unfortunately was destroyed in 1842 during the course of some building work. It was of a variety with very double magenta flowers, but other plants which arrived at Kew in 1794 and 1797 were different, one being a semi-double deep pink. In 1806 a variety with semi-double white flowers with purple blotches at the base of its petals flowered at Wormley Bury in Hertfordshire, and was correctly considered to be a wild form and given the name Paeonia papaveracea (now P. suffruticosa var. papaveracea). It was not until very much later, though, that any European actually saw this peony flowering in the wild, when Reginald Farrer stumbled upon it on a wooded hillside in Gansu in 1914. He remains virtually the only European to have enjoyed such an experience. The later introduction (in 1938) of 'Rock's Variety', a fine form close to var. papaveracea, was by seed collected by Dr Joseph Rock from a plant in a lamasery garden which he had been told was of wild origin.

After its introduction to cultivation in Britain, the tree peony seems to have flourished. Apart from the first specimen at Kew, which, as mentioned above, grew to very large dimensions, many other individual plants are recorded to have attained great size, and to have flowered profusely. In 1835 the plant at Wormley Bury was 14 feet in diameter (4.2 m) and bore 320 blooms. In the third edition of The English Flower Garden (1893), William Robinson wrote that the tree peony "is quite hardy, and, when properly planted, requires little care." He also stated that "Tree peonies are not particular as to soil or position", and that from the third year after planting they produced "blossoms in profusion". Yet sadly they are little seen in our gardens today, and no longer seem to enjoy their former reputation of being easy to cultivate. It is difficult to say why this should be, but no doubt it is due partly to fashion and partly to the economics of the nursery trade, which do not favour a plant that requires careful grafting to propagate in quantity. It is also true that the Mudan can suffer damage from late frosts in spring, and is susceptible to attack by botrytis in the damp British climate; but many popular garden shrubs (including the ubiquitous Hybrid Tea rose) have at least as many weaknesses. It would bring great pleasure to me personally (and undoubtedly also to all those who would plant it in their gardens) to see the Mudan restored to favour.

In addition to its beauty of form, the tree peony has the added attraction of a long and interesting history, which began many centuries ago in China. The outer skin of the Mudan root is used medicinally there to cure various disorders of the bloodstream, including high blood-pressure. This usage dates back two thousand years, for not only is the plant mentioned in the earliest extant herbal, the Shen Nong Bencao Jing, but it also appears on wooden writing-slips of a medical text excavated from a tomb discovered in Gansu province in 1972. This tomb has been dated to early in the Eastern Han dynasty, or about A.D. 70. The use of Mudan in Chinese medicine must therefore date back at least to this period if not before.

There were therefore two distinct reasons for the cultivation of the tree peony in China, for ornament and for its medicinal roots, and both have influenced its cultural history. It is not a widespread plant in the wild, occurring only in mountainous parts of Sichuan, Gansu and Shaanxi, but demand for Dan pi, as its root-bark is called, ensured that it became known and grown in many Chinese provinces at an early date. It is still planted by the acre in several parts of China for this reason. Once it had been brought into cultivation for its roots, its beauty ensured that it was also grown as an ornamental. It may have already been in flower gardens in the sixth century, but references to it in Chinese literature are scarce before the Tang dynasty (618 - 907). Mudan then appears quite frequently in poetry and other writings, and it is clear that it was commonly cultivated for ornament in the Tang capital of Chang'an (present-day Xi'an) and other north Chinese cities. There were, moreover, already several varieties by then, differing in colour and in quantity of petals. Fully double flowers were already grown.

A landmark in Mudan history is the famous work of Ouyang Xiu, Luoyang Mudan Ji. This was written during the Song dynasty, in 1034, and is the earliest surviving text entirely devoted to the tree peony. In it Ouyang describes no less than 24 varieties, including double and single yellow cultivars, double and single white cultivars, and many different red and purple cultivars. The most famous variety in his time was one called "Yao Huang" or "Yao's Yellow", which is still grown to this day. It must be said that these ancient yellow cultivars are very pale in colour, and probably not hybrids with yellow-flowered peony species.

Ouyang Xiu's list of varieties was certainly not exhaustive, however. Slightly earlier works that have not come down to us are known to have recorded rather more, and less than 50 years later, in 1082, one Zhou Shihou included as many as 109 different cultivar names in his Luoyang Huamu Ji. These comprised ten double yellow varieties, 34 double red varieties, ten double purple varieties, four double white varieties and one double crimson variety; of semi-double cultivars, there were 32 red, 14 purple, three yellow and one white. Moreover he classified the cultivars into 37 groups according to their varying forms.

It is thus quite clear that by the eleventh century the tree peony was already highly developed as a cultivated ornamental. It was at that period the most popular flower in China, so that it is even said that the word "flower" unqualified was assumed to mean Mudan. From the lists and descriptions of cultivars it is also clear that the Chinese preference for large, very double flowers with a mass of petals (described in the Song sources as "thousand-petalled") had already had a marked effect on the selection of forms for cultivation.

Like so many good garden plants from China, the tree peony found its way to Japan at an early date (probably during the Tang dynasty). The form of flower most favoured there was, in contrast to the Chinese fashion, lighter and fewer-petalled. A large range of semi-double cultivars was developed there, which were found after introduction to western gardens to be more suited to European conditions. There is a strong tendency for the heavy flowers of the Chinese varieties to hang down beneath the leaves and become splashed with mud, while the lighter Japanese forms hold their blossoms more erect. I believe that the very dry spring weather that is normal in north China allows the heavier flowers to remain unbowed by the weight of rainwater, which in damper climates

overburdens the flower stems. The Japanese climate, being more like that of Europe, naturally favoured the selection of lighter flowers.

The first tree peonies to come to Europe from Japan were sent to Holland by Philipp von Siebold in 1844, but these seem never to have been widely distributed. It was only towards the close of the nineteenth century
that the Japanese varieties became widely available in the west. Considerable numbers were supplied by Japanese nurserymen during the first half of this century.

Meanwhile, more tree peonies were arriving from China. Robert Fortune was responsible for obtaining several new cultivated varieties, including one of those described by the Chinese as "blue", which in reality are mauve or lilac. Then in the 1880s Delavay discovered two new wild species, Paeonia delavayi and P. lutea. The latter, in particular, has had an influence in producing new yellow hybrids, though neither of these plants is by any means as showy as the original Mudan.

At this point, it is appropriate to consider the taxonomy of tree peonies. They are, of course, separated from the rest of the genus Paeonia by being woody rather than herbaceous. It is, however, something of a misnomer to call them "trees". Although they may grow to 7 or 8 feet (slightly more than 2m) in height, they are normally not as tall as they are wide, and are in reality shrubs. They are confined in the wild to the west of China, and according to the Flora of China (Vol. 27; Beijing: 1979) three species are involved. The first of these is Paeonia suffruticosa, of which the type variety is the cultivated Mudan in all its many forms. The beautiful wild tree peony with large white flowers marked at the bases of the petals with purple blotches is Paeonia suffruticosa var. papaveracea. It is found in the wild in northern Sichuan, southern Gansu and the Tai Bai Shan area of southern Shaanxi, at altitudes between 3,600 and 9,200 feet (1,100 and 2,800m). Another wild form is var. spontanea, which is smaller than the other varieties and has purple flowers. It occurs in the wild only around Yan'an in northern Shaanxi, but is probably the main wild ancestor of the cultivated plants, though Paeonia suffruticosa var. papaveracea undoubtedly was another parent.

Closely related to P. suffruticosa is P. szechuanica, which was not described until 1958. It is rather similar to P. suffruticosa var. papaveracea, but has unblotched rose or red flowers. It occurs at fairly high altitudes viz. 7,900 to 10,000 feet (2,400 -3,100 m) in north-west Sichuan, and it is possible that it too may have contributed to the parentage of the garden Mudan.

The remaining tree peonies are reduced in the Flora of China to just one species, which therefore includes P. delavayi, P. lutea and P. potanini. This is justified on the grounds that intermediate forms exist linking the formerly-recognised species. Paeonia delavayi now covers all these plants, and is divided into three varieties. Apart from the type variety there are P. delavayi var. angustiloba, which includes P. potanini, and Paeonia delavayi var. lutea. These are found in Yunnan, western Sichuan and south-east Tibet, and it seems unlikely that they were hybridised with the Mudan before recent times.

At the present day there are two or three places in north China which are renowned for cultivation of the Mudan. One of these is Heze in Shandong province, formerly called Caozhou and known to have been a centre of peony growing since about 1550. It is in the south-west of the province, on the south bank of the Yellow River in an area until recently subject to frequent flooding, so that the soil is a fine and rather sandy alluvium. Here more than 400 acres of land are devoted to growing Mudan, principally for the medicinal root-bark, though the plant's ornamental value is not neglected and there is a programme for breeding new varieties. Naturally the peony fields are a famous spectacle, attracting large numbers of visitors in late April, when the flowers are usually at their best. Unfortunately, this is an area of China not normally open to foreigners.

In 1982, however, while studying at Shandong University, I was able to participate in a tour of the peony fields specially arranged by the Shandong provincial foreign affairs department. Reports of the spectacle were not exaggerated. Large fields were a mass of flowering Mudan bushes, of a wide variety of colours. Added to this, the shelter-belts of trees which edged the fields were often of Paulownia tomentosa, which were also full of their pale mauve flowers. There are now more than three hundred named varieties of Mudan grown at Heze, besides many more unnamed seedlings. Many of the latter, it must be said, were of a rather unpleasant shade of purple no doubt similar to the colour of the wild variety spontanea. Nevertheless, there were many acres covered by pink, white and red cultivars.

The growers at Heze claim no less than eight different colour groups for their peonies; red, yellow, blue, white, black, green, purple and pink. The yellows, however, are very pale (scarcely more than cream once they are fully open), and so are the very few green varieties. The "black" cultivars are very dark red, and the "blue" ones are really lilac or mauve. Despite this exaggeration, though, there is still a wide range of colours available. There is also a wide range of flower forms, from the extremely double flowers which form a complete ball of petals when open, to the delicate singles with their beautiful centre of stamens and stigmas.

Because of the demand for Dan pi as medicine, the economics of growing tree peonies are very favourable in China. I was told that the annual yield per unit area of peony root was worth two-and-a-half times that of cotton, and that moreover peonies required less labour. In an area where population is unusually low (because of the former flooding), the latter consideration is more important than it would be elsewhere in China. Propagation is by seed or by division of mature plants. Divisions are more often used, and normally take four or five years from planting to cropping.

Apart from their medicinal roots, the tree peonies of Heze are used to make another saleable product - Mudan wine! This is a sweet and fragrant distilled liqueur, derived from fermentation of the flower petals. I bought a couple of bottles in Heze, and found it very palatable, if rather sweet for western tastes. It is produced on a commercial scale as a local speciality, and provides another source of income for the people of the district.

I have also seen tree peonies in China flowering in May around Beijing. North Chinese winters are very cold, and there can be no doubt at all that the Mudan is absolutely hardy. Being originally a plant of hills and mountains, it needs good drainage, but is otherwise tolerant of soil conditions. It will grow in acid or alkaline soils. In Britain it may start into growth too early in spring and be damaged by late frosts, but if shaded from early morning sun this problem is alleviated. Although it can become very large, it is slow-growing and can easily be kept to the desired size by pruning. It seems to have suffered a decline in popularity for no very good reason, and undoubtedly deserves to be seen in gardens much more commonly than at present.

Note: Permission given to reprint this article by both the Editor, Elspeth Napier of THE GARDEN, Journal of the Royal Horticultural Society, London, England, and Stephen G. Haw, the author of this interesting history.

PEONY BREEDER'S ROBIN, FLIGHT I
June 24, 1984
Don Hollingsworth

Concerning the fascination with '**Red Charm**' as a parent — more than one has mentioned this to me — I very early had a seed or two using '**Good Cheer**' pollen. The seed was small and never germinated although I watched through several seasonal cycles. '**Good Cheer**' crosses are sometimes weak and the situation may have been due to the GC cross. Anyway, I was getting plants with crosses on the "lobata" hybrid triploids and drifted away from interest in '**Red Charm**'. In more recent times I have had some better results in working with Officinalis Hvbrids, which leads me to the point. Steve's (Varner) seeds are from Laning's Best Yellow. I have found that LBY seems to make seeds more easily on things with Officinalis than any other that I have used and more easily than it has on some of the tetraploid group (in general, of those which I lump together as early pastels). Getting the "right" pollinator is an important part in the success of any cross. There is some "better" pollinator out there for '**Red Charm**', and those others which have frustrated us from time to time.

There is a concept in population genetics of "breeding fitness" which roughly means that the individual with a high degree of this quality is fertile in the group and, further, that its progeny are strong and healthy and suited for the environment in the case of wild populations (survivors). In our domestic situation, "suited for our needs" would be substituted. What we are looking for are individuals with good breeding fitness that also give the qualities suitable for whatever we are breeding for. Failing to have good breeding fitness we are not deterred, but the fact remains, most of our output results from the most fit parents we are using. The choices of ones we keep on using as parents are heavily influenced by our perception of quality found in the offspring. In animal breeding there is an old, old term, a "nick", meaning when a certain sire is found to produce especially good, and more uniformly so, offspring from females of certain parentage. When a breeder has a bunch of heifers from his previous main sire which produce outstanding offspring from his new sire he is considered to be extremely fortunate. I like to find "nicks"!

I do not feel there is any evidence to support that '**Westerner**' is of hybrid origin. The fact that it generates plants from root pieces is rare in Chinese peonies, but is not confined to '**Westerner**'. '**Nippon Gold**' does this also. Incidentally, '**Nippon Gold**' is an especially effective parent for doubling, besides having good "breeding fitness", in general. Another Jap form having good breeding fitness is '**Gertrude Allen**'; can't say the same for its ability to impart doubling, however.

'**Age of Gold**' pollen is an unknown factor to me — I rarely see any of it. A few years ago I had some and thought it was good — turned out to have been contaminated by something in the Little Reds or peregrina species, based on appearance of leaves in the progeny.

Concerning the deformed Itoh hybrid flowers, I find them not at all confined to dark colors. Regarding the validity of claims of Lacti x suffruticosa Itohs, two comments. First, the ones which Smirnow pictured appear to be not distinguishable from lacti, a situation which I would not expect, given the experience of intermediate foliage form and tree peony flower form which we see in those known to be from lacti x Lutea Hybrid tree peonies, and the same is true of a plant which I have that was sent to me as one of those varieties; the leaves are exactly lacti. So far, I am very skeptical. I know Chris believes Roy made this cross and had seedlings, but that is contrary to what Roy answered when I asked him on the way home from the 1976 (?) meeting in Minneapolis.

David, could you elaborate on "recessive whites", particularly, where you are finding recessive white and recessive to what. I have attempted to utilize this concept in giving preference to '**Good Cheer**' which is from double white Officinalis, but in a somewhat reverse sense, hoping it is a means to exclude Officinalis red pigments while retaining the double gene and keeping peregrina (lobata) red of the Perry Lobata. In general I have come to presume Macro white is dominant, at least in certain important situations as in my hypothesis of pattern development which I discussed in a recent Paeonia article. In Chinese peonies I see red partially dominant over white, but this may be due to dosage effects, which follows from the possibility that the intense reds result from genetic redundancy in which the excessive production of red pigment would be due to excessive replication of the responsible genes. (Genetic redundancy is an established concept according to my genetics text). In the Chinese peonies I have also come to think of the dull pinks as being due to some factor in the whites which gives body to the white color — in consequence, clear pinks may depend on the exclusion of this factor, as by using whites which are translucent or somewhat "see-through". The '**Kansas**'-red condition (dull) would possibly be due to something of this "body" pigment factor, for another example.

Comment on the occurrence of Itohs having woody (perennial) stems — one of the advantages of the Itoh plant habit is its being herbaceous. This contributes two very desirable characteristics of performance. The plant can flower more uniformly from year to year as compared to the Lutea Hybrids, which offer the same yellow flower potential, because the latter freeze down in severe weather and flower variably and differently (numbers) from below ground overwintering buds. Secondly when the stems always come from below ground, the plant habit is uniform from year to year on dimensions such as height, and less obvious ones such as flower size. The point is that Itohs can behave as a very hardy plant for landscape design purposes, while Lutea Hybrids exhibit some of the limitations of half-hardiness of woody stems in certain climatic conditions. Accordingly, I tend to see woody stemmed Itohs as potentially of lesser worth, which will be either refuted or borne out over time, of course.

Bill, I have not used A198 or A199 successfully to produce Itohs. This is probably because during the time I've had these varieties I haven't gotten any Itohs. I do have some advanced generation Lutea Hybrids from A199, mostly from F_1 pod parents, as it happens, and feel these are very important clones to be using for the production of advanced generation Lutea Hybrids.

With Roger's breakthrough on the fertility of the Itoh cross, we may be seeing some important and desirable improvements and variations in quality of the flowers. I was quite favorably impressed with some photos he had at the Mansfield meeting last week. It clearly seems that he has a breakthrough on the incompatibility barrier that has plagued the production of these hybrids. Just getting more flowers and getting them from a greater variety of parent material should let us learn a lot more about what may be possible in this group.

Roger, my experience with the Lutea Hybrids crosses also shows a high proportion of the seeds without endosperm — not more than half, however. The curious thing is that only a very few of the F_2 or more advanced generation plants to which I have access are producing as good seeds as I get from F_1 plants. Have had a few seeds from A197, but no seedlings so far. There is a Gratwick-Daphnis which came from Chris' acquisitions of that group. It came to me under the number D-222 and is an upright grower with a blend colored flower. Roy sent me the same number (as scions) but it is a different clone, short and '**Roman Gold**' coloring of the flowers. Chris' D-222 is a relatively good seeder and the seeds grow in good proportions. I feel that the best thing that happened to my production of Lutea Hybrids was getting A199. I don't have any experience with A198 crosses on which a record still exists, so I can't report on it. Sounds as though it gives good fertility too, from what others are reporting.

Going to cut this off and get this on the road. All my work with plants is very far behind for the season and I have to get in there before the weeds take over completely! It's very inconvenient to be poor and have to work for a living.

Am hoping to name some seedlings this summer and put them on the market. It will be nice if I can generate a little income from this project to help with the bills. Might make the amount of time it takes seem better spent!

- Don

FLIGHT 2 of Peony Breeder's Robin
December 12, 1984 -Roger Anderson, Fort Atkinson, WI

Dear Robin Members,

Here we are, just 12 days from Christmas and the weather here in Wisconsin almost seems like spring. Maybe by Christmas day I'll be able to cut grass as was possible a few years back.

The peony season this year was a good one with many different crosses made and many seeds gathered. All crosses made were Itohs, mostly '**Martha W.**' x F_1 and F_2 luteas. However I did use pollen from potaninii and harvested several seeds. This cross has got me excited and I will make many more next year.

My method of planting these seedlings is to root them in the house in sphagnum moss and once the roots are 3/4 to an inch long, they are moved outside and planted where they'll remain for 2 years before being lined out. Surprisingly enough most seeds gathered in late August and September will sprout before freeze up. Several years ago we had a February thaw and I planted sprouted seedlings then which did fine that spring.

In my first years with Itohs seeds I tried keeping them in the house until spring and ended up losing most of them. Last spring my first two Itohs bloomed and were a pleasant surprise to me. One was a lavender with dark purple flares and the other was a white which reminded me of Rocks Variety. Both plants had good plant habit and were free of all leaf spot, which many Itohs seem to have. Both had complete flowers, another wonder! This year I have about 20 more that will be of blooming age and this causes me much excitement. I'm hoping Roy Klehm, David Reath and Bill Seidl make it here this spring to witness their blooming, and anyone else who can get away around the first week in June.

At present my Itohs population numbers about 125 and with any luck at all I should exceed over 300 this spring. But this is where it all lies, the more I produce the better chance of getting fertility and moving on to the next generation.

- Roger

FLIGHT 2, continued — from Steve Varner, Monticello, IL. (1984)

Dear Chris and All --
We had a very interesting and informative round. I had hoped to have more peony breeders interested, but still think we who participate can benefit. We had a very late and wet spring. Then May came along, cool and dry. Last night and this morning we got 2.4" of rain. Iris are 10 days late and I had hoped for a "normal" bloom season as we leave May 27 to go to AIS convention in Seattle and will return June 4. I will miss much iris and peony bloom. Plan to visit Dot and Al Rogers after the convention. Trust I may have some bloom after we return, but it was 88ºF here yesterday. Generally in order of blooming — the following have finished bloom or are past peak — single red *P. tenuifolia*, '**Early Bird**', '**Day Star**', 'Smoothi', '**Nosegay**', *P. peregrina*, '**Laddie**', '**Nova**', '**Roselette**', '**Roselette's Child**', '**Picotee**'. Favorites currently in bloom: Tree-Kamada Nishiki, '**Dutch Dwarf**', '**Eclipse**', '**Echo**', '**Jewel**', '**Firebird**', '**Firelight**', '**Early Daybreak**', '**May Music**', '**Coral Fay**', '**Claire de Lune**'. Have several cream and light yellow single hybrids under number that are in bloom. Good plant habits are important. Some of these are very good clumps, others are faulty. The sprawling stems of some may be due to a botrytis attack. All have had two sprayings of Benelate. The last spray also included some Flock-Aid-A Penicillin, Streptomycin and vitamin additive for chicken's water. It seems to help for a fire blight we have that attacks our sweet cherries, pears and apple trees. We have a lot of large lilac plants of many varieties as well as seedling lilacs. I can't remember lilac bloom being so good in general. Daffs and tulips were extra good too. I have about a dozen tulip seedlings numbered that are Kaufmania for one parent. All are in subtle variations of pastel shades of pink - rose - red - lavender and purple with varying depths of a blue ring surrounding cream and chartreuse centers in the bottoms of the flowers. Stems are long and wiry, reminding me of the grace of a good Siberian iris. They bloomed nearly a month this year — and are still in bloom.

I have a supply of 4 oz. sample containers -- plastic, in the shape of a small drinking cup with a tightly fitting cap — that I mark on with a Sharpie "permanent" felt tip marker. As soon as a pollen source bloom starts to open or as soon after as possible, I remove the anthers, place them in the containers, and carry them in — place the opened containers on

the floor in front of an old refrigerator whose hot air exhaust blows out over them and dries them in a few-hours. I carry the containers in a 5 gallon plastic pail as I go out to cross.

Chris, you proposed some interesting projects for increasing peony stock. Proliferations on hemerocallis can be rooted to increase numbers of plants. Research has shown a paste mixture which can be used to multiply plants. Perhaps these or similar chemicals could be used with the side buds resulting from leaf stripping.

Bill, thanks for your report on crosses. Glad to hear '**Burma Ruby**' (I always list pod parent first — if any of you do not, please note so we will know your pod parent) x '**Royal Rose**' produces several seeds. '**Burma Ruby**' isn't an easy seeder for me.
I would be interested in hearing about your magnolia breeding. I have one named Ballerina that appears to be better than Dr. Merrill. I don't have '**Sable**' but appreciate the info about its inflexible stems. Keep us informed on your '**Dutch Dwarf**' seedlings. I am interested in dwarf lines. I would like to buy or swap for your Saunders 8969. '**Eliza Lundy**' would be a "border bearded" if it were an iris. Do you have '**May Music**' to use for light pinks with darker flares? It first bloomed yesterday and I collected pollen, could send you some pollen if you want. I would like to get '**Kakoden**' from you this fall. Update us on the '**Lemon Chiffon**' seedlings as they bloom. Have you used '**Halcyon**' pollen successfully? My plastic pollen containers are good for getting pollen from reluctant stamens after they are dried. I use my index finger, and "wipe" the pollen from the sides of the plastic container. Would be glad to share some plastic containers with anyone who wants some. You have many plants that sound very interesting for breeding. I will be sending you a personal soon.

I just called Don Hollingsworth and he will join us as #6. Chris, I will send this packet to Don and Don will send it to you, just for this flight, Roger -send the robin, flight 2, to me (unless I send you additional members' names). I probably will adjust or rearrange the route list once we get a full complement of members.

Don and Al - probably will see you long before this does, with your nice heavy stationery, write on both sides to save postage. Members should note your '**Pink Angel**' pedigree data is different from APS's published parentage, trust you will be successful with all those lilac cuttings. Lilacs are beautiful even in this late stage. Do you do anything with oriental quince?

Roy – that's a beautiful catalog I received recently. Thanks. Your comment about "'**Richard Carvel**' near a wet spot invariably threw carpels" could help me in trying to pod '**Red Charm**'. Perhaps stressing '**Red Charm**' that way might produce usable carpels. Are any of those "30 lbs. seeds" seedlings going to be grown out at Pretty Petals Farm?

David – Banbury Ruffles first bloomed for me this year and I liked it very much. It "drew" me from across the garden. I was expecting it to be one of Mrs. Brummetts since she has so many with the Banbury prefix. It is nice. What are your recessive white lines

from? I have not been able to find pollen on '**Mother's Choice**'. Perhaps planting a new division might help. Art Murawska was a diamond in the rough — and he could be rough and gruff. The last time I visited him in his garden, I stayed longer than I planned because he did not want me to go. I think he knew I would never see him again and he died shortly after.

To all -- Have a good bloom season. Hurry back, but if this comes in the midst of bloom, we'll understand. Just don't lay it aside and forget it. - Steve

*P.S. '**Royal Rose**' is '**Paula Fay**' x '**Moonrise**' -- Both pod and pollen data from Chris.*

FLIGHT 2, continued - from L. J. Dewey, Richmond, VA (2-12-85)

Dear Robin Members:
Although I missed your first flight, Steve was kind enough to share that round of letters with me. The letters impressed me very much and I am sure Steve has something good going here. All this breeding jargon is a bit intimidating, almost like a foreign language, and I only hope that I can make some small contribution to your discussions.

Since my days on the farm where we had a small collection of peonies, I have been interested in growing peonies as well as a number of other ornamentals. However, it was not until the mid 70's that I started hybridizing efforts to tree peony crosses and to the Itoh cross. Since it took me a while to collect tree peony breeding stock, some of which is mislabeled to this day (especially the Japanese varieties), I still only have a few hybrids of interest, none of which has bloomed yet. Although I am not hybridizing the herbaceous peonies myself (except for the Itoh cross), I still try to keep abreast of the herbaceous breeding efforts of others.

Lewis Ginter Botanical Garden - 1984 turned out to be a banner year for plant lovers in Richmond, in the South and perhaps even in the nation. Years ago, Grace Arents left her 72 acre estate and a trust fund to the city of Richmond stipulating in her will that a botanical garden was to be established in honor of her uncle, Lewis Ginter. After many years of procrastination and several of litigation, the Lewis Ginter Botanical Garden was finally established in 1984 and our first executive Director, Robert S. Hebb, took over this past December.

After graduation from the University of Rhode Island, Mr. Hebb trained in England at the Royal Botanical Gardens at Kew. He comes to us from Milbrook, N.Y. where he was director of horticulture at the Gary Arboretum, a division of the N. Y. Botanical Garden.

My point in mentioning all this is that I am on the Advisory Board of the Garden as a representative of the American Peony Society and I think we have an opportunity to influence the design and scope of the peony plantings. Since the new Director has already expressed an interest in peonies and has even collected peony species in the Soviet Union, I feel confident there will be a respectable section devoted to peonies in the garden. If any of you have suggestions about what peonies should be grown in a botanical garden or about the design of a peony display in such a garden, they would be most welcome. We should keep in mind that we are near the Southern border of the peony

range and that some of the late blooming herbaceous varieties, especially the doubles, do not open well here because of our warm springs.

After reading the first flight of letters and now the second, I sense a fair amount of member interest in the Itoh cross. With this in mind I thought I would share an experience I had with this cross in 1984. When we bought our house in 1961 there was an unknown herbaceous peony flourishing in one of the borders (my number HP 1-61). The variety remains unidentified. It blooms early producing a very full double pale blush flower which fades to white on aging. The bloom is very similar to the Hollingsworth #23 Carr East #2 (do I have the right designation, Don?) which Don sent me in 1976, but seems to open a few days earlier and the plant habit is slightly different being more erect and less floppy. To my knowledge the flower does not produce any stamens or pollen on the petal edges so there is little or no problem with self-pollination, However, because of the size of the bloom I cut off most the petals before pollinating to make bagging easier. When this is done it can be seen that in the opening bud stage the bases of the center petals have a yellowish tinge. Despite the doubleness of the bloom, the feathery character of the stigmas, and the anemic appearance of the carpels in general, many of the carpels are functional and the variety does set seed. I have been using this variety for about eight years as a pod parent in the Itoh cross. During that time I have harvested a few seeds each year and these have produced a few Itoh hybrids, none of which has bloomed yet. Something unusual happened in 1984 when there was a very noticeable increase in seed production, at least for one cross. I have summarized the results in the following table.

1984 Seed Production Using HP 1-61 as Pod Parent in the Itoh Cross

Pollen Parent	No. of HP 1-61 Flowers Pollinated	No. of Seeds Harvested
A199 ('**Golden Era**')	6	37
D324	8	0
'**Golden Isles**'	5	0
P. delavayi (#10-79)	4	0
P. lutea (Fay selection)	2	0
P. lutea (Laning Seedling)	5	0
'**Roman Gold**'	5	0

Since in the past I have been used to harvesting only a half dozen seeds or so in the entire crop from the HP 1-61 x A199 cross, I was astounded last fall when I collected this number from a single seed head and finally got a total crop of 37 seeds. I have no explanation, especially since all the other failing crosses shown in the table were made about the same time. To date the only Itoh crosses from which I have grown seedlings have been those between HP 1-61 (as pod parent) and either Reath's A199 or his A201. In agreement with Don's observation on the failure of suffruticosa pollens to produce Itohs, I have never found a single viable seed from the pollination of HP 1-61 with various suffruticosa pollens.

What is just as surprising is that of the 37 seeds harvested in the HP 1-61 x A199 cross, 29 have produced roots on incubation in damp vermiculite at room temperature as of this writing and are cooling in the refrigerator. Now comes the waiting game as the seedlings grow and are observed to see if they are really Itoh hybrids.

Miscellaneous - I like Al's idea of enclosing photographs with his letters. If I ever get my prints and slides organized, I may include some for you experts to identify. I am already looking forward to Flight #3 and in the meantime I hope all you have a very successful pollinating season. - L. J. Dewey