American Peony Society Bulletin

DECEMBER, 1975 No. 216

PILLOW TALK

Klehm Estate Peony (Plant Patent 2953) (Mid-Double)
Fluffy, delicate pink blossoms edged with a hint of red.

Field of Jay Cee on Charles Klehm and Son farm in Barrington, Illinois.

Cover and picture courtesy
Chas. Klehm & Son Nursery

JAY CEE

Klehm Estate Peony (Plant Patent 2011) (Mid-Double) American Beauty red with bright green foliage. Official state flower of Illinois Junior Chamber of Commerce.

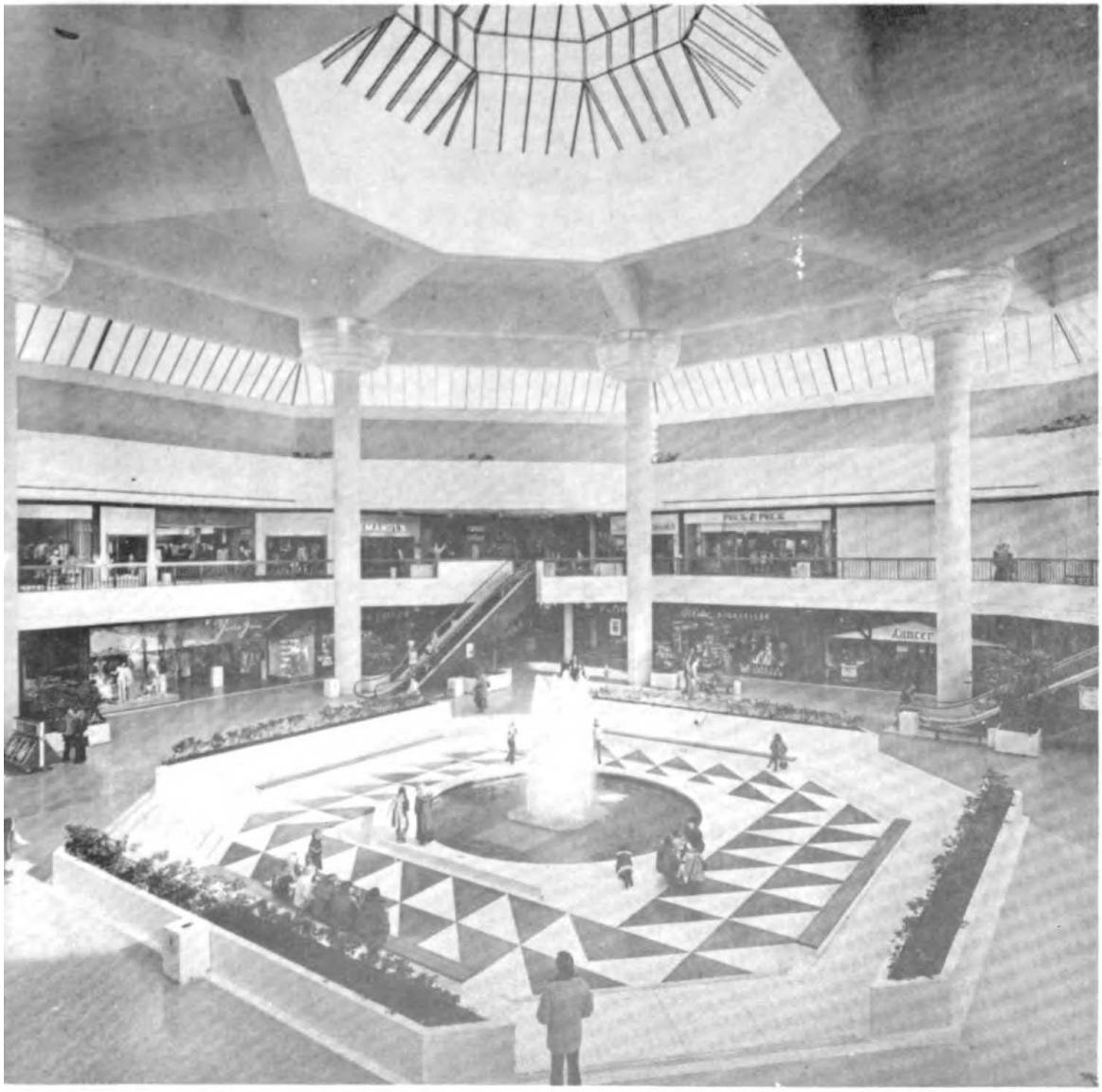
Site of the

AMERICAN PEONY SOCIETY NATIONAL CONVENTION

June 18-19-20, 1976

The 73rd Annual Meeting and the

71st Annual Peony Exhibition



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DEPT. OF REGISTRATION

The department was formed to properly supervise the nomenclature of the different varieties and kinds of peonies. All new varieties should be registered to avoid duplication of names.

Greta M. Kessenich, Secretary

OBJECTIVES

The Articles of Incorporation state: Section (2) That the particular objects for which the corporation is to be formed are as follows; To increase the general interest in the cultivation and use of the Peony; to improve the methods of its cultivation and methods of placing it upon the market; to increase its use as a decorative flower; to bring about a more thorough understanding between those interested in its culture; to properly supervise the nomenclature of the different varieties and kinds of peonies; to stimulate the growing and introduction of improved seedlings and crosses of such flower; and to promote any kind of the general objects herein specified by holding or causing to be held exhibitions, and awarding or causing or procuring to be awarded, prizes therefor or in any other manner.

The AMERICAN PEONY SOCIETY BULLETIN is the official Society publication. It is mailed postpaid quarterly to all members in good standing.

MEMBERSHIP

The By-Laws state: All reputable persons, professional or amateur, who are interested in the Peony, its propagation, culture, sale and development are eligible for membership. Dues are as follows:

Single Annual	$ 7.50	Junior of member family	2.50
Single Triennial	20.00	Junior non-member family	3.50
Family Annual	10.00	Life	150.00
Family Triennial	27.50	Commercial membership	25.00

Family membership, any two related members in same household — One Bulletin.
Junior membership, any age through completion of High School — Separate Bulletin.
For those who wish to further support the Society, the following special memberships are available:

Contributing	$ 25.00	Supporting	$100.00
Sustaining	50.00	Patron	250.00

AMERICAN Peony Society Bulletin

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FROM YOUR PRESIDENT

The peonies I purchased at the peony auction in Mansfield, Ohio arrived the week of Oct. 1. It is always a welcome surprise to see what I ended up with, as they were paid for months ago, and it is as if they are free.

Stolen Heaven, Cytheria, Claire de Lune, Prairie Afire, Pico and **Plainsman** are an interesting group. They came from Louis Smirnow, David Reath, Ben Gilberson, Clarence Lienau and Myron Bigger. These donors and others including The Klehm Nursery, Marvin Karrels, Brand Peony Farms, Gratwicks, Gilbert Wild, Frank Howell to name a few, help to keep us financially stable with their gifts to our auction. I thank them for their financial help and the pleasure they give us when their parcels arrive.

During the past year I visited several members' gardens. Some of these are included later in the Bulletin. One visit that was quite interesting was that of Steve Moldovan at Avon, Ohio.

Steve had designed the garden with an oriental theme and has a fine collection of tree peonies including several of the Daphnis numbered varieties. He is a renowned breeder of hemerocallis and hosted their annual show in his garden this year. The two types of plants were interplanted in four different screened sections of the garden with fine deciduous trees also weeping and mounded evergreens. A fine garden to visit if you are in the Cleveland area.

I visited about twenty-five Horticultural Societies around the Hamilton and Toronto areas to talk about peonies. It is surprising how few gardeners know about the hybrid herbaceous and tree peonies. These talks generated quite an interest and hopefully will be followed by orders to commercial sources and maybe new members for our society. It is surprising how many peony collections one finds that were started years ago through an enthusiast spreading the word. This is one way we can all start our friends and neighbours growing and enjoying peonies. Suggested goal for each member is to start 3 others growing peonies in their area each year.

As this message is read, your peonies will be tucked in under a blanket of snow preparing for a gigantic spring show. The 1976 Show is at Minneapolis, so bring a few flowers and join me there. It will be my last show as president, so I hope you can arrange to attend. I hope you and your family will have a pleasant Christmas season and a fulfilling New Year. John Simkins

PEONY PLANTS IN AUTUMN

by The Rev. Floyd J. Miller, Fergus Falls, Minnesota

As the month of June comes to an end and as the last bloom fades, the peony grower's enthusiasm is tempered. Ten long months must pass until the season of flowers comes again.

However, there is renewed hope as plants are divided and the garden is rearranged. And there is lively expectation as new varieties are added to the field.

There is, also, another wide avenue of continuing interest. In the late summer and in the fall peony plants are attractive and useful features of the garden and flower border. As the foliage gradually turns to autumn hues, individual plants are centers of interest. Rightly arranged, they easily blend with other changes in the yard and field.

As I look across the peony planting these Sept. days, there are gradations of color from deep and lively green through shades of yellow to dull and muddy orange-red. And always with tinges of brown and maroon waiting to take over on all varieties. These variations have long been a part of the fall season, but perhaps we have not taken full notice of them. And we must remember that the coloration varies from plant to plant of the same variety, and from year to year in the same hill.

There are prominent islands of diluted red, dull and muted with orange. This change seems to occur in low growth and may be encouraged by unusual soil or plant conditions. This year such color occurs in **Ella Lewis, Minuet,** and in **Tourangelle.** The strongest color is in **The Admiral,** while a duller pigment is seen in **Blanche King** and a lesser shade in **Dr. L. W. Pollock.**

There are prominent plants with leaves which still retain the deep and clear green of the blooming season. **Illini Warrior** is the best here with no hint of change from summer. The lighter green of **Bright Knight** and the still lighter of **Pageant** each have varying mixtures of yellow. Such green-yellow is turning to light reddish-brown in **Rose Valley,** while in **Vanity** mottled pink and yellow and brown is spreading across the leaves.

Other good greens with only a slight tinge of brown are **Elizabeth Huntington, A.B.C. Nicholls, Harry F. Little,** and **Mme. Jules Dessert.** Noteworthy is Soshi with its wide and heavy leaves with irregular edges still deep green as the lite maroon overspreads the foliage.

A real strong color is full maroon seen in **Mons. Martin Cahuzac,** in **Ida Mellinger,** and in **Matilda Lewis,** each with all leaves of

deep brownish-red. This will be the goal of all the slower-changing varieties.

But most of the plants have infinite gradations of coloration between these extremes. Everywhere green foliage is slowly giving way to dark maroon. This change begins at the ends and at the edges of the leaves and gradually spreads over the surface of the entire leaf.

In this fall season of changing colors there are two instances worthy of special mention. **Toro-no-maki** and **Le Jour** are simply charming as the strong pinkish-red has just begun to tint the edges of the foliage. On the background of green this change is stunning. In addition, **Irving Flint** has a character all its own. The excellent upright form of this bush is jointed with the large and wide leaves of yellowish-green as they turn to reddish plum. The sun adds brightness over all.

Another attractive result of fall coloring is a full bush with the topmost and outer leaves already maroon while the inner and lower leaves are still bright green. **Midnight Sun, Hari-ai-nin, Fortune Teller** and **Avalanche** are examples. There is almost a shell of maroon enclosing a green center. The play of sunlight makes for a depth of stem and leaf and for a combination of shade and color which is most appealing.

So, when the brilliance of the season of flowers is past and the shades of autumn loom on the distant horizon, let all peony lovers take heart. There is enjoyment of the growing plants in late summer and fall before the frosts bring on the wilted stems of winter.

* * * * *

WINTER PROTECTION OF PEONIES

Winter protection is only necessary the first winter and will help prevent heaving by frost. Mounding the soil over them several inches is as good a method as any. Salt hay, corn stalks, evergreen boughs, anything that will not mat down and make a soggy mass over the crowns, will do. Remove covering before growth starts in the spring. Protection is beneficial in extremely cold climates and should be given. No covering should be provided until the ground freezes up hard. Of course, when a mound of dirt is employed, this must be done before that time.

* * * * *

Some convenient time after September the tops of herbaceous peonies should be cut to the ground and all foliage and stems collected and burned as a preventive of disease. Never, cut them down immediately after blooming, as it will mean the eventual death of the plant. They may be trimmed back, after blooming, to the first leaf under the bloom.

WIDE VARIATIONS IN SEED PRODUCTION

E. L. Pehrson, Lafayette, Minnesota

"The cross takes badly. From 48 crosses in 1931 there were 31 failures and the rest (17) gave only 65 seeds. It gives mostly small shrivelled seeds as Woodwardi and Veitchi do, but also sometimes big round seeds."

This is taken from Professor A. P. Saunders' "Big Notebook" referring to his use of pollen of the species p.emodi in crosses onto the ordinary p.lactiflora. His dissatisfaction with the seed production from this cross may be amusing to those present day hybridists who are making the cross between herbaceous and tree peonies, and find that their seed crops are perhaps only one or two percent as generous as this.

Does this mean that the newer crop of hybridists are more sophisticated than those of Professor Saunders' day? Probably not, but it may indicate that they are no less diligent in their efforts. Further evidence of this probability may be found in the fact there may now be found in the many seedling plots perhaps no less than two hundred plants from which to make selections to add to this New Race which Mr. Louis Smirnow introduced to the peony world.

Eventually the lacti-emodi cross turned out to have been a very successful one. Fourteen of those sixty-five seeds grew into true hybrid plants; one of which became WHITE INNOCENCE. This is a most novel peony and is quite popular.

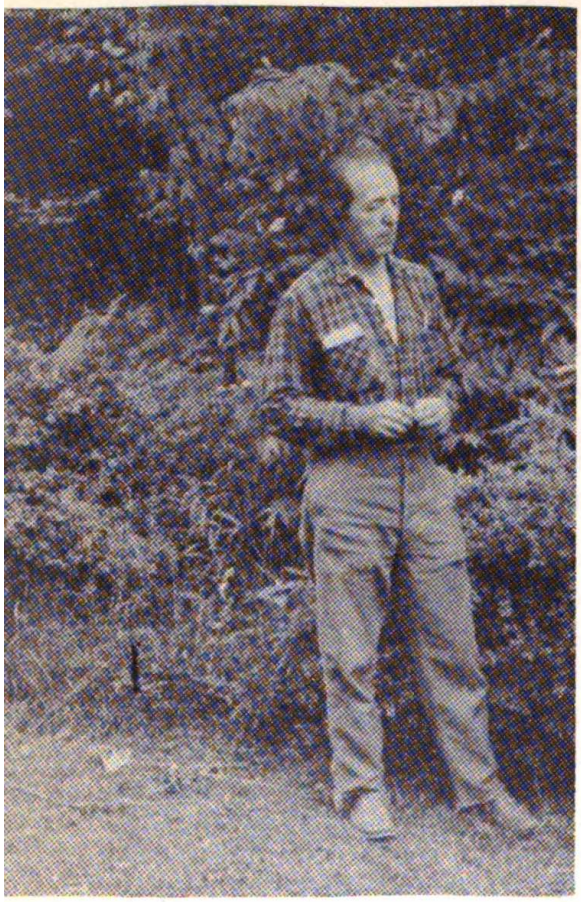
> "The cross albiflora x lobata (Perry) is the most remarkable of all the crosses I have made in Paeonia. It rarely fails and often gives from 20-40 seeds per bloom. The highest number ever on PRIMEVERE—79. Generally speaking the yield is about the same as the albiflora would give to pollen of its own group.
>
> In 1929 I had 2268 seeds from 134 crosses and from these I got 1288 plants, all distinctively hybrid in appearance."

But the story of this cross of Professor Saunders is well known. Not only was seed production the best among many crosses tried, but the seedlings obtained were so good as to account for a high proportion of the hybrids which he named and introduced.

Edward Lee Michau explained in the June Bulletin that "Hybridizing is easy." This account is intended to supplement his by showing that the seed crop resulting from such crosses can vary widely. Crosses can be made which will adapt to any prospective hybridizer's own circumstances.

DAPHNIS HYBRIDS F1s

by Nassos Daphnis



Mr. Nassos Daphnis at Gratwicks 1975

In 1946, right after the war, I began, with the help of Mr. W. Gratwick, crossing the Lutea with the Jap. Moutan Tree Peonies.

The first year we had few seeds. Most of them were not really crosses, but we grew about 4 or 5 hybrids from that group. The ones that have survived were named Tria and Tessera.

TRIA

(Three) is named because it was the third plant crossed; it also has three flowers on each stem. These flowers bloom in sequence; the primary flower first, after 4 or 5 days the second, and then the third. Thus the blooming time of this plant is extended to 10-15 days more than any other tree-peony that we know. It is the first of the hybrids to bloom (at the same time as the moutans) and the last one to go. The stem of this plant is very strong. The flowers stay up high above the leaves. The color is pale yellow and the petals open in an orderly fashion, well formed with some ripples at the beginning. But as the flower grows older the color fades to a silvery-yellow and the ripples disappear. The foliage is delicate and not as heavy as some of the other hybrids. When this plant is in full bloom it is a joy to watch. It makes a wonderful garden plant.

ARTEMIS (Goddess of Hunting)

Artemis is one of the most vigorous growing plants of all the flowers. The flower is pure light yellow with petals evenly arranged in a perfect circle. When the bud starts to open, the petals unfold one by one in a perfect harmony. It is a joy to watch this stage of the flower. But when it finally opens, it is a great delight to see. The flower against the sun is diaphanous and it has a silk texture.

Though this plant is more than 20 years old, we will have to wait until a later date for full evaluation.

GAUGUIN

(from painter Paul Gauguin)

Gauguin is the most unusual and exciting plant we have. The flower is multicolor. It starts with reds on the inside of the petals with streaks or lines of yellow running from the base to the top of each petal. The back of the petals are golden yellow with red lines running from the base to the top. The center is dark red and the anthers yellow. This flower reminded us of the painter Paul Gauguin because we had in mind the vividness of this artist's colors plus the feeling of exotic flowers of the South Seas where Gauguin had spent part of his life.

The other hybrids that we have named were crossed in 1947-48-49 and are the following:

Artemis, Demetra, Persephone, Themis, Kronos, Gauguin, Redon, Persepolis, and **Marie Laurencin.** REPRINT (1969)

* * * * *

Eyes, stems, and roots of a peony are very brittle in the fall and spring, and, when cultivating or working around or with the plants, take every precaution to prevent damage to these parts. If they are broken or otherwise damaged, the plant will be set back in growth and, though new growth may appear, it will be much less vigorous than it would have been if the plant had not been injured. If you are uncertain where the new growth will appear, it is best not to work around the plant until it comes up. A stake, set by the plant, will show its location and protect it. All varieties do not come up at the same time in the spring. Young plants are particularly slow in apearing, at times. Some will be a month later than others. So never dig down to see if the plant is alive, for there is great danger to the new shoots. Just let them alone and they will come up in their own good time. If they have not appeared six to eight weeks after the others have come up, it may be well to examine them and see what is wrong. You may save the plant.

Many varieties have beautifully colored foliage in the fall. To take advantage of this, delay cutting off the tops until they begin to wither.

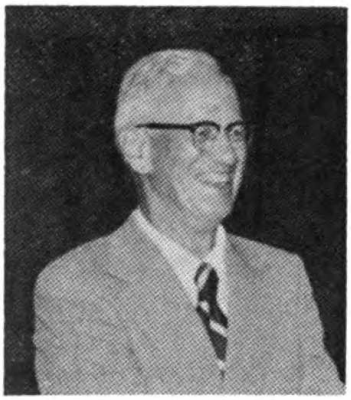
Unless you wish the seed for planting, it is best to cut off all blooms as soon as they fall. The garden looks better and the plant is benefited. When cutting long-stem blooms leave second leaf from bottom.

* * * *

V. I. P. BILL KREKLER

Hybridizer Supreme — Generous,

Talented and Kind — Mr. Peony



William H. Krekler

"All my friends call me Bill," says William H. Krekler, recipient of the highest award that the American Peony Society can give one of their all time GREATS. The beautiful medal of antique bronze with the above inscription was awarded Mr. Krekler at the National Convention of the American Peony Society, June 21, 1975, Mansfield, Ohio.

His life has been dedicated to the field of Horticulture in many capacities, after having studied landscape architecture at the University of Illinois. He was manager of the landscape department of Rosedale Nursery at Terry-on-Hudson, New York, after which he accepted a position with the famout Olmstead Brothers of Boston, helping draw plans for Long Island estates.

Later, in California he drew maps for the future highway system for Los Angeles County, until his eyes no longer could endure such exacting fine work.

Then he started the Peacock Nursery in Akron, Ohio in 1928. Although he still owns the Nursery, it is now operated by his son Norman and brother, Robert. Evergreens and trees are their specialty.

Peonies were always the hobby of Mr. Krekler and he began early, collecting them from far and near. The Orient, Holland and any place that a good variety could be purchased. Many hundred varieties came from Professor Saunders, Mains, Thee, Auten, and Glasscock. He purchased the peony nurseries of H. L. Smith, Winslow and Claybaugh. His collection of peonies was considered one of the greatest ever assembled, consisting of over 2000 varieties and in addition, he was growing acres of his own originations.

He shipped more peonies overseas than he sold in the U.S. Moscow University purchased hundreds of his peonies. Some were planted along the Kremlin wall and on the grave sites of notables. He is co-owner of a peony nursery in England and one in the mountains near Mexico City. He won the GOLD MEDAL for his peonies at Hamburg Germany World's Fair a few years ago.

Mr. Krekler was on the Editorial Committee for the writing and assembling material for the book, **The Peonies,** edited by Dr. John Wister. He was on the Board of Directors of the American Peony Society. He has written informative articles for the Bulletin of the American Peony Society.

"I do not ship peonies anymore. I am retired but continue as in the past to give away many of my better varieties to colleges, senior citizens' homes, churches, parks and arboretums," says Bill Krekler. He continues his hobby of creating better flowers of both peonies and daylilies. His acres of both plants are of the very best, a selection that he knows to be superior, for his life time has been devoted to horticulture and evaluating flowers.

He has registered and named over 100 varieties with the American Peony Society.

Bill has given away many gallons of daylily and peony seed from his fine collection to the American Hemerocallis Society to be distributed in Japan, Australia, Russia and other foreign countries. Cornell University, Stan Hewett Hall in Ohio, Cox Arboretum, Ohio State University, Kingwood Center and other places have received gift loads of peonies or daylilies or both from the Krekler Farms.

He spends his winters with his lovely wife of 50 years in their Whittier California home and their ranch in Sonora, Mexico. In July they celebrated their Golden Wedding Anniversary. Spring and summers are spent on their farm in Ohio.

In his reminiscence of the past, he related that his father was a childhood neighbor of the famous Wright Brothers, that he had purchased over a dozen farms in Ohio from the profits on world-wide sales of "jacks." Later the family lived in his stepmother's old colonial home in Indiana, which was previously the home of her father, Governor Claude Matthews and her grandfather, Governor and Senator James Whitcomb. Bill graduated from the C. H. Military Academy in Tennessee and was in the Field Artillery at Camp Knox, Kentucky.

In ending this interview, Bill said: "I have tried to make the earth a better place than when I found it, and beautiful flowers are my contribution."

Peony **Helen Matthews** was named after Mr. Krekler's stepmother.

* * * * *

Regional District VII has been organized and approved. Officers to serve until the first district meeting, Edward Lee Michau, President. Helen M. Titus, Secretary and Newsletter. Two robin letters have been sent to members. A news letter will be published.

—Edward Lee Michau

JUNE IN NEW HAMPSHIRE

Jimmie DeBlasi, 4 years old, admiring a blossom of Souvenir de Maxime Cornu. "A great helper around the garden and greenhouse."

The early peonies were spoiled by a rainy spell. Then followed a prolonged dry period and the remaining peonies were excellent. We are now in another wet period, but the peonies finished blooming over a week ago (July 11, 1975), with one or two exceptions. We had one final blossom in the house until it fell apart yesterday. It was **La Lorraine** from a bud that was late to develop.

Very double. Silken sheen, a soft yellow-to-buff with purplish shadings on some outer petals, each petal base stained with red, a very elegant flower with the fragrance of a fruit stand set up in heaven!

Anthony De Blasi

TREE PEONY PHILOSOPHY

by Anthony J. De Blasi

From time to time I meditate, not according to plan or schedule, but whenever the spirit moves me. It may last an hour or more; it may transpire in less than a minute. I never know in advance. Nor do I follow any particular method or school of meditative practice. It is just a habit of mine, developed from childhood, when I would spend quiet hours losing myself in my surroundings, usually in a park or garden, where I could be in proximity to an abundance of natural objects. It surprises me that, knowing that physically we are composed of the same fabric as the natural world, more people do not look to nature for insight and inspiration as well as enjoyment.

I look at a tree peony in bloom and at once I am engulfed in a sea of sensations and a universe of thoughts. Its beauty fills the vessels of poetry to overflowing, while the wonder kindles an intense glow of enlightenment as, fleetingly, I perceive the world of dreams meet the world of reality in the enchanted harbor of a single blossom. In that moment I know something wonderful has taken

place, and I am aware that if it could be "translated into words" it would read: "this is it," whatever that can mean in the ordinary, conscious state. But, at the time, the meaning is as lucid as the experience is vivid, much as in a dream an idea will seem perfectly clear only to lose its sense upon awakening. If I could translate "this is it" into something rational, it might take on such a cast as: "Gosh! Why has it taken so long to see that this is the way to heaven?"

A first reaction to such an outcome from meditation would be to simply leave it at that—enjoy the flavor of the experience along with the strange, though beautiful "message," then drop it when we come to our ordinary senses. But on second thought it might be interesting to see if we could take such an intuitive bit of information and use it to fertilize our ordinary thinking. I have done this many times and the metamorphosis from cryptic intuition to clear, rational thought is not always successful, but when it is, it proves fruitful.

Now, what to make of: "Gosh! Why has it taken so long to see that this is the way to heaven?" Evidently, the perfection of form and beauty perceived in the flower is pointing to something of great value. Not heaven, I would say, especially since most of us are unprepared for it, but perhaps "a better order of things"—"a better life" even—if we may transfer the concept of heaven to something more down-to-earth. And, by "better" let us say fuller, more significant, more harmonious, more vibrant, more effervescent, graceful, pleasing (and ultimately happier)—which are states of existence suggested by the parameters of beauty offered by the contemplated flower. Can such beauty really touch us and impel us toward such marvelous outcomes in our daily lives and, by extension, in our world? I believe so. And I believe that the implement through which it acts is **attitude.**

Attitude, in the final analysis, is that which shapes our lives and world events. It is "putting the cart before the horse" to say that a variety of forces and events pave our way through life, and we follow. In general, forces and events are **per se** neutral and the manner in which they are received and turned by the individual personality determines their quality and impact. A dour disposition can sour the liveliest party, while a sweet one can lighten the heaviest burden. A loving attitude can warm any situation, while a harsh one can turn a summer day cold. The difference between a glower and a smile can be a chasm that yawns between gloom and happiness. (The connection no longer appears remote between the qualities that define the beauty of a flower and those that can move us to graceful and harmonious actions. We can appreciate the inclination of the ancient Greeks as well as other cultures, past and pres-

ent, to regard the serious study of music, poetry, and other esthetic subjects as essential to the training of young people.)

It is not a valid claim that a gloomy attitude—in fact any attitude not reflecting the intrinsic joy of life (amply "declared" by that tree peony blossom)—is the result of adverse forces acting upon the personality. Here we have again that "cart before the horse." Our fundamental dispositions and attitudes are formed from within and the wonder of it—which awaits the discovery by a great many souls—is that we **choose** those dispositions and attitudes, perhaps not consciously, in the sense of sitting down one day to decide what attitudes we shall have. But emphatically the way we receive the world and fit ourselves into it—via our attitudes and disposiions—is an act of will and not of passive adaptation.

I have been taken to task for expressing this idea in a somewhat jolting fashion by saying that whatever people are, they like to be, and whatever people do, they like to do. Of course, I mean **consistently,** not 100% of the time. But what about misery and unhappiness and being "trapped" against one's will in an unpleasant situation? Surely no one **likes** that. To which I must reply that many **are** happy precisely when they are miserable, that they have no taste for enjoying life and no desire to trust to every man's genius, which is their own, to make the moves required to counter any obstacles. But, like the hypochondriac, such a soul can offer an endless train of reasons for being unhappy that betrays an inventive capacity being wasted.

When my children get spanked for a misdeed, I sometimes point out to them that they have punished themselves—that mommy's wooden spoon or daddy's hand are only the means of carrying out their own wishes. Though it is not clear to them, it should be clear to us that, knowing what the consequences of an action are, we **select the consequences** when we choose such an action. If the action is a false one, and the consequences painful, we are not only the authors of the action but of the consequences as well.

Actually all this should not be unfamiliar to the religious-minded or to anyone who harbors a spiritual perspective. Attitudes—the gyros, the governors, the impellers, the mainsprings of our actions, and selectors of the consequences, are indeed the agents that fashion our world. What will their models be? What forms should they take?

"Open all your pores and bathe in all the tides of Nature . . ." writes Henry David Thoreau in his **Journals,** "Grow green with spring, yellow and ripe with autumn. Drink of each season's influence as a vial . . ." This is a hint at how Thoreau shaped his attitudes.

Each person chooses his own "influences"—be they culled directly from an abiding religious faith or indirectly from natural beauties or artistic inspirations.

To me, a wonderful "influence" is that of the tree peony, especially during a moment of meditation, when it appears perfectly to point the way.

* * * * *

Six-year-old tree peony RIMPO, growing in the front yard of Edward Lee Michau, Derby Kansas. The plant is three feet in height and had 14 *blooms this year. RIMPO (Sacred Bird) is a beautiful double flower of brilliant purple with a large yellow center.*

* * * * *

Mr. E. L. Wood

A small corner of the peony garden of Mr. and Mrs. E. L. Wood, Lockport, Ill. The peonies are grown for pleasure. New varieties are planted every year. To date 113 *different varieties are enjoyed in this garden.*

TASMANIA, AUSTRALIA

Neville J. Harrop

17 *Auvergne Avenue NEWTOWN, Tasmania.* 7008 *Australia*

19th September, 1975

Tasmania is an island of about 200 miles square off the northern tip of Australia, with a climate rather similar to that of England, but with a milder wet winter. Therefore, although a high proportion of seeds germinate, sprouting is very unreliable under natural environments, and the majority of the seeds rot thus encouraging nematodes.

I had come to the conclusion that if I could create artificial seasons by using a fridge and a thermostatically controlled hot box, a far greater strike could be achieved and my thoughts have subsequently been confirmed in the interesting article written by Mr. Hollingsworth in the June '75 issue of the Bulletin.

I wrote to both the Royal Horticultural Society and Kew Gardens (London) seeking information because there is just nothing available in Tasmania, but the results were disappointing. However, after reading an article by Mr. Louis Smirnow in the Australian Gardening Magazine, I became aware of the American Peony Society.

With the aid of the American Peony Society's Handbook, then begging or buying cuttings of tree peonies, I have about thirty established plants, including some named varieties bought from the Australian Mainland.

Named and identified plants are almost unprocurable in Australia, because when importation was relatively easy, horticulturalists sold them direct to the public, rather than building up a stock for future propagation. To the best of my knowledge all tree peonies which have been imported into Tasmania over the last five years have died before being released from quarantine. The combination of fumigation, six months difference in season to America, and poor quarantine conditions have proven too much for the plants.

Having limited knowledge and this based primarily on experience, I avidly read anything pertinent I can get on the subject, apply it, keep records, and vary it experimentally as I gain more knowledge. To date my success rate in grafting to herbaceous stock is only 50% using any herbaceous stock available and utilising all bits of root from 3" long by 3/8" diameter upwards. This 50% is unacceptable as a standard when I start using my named varieties and as I can afford to take more care than, say, a commercial grower

who is dependent on employed labour, I see no reason why an 80 to 90% rate should not be a realistic goal.

To date I have only employed the side cleft graft but it would appear that the modern preferred method is the wedge graft.

Some basic questions I would appreciate comment on are:

1. Does the use of hactiflora stock rather than say officinalis stock meet with a significantly higher success rate? Or is it that it just grows stock root quicker and is more resistant to botrytis.
2. At what stage of the plant's growth is the best time to cut scions (e.g. still vigorous, most leaves fallen, leaves just beginning to brown off)? All articles refer to the calendar months which of course have to be related to the area.
3. Should root stock be dug and cut to suitable sizes and then left for a couple of weeks to "settle down"? If so under what conditions?
4. Is the success rate significantly improved when using the wedge graft instead of the side cleft graft? If so, to what extent?

I have achieved about 100 grafts successfully the best of which I am keeping for eventual stock plants. Next month (October) will be browsing around Victoria on the Mainland in the hopes of finding named varieties in flower and procuring pieces of them in the Autumn.

This way I hope to build up my stocks and open the eyes of Tasmanians to the unique beauty of the tree peony and thus promote one of the Society's objects, quote: "to increase the general interest in the cultivation and use of the peony."

* * * * *

To prevent disease, spraying or dusting should be practiced more generally than it is. The first spraying or dusting should be done just as the plants break through the ground. It should be repeated when they are about half grown and again just before they bloom. To prevent leaf spot they should also be sprayed or dusted several times after blooming. Use bordeaux, benlate, or some similar fungicide.

* * * * *

COLOR SLIDE COLLECTION

Color Slide Collection: The American Peony Society maintains several groups of excellent sets of peony slides for rental. Each set contains 80 slides. A list of names accompanies each set. Ideal for program and Garden Club meetings. Rental fee $7.50.

Request for slides write to: Richard Edblom, 6917 45th Ave. N., Minneapolis, Minn. 55428.

The following is a reproduction of an old letter written to Mr. William Krekler from Mr. Walter Mains. No date on the letter, only that it was written at 1:10 *in the morning. Mr. Mains gave to the peony world many beautiful peonies. Among them WALTER MAINS, the recipient of the GOLD MEDAL* 1974, *Firebelle, Buckeye Bell, Francis Mains, Bill Krekler, Chief Logan and many more that will remain in our gardens for years to come.*

"I think you should select good seed parent plants. (I never use singles on seed bearing plants.) Suggest that you sack some buds and before the stamens shed any pollen, remove every one. I us the small blade of my jacket knife and see that no hidden stamens are left. When the stigma is later ready for pollen and it is applied, I resack the bloom, leaving the sack on at least a couple of weeks, until the stigmas are too old to receive pollen.

The tips of the stigma shows the sticky secretion. Your brush gets stiff with it if you have many blooms to use. I suggest you use good Japs, also. They do not shed pollen as do others.

This cross (using Lobata Sunbeam) produces GOOD PLANTS. You may raise one hundred and not find one that you will want to discard. (Of course an occasional dwarf or weak seedling is to be expected and should not even be permitted to clutter your row.)

By using Japs and not singles there is always the danger of stamen emitting a bit of pollen unnoticed. Then your cross may be a failure (self pollination of bloom). The pollen of a species is always more acceptable than that of another species.

I do not want to dictate procedure but am sure that you will have good success in the use of Lobata Sunbeam, where as I doubt you will get any seed from the pollen of hybrids.

When bloom is sacked both before and after the pollen is applied, it is well to apply pollen to the stigma tips at once, even if the stigma is young. There is a good chance some pollen will remain on the stigma and become affected. Rain and wind cannot wash or blow it off. You see, you might be delayed or even forget it. I always aim to re-apply pollen later on the stigmas that were too young. A mark on the sack will tell you where re-application is needed.

Alice Harding may be the pollen parent, as I use it much. It is the likely pollen parent for my **Francis Mains.** Strange as it may seem, I never get a good plant from the few seeds of **Alice Harding.**

The boy and I got over all the bloom at the cemetery. Finished just as a hard rain and much lightning struck. When I finish, I will dust this chinensis pollen on the hybrids, in hopes for an occasional seed."

Yours, Walter Mains

TREE PEONY TOPICS

Louis Smirnow, Brookville, Long Island, N.Y.

When buying a young tree peony, try to avoid a one or two-year-old plant. At that age, the chances of survival are less than a three-year-old. At the latter age the root system has developed and will bloom first year after planting. Experience has shown that most losses occur on the one and two-year-old plants.

With regards to old plants, the so-called specimen plants, be prepared for them to be set back the first year after planting. Older plants need more time to become established. We saw in one planting, twenty specimen Lutea hybrids with small flowers the first year after planting. Two years later blooms were true to size.

We have been asked on several occasions which type of tree peonies are good seed producers. Over forty years of experience we found that the Japanese varieties are best.

Such varieties as **Hanakisoi, Rimpow, Tama Fuyow, Godaishu, Nippon Beni, Ko Murasaki, Komachi Shiro, Kunkei** are excellent seed setters.

The European varieties are good seed setters, such as **Reine Elizabeth, Surprise** and **Flambeau.**

Lutea hybrids are poor seed setters. As a matter of fact very few will show seeds. Our hybridizers are now trying to make crosses to improve this situation.

Souvenier De Maxime, Chromatella and **Alice Harding** will occasionally set seed. **Alice Harding** is still the most fragrant tree peony of all.

Recently we received a letter asking if tree peonies will grow in Mississippi. Tree peonies or any other type of peony will not grow in Florida, Alabama, Mississippi, lower Texas or any other extremely southern part of the country. Peonies require some cold weather during their period of dormancy or else they will not survive.

Insofar as cold, northern climates, peonies will do well. Tree peonies should be protected the first winter after planting. Protect them with wood chips, leaves or peatmoss. Remove the protective covering in the spring.

We must again caution you to remove any herbaceous branches on tree peonies in the spring. Should you see herbaceous leaves on a branch emerging from the root system, it is an indication that the herbaceous understock has sent forth a branch. Remove it instantly.

Try planting a tree peony or two. You will soon see why the tree peony is the queen of all flowers.

The beautiful landscaped garden of the Tom Gentry's, Lexington, Va.

FERN-LEAVED PEONIES

Probably the one most often referred to is the species tenuifolia and its varieties, though some other species have this cut-leaved foliage that has been given the name of fern-leaved.

The varieties that may possibly be included under this head are tenuifolia and all its different varieties and its hybrids. Also the species anomala has this same characteristic to some extent.

The following varieties may be said to be "fern-leaved" to a more or less extent.

Tenuifolia. This species occurs in the wild in Transylvania, Crimea, Caucasus and Armenia. It is one of the first to bloom.

Its varieties are; hybrida, laciniata, latifolia, rosea, all singles and red except rosea which is pink. The double form, flore, pleno, the most widely grown, is a brilliant red. The growth is quite dwarf, rarely exceeding 18 inches. The double seems to have the finest cut foliage with the singles, varying from it to some extent.

The species, anomala, has coarser foliage and is found wild in Russia and Central Asia. It is midway between tenuifolia and officinalis and its flowers are small, bright crimson and single. Its varieties are insignis, intermedia and Peter Barr.

The variety we know as Smouthi is the first known hybrid we have and is the result of a cross between tenuifolia and lactiflora. It is single and a dark pink or light red in color. It is sold under several different names, though its correct name is Smouthi. Its foliage is somewhat coarser than that of tenuifolia. Mr. Auten repeated this cross, using Richard Carvel as the lactiflora parent and the single tenuifolia hybrida and has two named varieties from it: Early Scout and Roxane, both single and dark red not as tall as Smouthi.

Mr. Glasscock has one, Laddie, which is a cross between tenuifolia and Otto Froebel, an officinalis variety. It is a brilliant red, almost scarlet, and grows luxuriantly everywhere. It is single and has coarser foliage than tenuifolia. It is medium height and early.

Dr. Saunders has named several: Earlybird, a cross between tenuifolia and Woodwardi, single, bright crimson and small; Nosegray, single, tall, salmon rose pink, small and Playmate, single, small bright rosy pink. Both are crosses of Mlokosewitschi and tenuifolia. The varieties from the reverse cross are not fern-leaved. Roselette, a triple hybrid of lactiflora, tenuifolia and Mlokosewitschi, single, unusually tall with large flowers of pink, is moderately fern-leaved. Pink Salute, an Auten double, whose color is described as red to pink, is also fern-leaved. —Bulletin #163

Mrs. Tom Gentry (Mary) daughters, Louise and Margaret.

The following article was sent to R. W. Tischler, Brands Peony Farm, Faribault, Minnesota, by Clare Sheppard, (Mrs. Thomas H. Sheppard), Second Vice President, Federated Garden Clubs of Vermont, 16 Berkley Terrace, St. Albans, Vermont 05478, 1975.

Growing in the garden at Charlestown, Mass., of Oliver Holden, composer of the tune "Coronation," is to be found an old-fashioned red peony. The peony, to a casual observer, would not seem any more attractive and perhaps not so handsome as many of the magnificent specimens which adorn the lawns of hundreds of summer homes. Its claim to fame lies in the fact that it has a marvelous history and is said to be 130 years old, says the **Patriotic Review.**

The present occupant of the old Holden home, which is located on Pearl Street, on the side of Bunker Hill, is Mrs. Thomas Doane, and it is through her kindness that the story of the peony appears in our pages, which runs as follows:

Mrs. Holden as a child watched with others the sprouting of the peonies in the spring of 1776. After the battle of Bunker Hill, the British fired the town of Charlestown and all traces of the ownership of lands were destroyed. Houses and fences were swept away, and there was seemingly nothing left to mark anew the boundary lines of the owners. Someone suggested that in the springtime their garden plants might sprout and give some clue; and sure enough, the old peony put forth its leaves, and from its location, near the old city hall, was marked off the property of the different late owners and also was laid out the new city of Charleston.

from St. Albans Messenger, April 6, 1901
(St. Albans, Vermont)

NORTH DAKOTA PEONY SOCIETY

Grand Forks, N. Dak.

Mrs. Frances Kannowski, Show Chairman

We had a most successful show, but it was about a week too early, so there was a preponderance of hybrids and early varieties, and we missed the mass of big double blooms. Grand Champion was won by George Tollefson of Fargo with a spectacular bloom of an old favorite that is hard to beat—**LeCygne.** The six specimen blooms that won a trophy were **Kansas,** and won by Ralph Rohde of Grand Forks. The Court of Honor included **LeCygne, Mrs. F. D. Roosevelt, Blanche King, Cythera, Pink Sails, Raspberry Rose** and **Red Charm.**

My two-year-old tree peony, **Age of Gold,** which I got from David Reath, also won a first prize. It will be better next year, but was lovely. Ralph Rohde won the Sweepstakes Trophy. We had more individual entries this year than our last show two years ago, but not the quantity we usually have. The Prairie Rose Garden Club handled the garden flower and arrangement section this year, and through them we do hope to increase our membership and interest.

OFFICERS — NORTH DAKOTA PEONY SOCIETY 1975-76

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Mrs. Frances Kannowski, 1205 Belmont Rd., Grand Forks

Mrs. Kenneth A. Smith, 511 34th Ave. S., Grand Forks

COLLECTING SCIONS

John Simkins

A collector's life is never dull. As he sits back observing his collection there is always the little voice pointing out that there are a few varieties needed to complete it.

I think that the ultimate pleasure in collecting would be to have the only plant of the most beautiful variety in the world. With a family such as hemerocallis the struggle is to keep up with the new varieties, to evaluate them and to pick out the best. When one collects tree peonies the introduction of new and better varieties is rather a slow process so the collector pores over old books and journals to find the names and location of beautiful rare plants. Then he determines the name of the present owner and arranges to obtain a piece or root of the plant.

Dr. Henry Landis Q.C. is a dedicated tree peony collector and catalogues over 200 varieties. His collection consists of nearly all the lutea hybrids of Saunders, a large number of Japanese, all the Smirnow-Itoh hybrids and many Daphnis hybrids. My interest in tree peonies is primarily in breeding and propagation either from seed or grafts. I also like to photograph, talk and write about them.

As in most endeavors one must learn the art slowly, gradually progressing to the level of proficiency necessary to succeed. We find it is much more difficult to obtain divisions of tree peonies than scions. Digging up a tree peony to divide it sets it back where cutting off a few twigs hardly disturbs it all. Later the scions then have to be grafted on a herbaceous root stock, a rather precarious procedure at best.

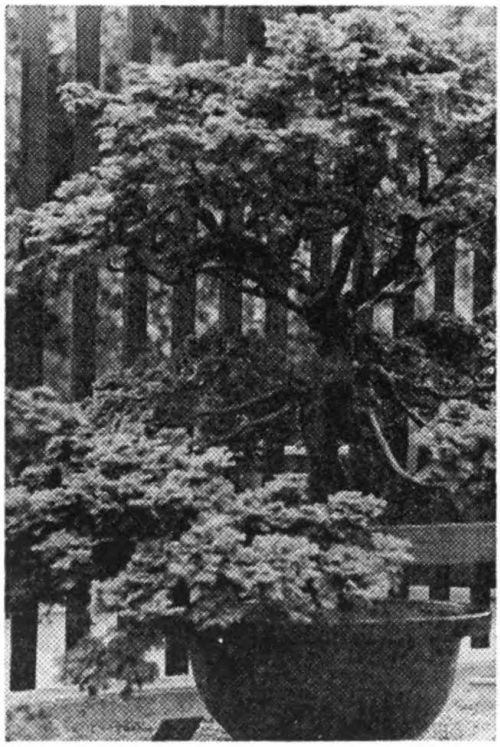
Once the scions are cut they must be kept cool and moist. This is done by placing them in a plastic bag and putting them on ice, in a chest. This sets a requirement for a collector's trip to be as short as possible and reduces the time for social chatting.... This is to our sorrow because the gardeners we meet are so interesting.

Having made some local trips we decided to venture abroad to a friendly country and settled on the United States.

We started on Thursday evening from Oakville, Ontario around 7 p.m., in a torrential downpour. Heading south to Buffalo and the New York turnpike, we stayed over night near Schenectady, N.Y., and next morning still in the rain we visited Union College. The garden is over 100 years old. They have a collection of very old Japanese tree peonies and some luteas.

The name tags had become lost over years, but the mathematics

professor had selected and mapped the best plants during the blooming season. It was very wet, muddy work, but we cut and bagged scions from about twenty different plants. We just finished before the map disintegrated in the rain.



Bonsai. Arnold Arboretum

We left Schenectady, N. Y., about 11 a.m., and headed for Boston arriving at the Arnold Arboretum in the rain about 3 p.m. Al Fordham, the propagator, very kindly met us and supplied us with dry clothes and rain coats. We cut scions from their collection, which came mainly from Wm. Gotelli, and I obtained some seeds. Al cut a pod or two in half and found the embryo had formed, so felt they might grow. We took stems without removing the leaves to reduce the time we spent in the rain and repaired to the workshop to warm up and dry off. We trimmed the leaves and bagged the scions. Across the road from the workshop was a lath house containing the finest collection of bonsai I have seen. On the lawn in front of the building are a pair of beautiful Sargent's weeping hemlock.

Al showed us the way to get through Boston and about 5 p.m. we headed for Beverly still in the rain.

Boston is a difficult town to find one's way around in the best of times and in the rain at rush hour on a weekend we found it nigh impossible. Nevertheless with Henry's help and that of numerous guides we found ourselves in Beverly a little after 7 p.m.

Mrs. Sedgwick, with true New England hospitality supplied us with warm drinks, dry rain coats and galoshes, and we went to the garden before the light faded.

Mrs. Sedgwick is a breeder of tree peonies concentrating mainly on reds. She gave us scions of many plants and included some of her seedlings and root of Dr. Price, a family favorite. I was entranced by the adjectives she used in describing her peonies and will always regret not seeing **Pride** in bloom. She said **Pride** was not worth taking as it was blowsy.

We had a superb dinner and talked of tree peonies and Mrs. Sedgwick's recent trip to China. I set my camera up to take a photo for the bulletin and the flash light system wouldn't work. My embarrassment is only surpassed my regret that our readers will not see her picture at this time.

Our next stop was Long Island. Al Fordham recommended we take the ferry from New London to Orient Point.

We left Mrs. Sedgwick's at about 10 p.m., and made sure we by-passed Boston. Fortunately the weather cleared and we arrived at New London at 12 p.m. and spent the night there. We were advised to be at the dock early as we did not have a reservation. We arrived there at 7 a.m., to be first in line for the 8 a.m. ferry. Although there were only five car spaces left according to the reservation book when we arrived, when we sailed the boat was only half loaded.

The sky was bright and clear, the sea a beautiful blue with numerous red starfish around and the trip of two and a half hours to Orient point was thoroughly enjoyable.

Our next stop was at the McNeil's on Long Island.

The McNeil brothers are primarily rhododendron breeders, but they have a good collection of tree peonies and day lilies. They also grow English varieties of apples like Cox and Baldwin esplaniered on wire.

The McNeil Brothers
Long Island, N. Y.

Jim gave us some scions and we admired the large coloured photos of tree peonies and rhododendrons. I obtained some pollen of hemerocallis to use on mine.

We then phoned Louis Smirnow, but unfortunately he had to leave within the half hour it would have taken us to get to his place in Brookville, Long Island, so we were unable to visit him.

Our next stop was at Viette's nursery which is one of the best perennial nurseries in North America. For example he lists 60 varieties of hosta. Andre Viette met us and showed us the immense and extremely tasteful collection of plantings around the

main house including herbaceous and hybrid peonies obtained from Professor Saunders many years ago. Viette's address is Northern Blvd., East Norwich, L.I., N.Y., and is a must if you are in the area.

At 3 p.m. we left for the New York Botanical Gardens in the Bronx, New York. Carlton E. Lees, Vice-President and also president of the Garden Writers Association of America had arranged for us to take a few cuttings from their tree peony collection. We had supper at the Gardens. It is a lovely spot in the midst of the highways criss-crossing the city. The financial plight of New York was brought home to us when the grounds men and gardeners there told us of their concern about losing their jobs after many years of service. We hope this does not happen.

We left New York about 7 p.m. and proceeded to Binghampton arriving at 10 p.m., and spent the night there at Barton which was a relatively inexpensive quiet motel.

The next morning we left for Rochester, arriving at noon. We first went to the Monroe County Park Board which looks after the famous lilac collection.

Dick Feniccia gave us permission to take some scions of their peonies which were in the holding area. One plant over 50 years old had been left in with the lilacs because of its size and flower production. We cut a few scions. I took a few seeds and counted over 200 seed heads on the six feet diameter bush. We made a note to return in the flowering season to see this amazing bush. We then contacted Mr. Dogherty, Jr. of Eastman House in Rochester and received permission to take a few scions from their collection. It consists of about fifty varieties obtained about 25 years ago from Bill Gratwick. They were magnificent plants, healthy and well cared for. We will return in the spring to see them in bloom.

Our next stop was at Gratwick's famous nursery at Pavilion, to say hello to Bill and take a few scions from their Japanese collection and some of Nassos Daphnis' hybrids. These are three-quarters Japanese and one-quarter lutea and quite beautiful. We saw them in the spring.

On to Buffalo where we seemed to have difficulty getting through. We were lost four times before locating the bridge. We arrived home about midnight Sunday night.

The scions were grafted and at this time many look like they have taken even though the weather has been cool and wet. It was a thrilling trip during which we met many very friendly and interesting peony lovers. We travelled over 1500 miles in three days and an evening.

STERILE MEDIA AND TISSUE CULTURE PROPAGATION

by Martin M. Meyer, Jr.,
Department of Horticulture
University of Illinois

Prof. Martin Meyer
University of Illinois
at Urbana-Champaign

The plant tissues excised for tissue culture propagation are not capable of growing on their own in most cases. The food sources from leaves and roots are usually eliminated when the explant is taken. These inorganic and organic nutrients must be supplied to the plant part in the proper proportions for growth to take place. If only the inorganic mineral elements, such as nitrogen and phosphorus, were needed then the procedure would be greatly simplified. However, the explants as a rule require organic materials, sugars and amino acids, and these materials complicate the culture because ever-present microorganisms grow more rapidly than the explant. Therefore, the explant must be grown in a sterile condition as even microorganisms that are non-parasitic will cover the explant and smother it. A tissue culture propagation system must use a medium that contains what the explant needs in the proper form and concentration. The medium must be sterilized and maintained sterile. The plant part excised must be sterilized and transferred in a sterile condition.

A discussion of the metric weight and volume system will help the reader understand the concentration of the media because these are usually given in metric equivalents. The metric system will probably be the system in use in this country in a few years. The beauty of this system is it works on the decimal principle and weight and volume are interchangeable with respect to water. The gram and liter are basic units of this system. There are 28.35 grams per ounce and .946 liter per quart. If you learn these equivalently plus two prefixes you will be ready for weight and volume in the metric system. The prefix kilo means 1,000 and milli is 1/1,000, so there are 1,000 grams in a kilogram (2.2 pounds) and 1,000 milliliters in a liter (946 milliliters in a quart). The relationship of weight to

volume is one milliliter of water weighs one gram at 4°C and water is said to have a specific gravity of one. The material in the media in the following discussion are all given in milligrams per liter (mg/l) unless otherwise indicated.

Several of the commonly used media are given in the following table. Knudson's[1] medium was first used to germinate orchid seeds in test tubes (in vitro). This is an uncomplicated medium, but contains all the material necessary for most orchid and other embryos. White's[2] medium was later developed to grow roots in vitro and has proved successful for some types of tissue culture. Murashige and Skoog[3] developed a medium for growing tobacco callus and revised this medium to get maximum callus production of these plants. This medium and modification of it have been used extensively in tissue culture systems. The following table will allow the reader to compare these various media (on page 29).

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[1] Knudson, L. 1943. Nutrient solutions for orchid seed germination. **Amer. Orchid Soc. Bull.** 12:77-78

[2] White, P. R. 1934. Potentially unlimited growth of excised tomato rot tips in liquid medium. **Plant Physiol.** 9:585-600.

[3] Murashige, T. and F. Skoog. 1962. A revised medium for rapid growth and bioassays with tobacco tissue cultures. **Physiol. Plant.** 15:473-497.

* * * *

Since the excised tissue of plants is sensitive to excess heavy metals the media should be prepared with distilled or deionized water in pyrex or porcelain enamel pans. The media should be prepared with a fairly sensitive gram scale and usually in greater quantities than one liter. The material required in very small quantities (Thiamine 0.1 mg/1) are made in concentrated stock solutions like the minor elements and added with a pipet. The pH of the media are usually adjusted to 5.5 to 5.7 after all the ingredients except the agar are dissolved. The agar is then added and dissolved by heating. The above ingredients are commonly available from scientific supply houses and some companies will have ready mixed culture media.

Several types of containers can be used for tissue culture. Test tubes work well and the bigger the tube the easier the manipulation of the tube. Ordinary glass canning or baby food jars or polypropylene containers will serve the purpose. Many workers use pyrex Erlenmeyer flasks. The containers can be closed with special caps or tightly pressed aluminum foil or autoclavable plastic held with a rubber band. Thin mylar (0.5-1 mil) works well under lights or

Chart referred to on page 28

Material	Knudson's[1] Medium	White's[2] Medium	M.S. Basal[3]	M.S. High[3] Salt
		Milligrams per litter		
Potassium Nitrate KNO_3	—	80	80	1900
Calcium Nitrate $Ca(NO_3)_2 \cdot 4H_2O$	1000	200	144	
Ammonium Sulfate $(NH_4)_2SO_4$	500	—	—	—
Ammonium Nitrate NH_4NO_3	—	—	400	1650
Potassium Phosphate KH_2PO_4	250	—	12.5	170
Sodium Sulfate Na_2SO_4	—	200	—	—
Sodium Phosphate NaH_2PO_4	—	16.5	—	—
Calcium Chloride $CaCl_2 \cdot 2H_2O$	—	—	—	440
Potassium Chloride KCl	—	65	65	—
Magnesium Sulfate $MgSO_4 \cdot 7H_2O$	250	360	72	370
Iron Chelate as Iron*	5	5	5	5
Minor elements**		1 ml/l		
Inositol	—	—	100	100
Glycine	—	3.0	2.0	2.0
Thiamine	—	0.1	0.1	0.1
Nicotinic Acid	—	0.5	0.5	0.5
Pyridoxine	—	0.1	0.5	0.5
		grams per liter		
Agar	12	—	10	10
Sucrose	20	20	20	30
Casein hydrolysate	—	—	1	1

* Sodium iron EDTA or sequestrene 12% iron .042 grams per liter (g/l)

** Stock solution containing Sodium Chloride 2.92 g/l, Boric acid 1.54 g/l, Manganese Sulfate 0.85 g/l, Zinc Sulfate 0.58 g/l, Copper Sulfate 0.12 g/l Molybdic Acid 0.02 g/l.

surface sterilized polyethylene can be used to replace the aluminum foil after autoclaving.

The containers should be one-quarter to one-third full of an agar medium. The agar solidifies the tissue culture medium to provide support for the proper air relationship. In some cases the plant tissue system does best with a liquid medium. The plant tissue is then supported above the liquid by rolled cheese cloth or folded filter paper. In certain types of propagation systems the liquid culture is rotated in flasks at one rev. per min. This does require special equipment and I have not found it too successful for herbaceous perennials.

The containers of media are sterilized in an autoclave at 15 lbs. of steam pressure at a temperature of 121°C for 15-20 minutes. A home pressure canner works quite well, but at 10 lbs. pressure the time should be extended to 20-30 minutes. After the containers are sterilized they should be handled as little as possible to prevent contamination of the surfaces before adding the plant tissue. This contamination tends to get pulled into the container with the transfer steps.

The plant material must also be decontaminated, but it is not possible to autoclave this. The internal part of plant material is often free of pathogens and saprophytic organisms. Those containing internal contaminants must be dealt with in special ways and will not be covered here. Many plants can be easily surface sterilized using common household disinfectants. Orchid seeds and delicate plant tissues can be sterilized by immersing in hydrogen peroxide 15-20 minutes in a concentration from 3 to 10% with a small amount of detergent to wet the material completely. This material is easily removed as it spontaneously decomposes to oxygen and water. A more vigorous disinfecting can be accomplished with sodium hypochlorite (Chlorox or Purex Bleach 10% or 1 part bleach to 9 parts water). This material is used from 15-30 minutes does have to be removed by rinsing with sterile (autoclaved) water. Roots and other underground structures require special care. The soil is a greatly diversified biological community with considerable numbers of microorganisms. These microorganisms often are in close association or actually penetrate the roots. The only way I have found to clean these is to remove the outer layers by peeling with a potato peeler in the case of fleshy roots like peony. Then the peeled roots are sterilized in 10% Chlorox for 25-30 minutes. You will still get some contamination, but you can use roots or other underground structures if you do enough transfers.

I usually cut the material after sterilizing and washing with sterile water on a sterile surface. The sterile surface is usually

filterpaper in a petri dish moistened with citric and absorbic acid 0.1% each (1 gram per liter each) and autoclaved. This solution tends to prevent browning. I then transfer the cut material to the sterile container with sterile tools in a transfer room.

A transfer room can be as simple as a large supported plastic bag or an extra bathroom or large closet with washable surfaces. The still air can be made relatively sterile or clean by spraying with water to trap the spores and carry them to the work surface. The work surface hand and tools can be sterilized by rubbing alcohol. This should be allowed to evaporate before using on the plant material. Anyone contemplating tissue culture, could start with orchid seeds. Knudson's medium is easily made and the orchid seeds can be sterilized with hydrogen peroxide. The common green house species grow easily. This will give the grower or experimenter experience and confidence. The use of hormones and growth regulators are very important for tissue culture propagation, but will be covered later for the appropriate systems. The development of peony callus and embryos will appear later in the bulletin when more information is obtained from the present experiments.

REGISTRATIONS

ATLAS (6606) Parentage—Seedling 5908 x .....
Ben Gilbertson, Kindred, N.D. 1975
Dark red double, semiball. First bloomed 1971. Very sturdy plant, stands straight, carries a heavy load of large unfading bloom on very stiff and strong stems. Three buds to a stem, pollen and sets some seeds. Reliable, the red never shows magenta. A vigorous plant, with dense foliage that glistens in the light. 30" in height.

GOLDILOCKS (6502) (Oriental Gold x Claire de Lune)
Ben Gilbertson, Kindred, North Dakota. 1975
Light yellow double hybrid. Ball form, one to three buds per stem. No pollen, does have seeds, no fragrance, no stamens. Average amount of bloom. First bloomed 1970. Height 28". Very adequate stem strength to hold the flower. This plant does not show any evidence of the variety Claire de Lune. It appears quite similar to Oriental Gold above ground but the root system almost typical Lactiflora and unlike either of its parents. Earlier bloom than Oriental Gold. Light green foliage. Does not have yellow-green sprouts when emerging as Oriental Gold.

TINY TIM (Tenuifolia Ruba Plena x .....) Semi-double red. 10" in

height. Perfect plant habit. Leaves to the ground. Introduced by Louis Smirnow. 1975.

FAN TAN (Introduced in this country by Louis Smirnow)
Originated by a Japanese physician, in Japan. Known as AUREA, also YOKIHI. (1954). Parentage unknown. Flower, semi-double. Apricot-tan suffused yellow. Large petals tipped slightly pink. Early.

IVA WALKER. (M7-68) Festiva Maxima x (Ruth Clay x Harry L. Burden)
Edward Lee Michau, Derby, Kansas.
Rose pink double bomb, eary. Five buds per stem. First bloomed 1972. 28" height. Has seeds, good substance. Guards petals fold back with age to form a loose collar around the feathery center. Named for originator's mother.

SNOW DERBY (M16-69) Festiva Maxima x Alice Harding (Herb).
Edward Lee Michau, Derby Kansas.
White ball, stamens, pollen and seeds. Seven buds per stem. 30" height. Vigorous plant. Many side blooms, with the terminal bloom. Strong stems. Bloomed four years from germination.

RUBY DELIGHT (Japanese Tree Peony)
10-12" flowers of ruby red. Height 36-42". Midseason. Flowers held well above a compact bush. Golden anthers. Dense foliage covers the stalks to the ground. Registered by Louis Smirnow.

PURPLE QUEEN (Tree peony)
10 inch flowers of double purple, golden center. Good substance, strong stems, carries well above the foliage. A sturdy plant. Registered by Louis Smirnow.

BEA'S CHOICE (M30-63) (Ruth Clay x Sarah Bernhardt) First bloomed 1970. Edward Lee Michau, Derby, Kansas. 1975.
Strawberry red guards with red and cream center. Cream fades to white. Lactiflora. Double. Bomb. No stamens. Has seeds, good substance. 2-3 buds per stem. 28" height. Midseason. Young divisions bloom Jap.

Names of peonies registered by Mr. William Krekler. Descriptions will be published in the Bulletin. 1976. Kevin, Steve Nickel.

NOTES RELATING TO THE HISTORY, DISTRIBUTION, AND CULTIVATION OF THE PEONY IN CHINA AND JAPAN

Translated from Original Chinese Works, into Dutch, by D. I. Hoffman, of Leyden; and again translated from the Dutch, by Mr. Polman Mooy, of Haarlem.

Reprinted in four parts from PAXTON'S MAGAZINE OF BOTANY, Vol. 16, 1849.

Submitted by Don Hollingsworth

Part II

HISTORY AND DISTRIBUTION OF THE PEONY IN CHINA

(continued from BULLETIN No. 215, p. 16)

Editorial Note: The domestic use of **Paeonia lactiflora** and **P. suffruticosa** had its beginnings in China in much the same way that the use of P. officinalis arose in Europe, insofar as recorded history is available. Earliest written records of both regions pertaining to man's use of peonies were concerned with medical applications. Other uses in human culture such as food and ornamentation received secondary attention. It is quite likely, however, that uses as food and medical treatment had their origins far back in the prehistory of at least some peoples, for the oral traditions of mankind seem to have been effectively preserved through countless generations.

The portions of this article reproduced as Parts I and II provide a chronology of the recorded traditions in China, covering a period from mid-6th century A.D. through the 16th century. Both artistic and medical uses are dealt with; the sources of the best medicinal product and some glimpses of the trade linkages between named regions are given. The provinces named are for the most part traceable in recent encyclopedia articles on China. Upon studying the geographic and climatic characteristics of China, it is interesting to compare the apparent broad adaptability of the two species there with that experienced in our own country among the contemporary cultivars.

It is also interesting to compare the regions which are declared in Hoffman's translation as the places of original distribution to the collection sites identified by Western plant collections during the 19th and 20th centuries. After extensive evaluation of dried specimens in herbaria collections and plants grown from collected seeds, Col. F. C. Stern, in his book **A Study of the Genus Paeonia** (1946). concluded that all of the **P. suffruticosa** offered as the typical

species could possibly have been descendants of cultivated plants and therefore could not be confidently judged exemplary of the wild form nor the associated collection sites entirely representative of its natural range. Of the botanical variety 'spontanea,' collected at remote mountain sites in Shensi and Shansi, he admits "apparently wild" into the discussion.

P. lactiflora, apparently "the herbaceous one" of Hoffman's translation, has been found as a wild plant mainly in Siberia and Northern China, according to Stern. Specimens form one site in Shansi and one in Tibet are also listed in his discussion. However, specimens of typical **P. mairei, P. obovata** and its var 'willmottiae,' and **P. veitchii,** all herbaceous, were several times collected in the regions referenced in the old Chinese sources. The question thus arises whether the early gatherers selected only **P. lactiflora** from among the indigenous herbaceous species or whether they were perhaps indiscriminate in collecting from the wild and that **P. lactiflora** emerged as the surviving herbaceous variety under conditions of economic cultivation.

It seems very plausible that wild plants of the favored kinds may have disappeared from the known range under pressure of population increase. Both increased demand for the roots and the conversion of natural habitat to cultivated use would be logical contributing factors.

Subsequent to the time of the Stern study, and also after publication of **The Peonies** in this country (Wister, et. al., 1957), additional descriptions have been published of plants collected in China. These are **P. yui** and **P. yunnanensis** from Yunnan and **P. szechuanica** from Szechuan, described by Fang (indexed in **Supl. XIV, Index Kewensis**), and **P. sterniana** from Tibet, described by Fletcher in **Journal of the Royal Horticultural Society, 1959.**

The other tree peonies of China, **P. delavayi, P. potanini,** and **P. lutea** and their varieties seem not to have entered into the references translated by Hoffman. Inasmuch as these are not known to have occurred at all in the regions named in the article during historic times, it is unlikely that they account for the description "yellow" in the list of varieties quoted from the "Genealogical Register of the Mow tans."

—Don Hollingsworth

After these observations relating to the distribution of the SHO YO plant, let us now return to the MOW TANS, about whose native country an author of the sixth century mentions the district of the rivers Kea lin keang and Han keang, on the easterly part of the province of Sze chuen, and the neighboring south part of Shen

se. Also Soo kung, an author who wrote, about the years 656-660, a work upon "Natural Philosophy," announces the province of Sze chuen (at that time called Keen nan) and the district of Han chung, as the native country of the Mow tans, and particularly expresses his esteem for the white sort, whereof the roots are white-coloured within and red without, and which among the peasantry are known by the name of **Pih leang kin**, signifying "a hundred ounces of gold." During his life-time a considerable trade was carried on in **Mow tan** roots at Chang ugan, signifying "Long-rest," recently known by the name of Singanfoo (34°16'45" N. Lat., 106°37'45" E. Long.), which were then brought from the district Woo (now Nanking), or the south capital, with the environs in the south of the province Keang soo. He declares these roots to be the true genuine **Mow tan roots**, distinct from the more common sort, easily to be ascertained by their greasy, pork-like smell.

The distribution of the **Mow tan** plants as ornaments for gardens, may be considered first to have been introduced during the reign of the Emperor Yang te (605-616), who surrounded his residence Lo yang, with country seats and pleasure-gardens, in which everything precious and magnificent was to be collected together. The book upon the "Origin of Matters and Objects,"† says that, when **Mow tan** plants were first brought into notice, their cultivation was in a very short time so considerably augmented, that in the years Khae yuen (713-741), they could be met with everywhere, as well about the huts of the lower classes as about the noble seats of the great. Many new sorts were also at that period raised.

In a genealogical register of the **Mow tans**,‡ thirty different varieties have been described and bear names alluding to their origin, colours, or to the names of private individuals. The rarest varieties among them are—

† **"Sze wuh ke yuen,"** according to the notes in the "Jap. Encyclopedia."

‡ Gow yang Sew. Mow tan poo, or Genealogical Register of the Mow tans, by Gow yang Sew.

1. The yellow (florist-flower), **Ya ou**, with double yellow flowers.

2. The yellow (florist-flower), **New kea**, also double, but of smaller size than the former.

3. Vermilion-coloured (of **Ts' een ke**), double.

4. The red (of **Heen lae**), very large-sized, thousand-petalled and pale rose-coloured.

5. The red, called the "Crane's wing," **Ho ling hung,** many-petalled, white-coloured at the edge, and flesh-coloured at the base, similar to a Crane's wing.

6. A flower with a good many petals, purple tipped with white, called **Lotsae hioa,** signifying "formed like a deer's belly."

7. The Glyeyrrhiza-like. Yellow, **Kan tsaou hwang,** single-flowered.

8. The King's Table, **Wang pan,** with single white flowers, &c., &c.

At the time when Soo kung (556-600) pointed out the province of Sze chuen as being the native country of the **Mow tans,** this very same spot, two centuries afterwards (in the years 968-975), when the author Ta Ming published his "Materies Medica," boasted upon their produce to be the best **Mow tan** roots; and the towns in that part of the country, Pa, Sho, Yu, and Ho chow, are mentioned by that author as the central places for their cultivation. He also states that the roots brought to market from the province Che keang, and especially from the spot called Hae yen (30°35' N. Lat., 118°20' E. Long.) are rather of inferior quality.

Soo sung, an author who published a work upon Natural Philosophy, during the reign of the Emperor Sung jin tsung (1023-1063), also mentions the district of the old Pa kewn in the province of Sze chuen, and now named Ho chow, as the place producing the best **Mow tans;** in succession whereto he mentions Ho chow (31°44' N. Lat., 116° E. Long.) and Senen chow (or the place now called Ning kwo, 31°3(?)2' 56" N. Lat., 116°24' E. Long.) in the old Wooland. He distinguishes the **Mow tans** from that country, from the common or mountain **Mow tans,** the latter producing yellow, purple, red, or white flowers, and are met with in the mountains of Yen ngan foo and Y chuen (prov. Shen se), Ts ing chow (prov. Shan tung), Shaou hing foo (prov. Che. keang), Choo Chow (32°15' N. Lat., 116° E. Long.), and Ho Chow (31°44' N. Lat., 116° 00' E. Long.). He describes this common **Mow tan** as follows:

"The stems of the plant are hard-wooded and ash-coloured. About the second month, from the top buds, the young shoots and leaves make their appearance, and in the third month the flowers develop themselves; the foliage much resembles that of the garden **Mow tan,** but the number of petals never exceed five to six. In the fifth month, the fruit, with its black seeds, is formed, which, as regards size, resembles the seeds of Celosia cristata. The roots or fibres being yellow or white-coloured, grow to the length of half or two-thirds of a foot, and attain the thickness of a common pencil. At present," so continues the author, "the **Mow tans** are very much

esteemed, and neither trouble nor expense is spared for the production of singular and extraordinary fine flowers. For this purpose transplanting and grafting is performed in the autumn or winter season, and the soil is very richly manured, in consequence whereof the spring allows a more vigorous development of the flower. The more, however, the plant by such treatment is improved in vigour, the more the roots lose their original medical property; to which idea the Medicus Kow tsung shih also includes, who published a work upon Natural History about the year 1111-1117. This learned doctor far prefers the roots from the common sort growing on the mountains, particularly of the single red-blooming, and disapproves of the roots, and root-bark of the vermilion and bright blue-blooming sort."

The above observations, gathered from old Chinese sources, are considered in the "Natural History," **"Pen tsaou kang muh,"** by its author as correct, who also considers the double-flowering **Mow tan** as a useless medical plant, which property he only admits in the single red and white.

In point of medical virtue, he far prefers the common **Mow tans** growing at Tan chow and Yen chow (now called E chuen, and Yen ngan foo, in the province of Shen se), and from there more to the west, as also along the road of Paou ching (near Han chung, prov. Shen se) up as far as Sie; about the latter place, as stated in the "Genealogical Register of the **Mow tans**," they are so very plentiful that the inhabitants gather them like common thorns for fire-wood. In the work **"Woo tsa tsoo,"*** we find mentioned, that no **Mow tans** or **Sho yos** are found about the province of Fuh keen, and that the distribution of these plants has been limited to the province of Che kiang, and somewhat more to the south; such is also said of the Nephelium, **Le che,** and Nephelium, **Lung yan.**

HISTORY AND DISTRIBUTION OF THE PEONY IN JAPAN

The Japanese distinguish, after the example of the Chinese, the common Paeony from the improved one, and call the first **Sjak yak,** and the latter **Botan,** being Japanese perversions of the Chinese words, **Sho yo** and **Mow tan.** The first also bears the name of **Karo yokusa,** or "plant which looks beautiful," being a Japanese translation of the Chinese name **Sho yo,** which we have before translated by "most beautiful." Their roots are also met with, under the name of **Jebisu gusuri,** or, "the medicine of the strangers."

Whether the Paeony plant really originates in Japan, or whether its roots have been brought there from China in the same manner as to Cochin-China,† is a question not exactly decided by Japanese authors, at least with respect to the common sort; they only name

China as the original native country of the improved sorts. A Japanese "Gardener's Manual" upon the cultivation of plants,‡ commences its name-list of the Japanese improved sorts with the Chinese mother plant, which is there figured and described under the name of **Kara botan,** "Chinese Paeony," which of course gives considerable probability to what has been above stated. The improved Paeony from China, **Kara botan,** is the very same named in **Japan, Sisi botan,** "Lion Paeony," of which a red and white-flowering sort exists, the first being of a pale purple colour with a white edge, and the latter of a dirty white, bearing a centre bud, which afterwards forms the black seed-vessel. The Chinese pictures only represent these two sorts; and it is from the seeds of these two sorts that we have obtained the many varieties of Paeonies now in cultivation. According to what the "Japanese Encyclopedia" communicates, regarding Paeony cultivation in Japan, the great interest which the **Sjak yak** and **Botan** flowers excited in China, took, about the same period, place in Japan, where they enjoyed great esteem ever since the days of Mikado Seimu (A.D. 724).

The most splendid among the common Paeonies, says this author, is produced from the province Sinano, after which those from Tanba and Jse follow in succession; and in point of medical superiority, he prefers the plants growing on the mountains. The sorts grown in pleasure-gardens receive attention merely for the beauty of their flowers. As new flowers are continually raised, which, of course, obtain different names after the raiser's taste, the number of different varieties now in cultivation, augments every day, and exceeds the number of five hundred. The most valuable and esteemed sort is the blush-coloured, with dish-formed petals and a gold-coloured centre.

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* According to a note in the "Jap. Encyclopedia"

† Loureiro, "Flora Cochinchinensis," p. 420.

‡ **"Kwa dan dai zen,"** or "Treatise upon the Cultivation of Flowers," by the florist Kwakiuken Sjuzin Miyak, 1796, publication of 1788, pp. 7, 8.

Of **Botan** roots' bark for medical purposes, the provinces of Yamasiro and Yamato bring the largest supply to market, and the district of Nara, in Yamato, produces the most esteemed flowers, from whence the plants are distributed all over the country; and not seldom, the wealthy individuals lay out some hundred ounces of silver, for the purchase of one single plant. In consequence of the continual raising of new flowers, the number of different varieties at present, amount to one thousand, the names of which, space will not allow us to mention.* The most esteemed of recent date is the

one called Thousand-petals, being very full, double, and of a vigorous habit; its flowers are furnished with the most brilliant scarlet of the Granate-flower (**Punica Granatum**), and measures six-tenths to eight-tenths of a foot (18 to 24 centimetres) across, and its pistillum is of a solid substance; as in succession to the foregoing, the white sort in point of beauty must be done justice to. Amongst the striking varieties, belongs one with purple white-striped flowers; another with flowers pure white about the base of the petals, and red at the edge; also the black Jaeony, **Kuro botan**, the "Winter Paeony,† &c., &c. Generally speaking, the white and red self-coloured varieties are much more esteemed than the variegated coloured one; pure yellow sorts have however, up to the present time, not made their appearance, which the Chinese author See Chaou Ching also states, bringing, however, into question what colour Ngan Yang Sew, (the author of the "Chinese Monograph of the Paeony") may have alluded to, when using the word **Hioang**, yellow," mentioning the yellow varieties, **Yao** and **New kia**,‡ grown by the nurserymen.

(to be continued)

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* The "Gardener's Manual," before mentioned, **"Kwa dan dai zen,"** contains a catalogue and description of 18 white, 42 red, and 10 pale purple-coloured Japanese varieties.

† The Winter Paeony (**Jap. Fugu botan,** or **Kan botan**) flowers from the 10th to the 12th month (from November to January). The "Jap. Almanack," **"Gwats rei fak buts zen,"** tom, x., p. 21.

‡ To be compared with what has before been stated.

* * * *

NEWSLETTER: PAEONIA

Editors: The Lanings *Summarized by Bill Seidl*

Roy Pehrson reviews his thoughts on what makes the Itoh cross difficult. He questions his own earlier guess that the lutea parent is a triploid. He points out that although some of the advanced generation lutea hybrids are thought to be tetraploid, this has not been definitely confirmed. Hot weather during pollination, pollination "in bud," freshness of pollen, germination conditions for the hybrid seed... all are possible variables affecting the success of the cross with no sure answers. He does recall that some of his 1969 pollen came from "parboiled" buds that had been unsuccessfully hurried to bloom by having plastic bags placed over buds.

Peggy Goldsmith reports having RED LACQUER, a Saunders Lobata hybrid, for 22 years. It increases slowly, has stamens "lacquered" together at first, but later separating with the anthers developing a fuzzy "chenille" look.

Can pollen quantity and vitality, especially in the lutea hybrids, be improved by the application of boron to the soil? The question is raised by Don Hollingsworth. He points out that researchers have discovered a connection, in some species, between boron nutrition and pollen formation and ensuing ability to germinate and grow on stigmatic surfaces.

Several topics discussed in earlier issues are updated by Bill Seidl. (1) Itoh seed from lacti x advanced generation lutea hybrids did not germinate in 1974, but it appears some germination will occur in 1975. (2) Seed from Dr. Tod's mloko-delavayi hybrids (?) rooted in the spring of 1973 and rested in the frig until November when leaf growth began and lasted until June. About six weeks of dormancy then began, followed by active growth in late July through November freeze-up. The leaves indicate probable lutea-delavayi parentage. (3) Of six seed from AGE OF GOLD, three were rooted in early August.

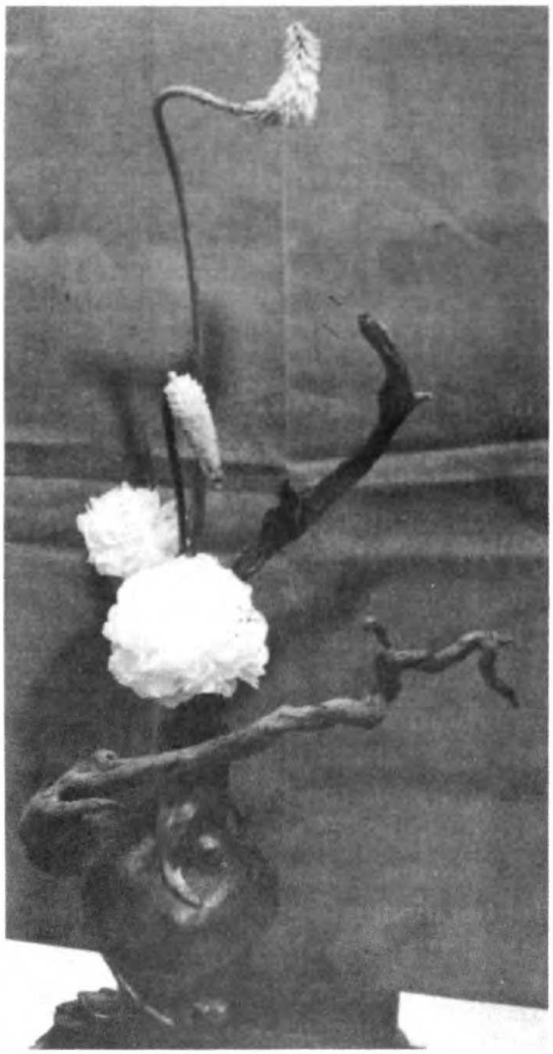
Touching on several other topics, Bill mentions a newly-germinated LADDIE x SPARKLING WINDFLOWER cross, wonders if ALICE HARDING might be successfully used as a seed parent in the Itoh cross, points out that BURMA RUBY and CORAL FAY are capable of setting seed, notes that Roy Pehrson's black-red Itoh hybrid from PETITE RENE x THUNDERBOLT did have pollen although it did not cause seedset on several blossoms pollinated, and recommends the Brooklyn Botanic Garden's handbook "Breeding Plants for Home and Garden" for its topics on pollen storage and the use of colchicine.

Chris Laning wants to breed a peony that bears 15 blooms per stem and describes some of the varieties he has collected for that purpose, including a couple WINDFLOWER F_2's, Roy Pehrson's "cluster-flowered plant" and Ben Gilbertson's MULTIFLORA.

JUNE 1975, VOL. 6, NO. 2. Chris Laning received about 375 dormant seeds of P. emodi from India in mid-November, 1974. These were handled in various ways with some seed rooting in December and January and producing plants in spring.

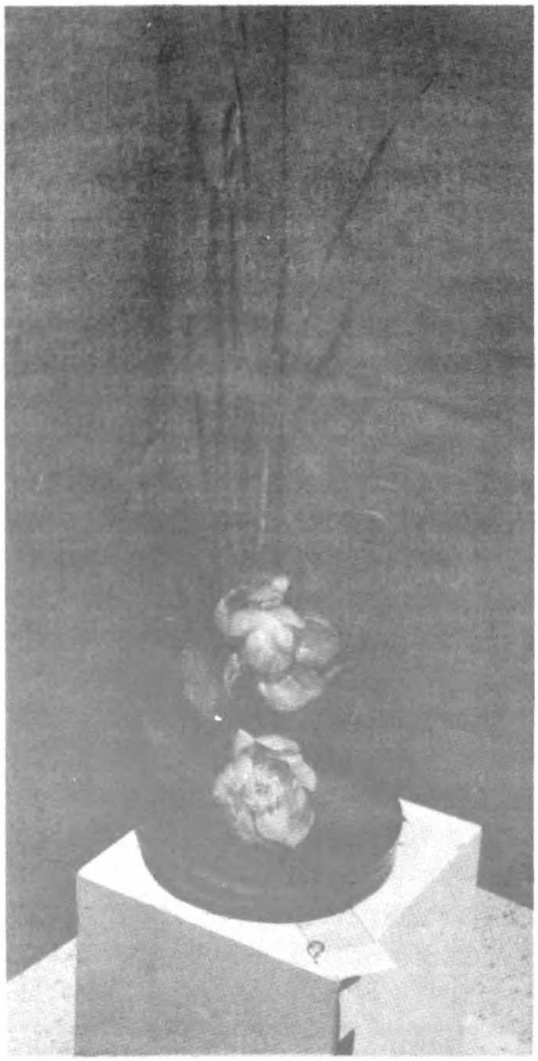
Don Hollingsworth wonders how the availability of boron affects a flower's pollen production, especially in the lutea hybrids. He is also concerned about finding peony varieties capable of resisting damage by hard freezes after growth commences, a problem in Missouri in 1973 and 1974.

Robert Geller has sent Chris some information on the use of "Axion" in soaking seeds to obtain quicker, fuller germination.



"I would like to express my sincere thanks to the American Peony Society for the lovely silver medal and rosette that I received at the show here in Mansfield, at Kingwood Center. It was an honor and a privilege to be a small part of your beautiful show." —Martha Beal

Grand Champion Artistic design at the Exhibition, Kingwood Center, 1975. "Sculpture in the Garden." Awarded Mrs. Richard Beal, Mansfield, Ohio.



Reserve Champion. "Memorial Fountain." Awarded Charlotte Sindt, Afton, Minnesota.

PUBLICATIONS

The Peonies, edited by John C. Wister (1962). Published by the American Horticultural Society, Wellington, Mt. Vernon, Va. 22121. 220 pages, information on Herbaceous, Tree and Hybrid Peonies. Many techniques of growing, propagation and breeding. A must for every Hybridizer. Price to Members, Clothbound $3.50, Paperbound $2.50.

Peonies Outdoors and In by Arno and Irene Nehrling (1960) 288 pages containing information in all phases on the herbaceous and tree peony. Society members $4.95.

Send check or money order for the above literature to American Peony Society, 250 Interlachen Road, Hopkins, Minnesota 55343.

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TOPEKA GARNET. (14-59) Parentage unknown.
Dark shiney red single. Light green seed pods with red tips. The wirey 36 inch stems are very adequate, with dark green clean foliage. It has a very small tuft of stamen. The flower fades very little. 3 to 5 eye division $15.00 each

TOPEKA CORAL. (2-67) Parentage unknown.
A hybrid Coral pink full double bomb type flower on 24 to 30 inch stem. There is no pollen, but it has seed pods. I have never set seed on it, but with the right pollen it might set seed. The flower is all one color. 3 to 5 eye division $25.00 each

EASTERN STAR. (26-55) (Snow Mountain x ?)
Pure white bomb type with very clean bright green foliage on a good 30 to 36 inch stem. The flower is very much like Snow Mountain except it is pure white. It stands cold storage very well. 3 to 5 eye division $15.00 each

MYRON D. BIGGER

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IGHT

)IANA PARKS

)ockstoce - 1942) (Early hy-
rid) A fiery red that sets a
eony planting ablaze with
arly spring color.

LEFT

CORONAL

(Saunders - 1941) (Tree Peony) Romantic deep ivory with pale yellow picotee. Highlighted with flushes of rose.