University of Victoria

University Finnerty Garden Friends

March 2013 Newsletter

Dear Friends, I would like to send best wishes to you all for the new year. It doesn't seems possible that another year has rolled by—I swear that the older I get, the faster time passes. And I certainly am getting older—I reached 90 in June!

It has been a different year for those of us who garden. The spring was very late arriving and heat loving plants like squash and pole beans were unhappy. And it was cool and damp through until the end of July. But it was all redeemed by the gorgeous fall—87 days with almost no rain. Mind you, on Galiano there were well failures, and we were all worried about fires. There were far more tourists than usual, but on the whole they were very careful. The weather had one very unexpected and much enjoyed benefit—most of my raspberries are ever-bearing, and I usually lose a goodly number because the rains make them moldy. But not this year. I was picking them until November, and reveling in the extra berries. There have been problems with the native vegetation—a lot of the plants really suffered from the drought, and I lost some quite large patches of salal which had grown in some of the drier spots. The native plants are under tremendous pressure from the deer, and they are causing real problems in biodiversity—so many species are not able to replace older plants with young ones since the latter are eaten right off. I also lost some prized garden plants —they did not show how dry they were until it was almost too late to revive them.

I fenced in about an acre or so about 6 years ago, and the native plants are slowly coming back. One of the worst sufferers in the southern Gulf Islands is the Garry Oak—the deer eat all of the young plants. A number of organizations are trying to re-introduce some species, but each plant has to be protected by fencing until it grows enough to be beyond the deer. Sooner or later, we will have to address the problem since both the deer and the native vegetation are suffering. As one friend said, we (mankind) are the top predators now and we aren't doing a very good job of it!

As most of you know, Shirley Lyon who looked after the Newsletter and was a very strong supporter of the Friends, retired last year. We shall miss her knowledge and enthusiasm, but look forward to seeing her at this year's plant sale.

In closing, may I once again wish you a good year for 2013 with successful gardening and happy looking at gardens, including our own beautiful Finnerty Garden.

Betty Kennedy

Here's to a phenomenal editor and good friend of Finnerty Gardens!

"The Life of Sam"

Betty Kennedy

Sam Macey, ably assisted by his wife June, has been the editor of the Finnerty Newsletter for more than twenty years. He chivies us along, making us get our material in on time, he polishes up what we write and is a completely delightful friend and colleague. His health has deteriorated recently and he is forced to retire. We will all miss him and his delightful understated sense of humour. I have known Sam and June for over 30 years, and have valued their friendship greatly. I thought you might like to know more about him, so I have written a brief biography.

Sam was born, in 1922, in London, England within the sound of the Bow Bells, so he really is a Cockney. His parents both died while he was very young—his father when he was eight and his mother when he was twelve. As a result, his early education did not go beyond studying at Portsmouth Grammar School as a boarder. This was followed by work as a junior clerk on the London Stock Exchange. By that time the War was on so he joined the Navy, serving in Coastal Forces for five years in the English Channel (including the Dieppe Raid) and the Arakan campaigns in Burma. During this time he worked his way up from seaman to skipper.

In the early post-war years, Sam operated businesses in London and in Jersey where he met and married June. He and June lived there for a number of years, actually owning property there—an unusual achievement since ownership is restricted to a privileged few. The profits from their highly successful wholesale business in the Channel Islands made it possible for Sam to decide to retire early and seek to complete his academic education in Western Canada. When UBC proved unsatisfactory, they decided to visit Victoria College and Sam fell by some mysterious means into the clutches of the very charismatic head of the English Department—Roger Bishop. I remember Roger telling us over lunch of the most interesting man who had turned up in his office, and hoping that he might come as a student. And he did. Sam graduated in 1964, and went on to the University of Washington for his doctorate. Fortunately he returned to Victoria and joined the faculty. His main area of research was the study of time, and he became widely known in his field.

Sam retired in 1987 as a Full Professor in English. He also served in the Graduate Faculty for ten years (1975–1985) as Associate Dean, Acting Dean and Dean. In 1972, he was elected a Visiting Fellow at Corpus Christi College, Cambridge. His extra-curricular activities have included Editorship of the English Literary Studies Monograph Series, serving as Chairman of the Board of BC's Open Learning Institute and as President of the International Society for the Study of Time.

Sam and June have two daughters, one of whom was on the Oak Bay Council for a number of years. They have been in various enterprises in Victoria over the years and the whole family has greatly enriched our community.

Sadly, Sam Macie died on March 11, 2013. Our deepest condolences go out to his family at this difficult time.

Reflections & Projections

Carmen Varcoe

Finnerty Gardens has continued to flourish and grow this past year. Companion plants are still being added to the newly created bed where some of Norm Todd's favourite rhododendrons have been planted. The board continues to advise and improve existing beds. Plans are being made to look at the Memorial Garden and see how this bed can be improved. There's always room for improvement and a garden never remains frozen in time. Plants grow old just like people and it's important to keep a watchful eye on areas where the plants have become ungainly or simply not worthy of garden space. In my own garden I find this is a real challenge to remain objective and keep editing as needed. With 10–12 sets of eyes on the Advisory Board very little gets overlooked.

Tours have been given throughout the year for garden clubs, faculty members and visiting groups at conventions. The self guided brochures have proved very useful when getting the word out there about Finnerty. Up at the Nanaimo Rhododendron Conference, last fall, the brochures were all snapped up.

Tree Peonies 5: Sex, Flower Size and Price

M.J. Harvey

Peony flowers are hermaphrodite, that is both sexes are present in each flower. The male element consists of a ring of hundreds of stamens which release showers of pollen on ripening, and the female side in the centre consists of several separate pistils which contain the ovules (eggs).

Having both sexes in each flower can be either an advantage or a disadvantage. One advantage is that self-fertilisation can provide certainty of seed production and there are peonies adapted to unstable habitats where certainty of seed production is ecologically important.

On the other hand a disadvantage of selfing is that it tends to reduce gene diversity in any given plant and there are peonies which evolved in stable forested regions where maintaining a degree of genetic heterogeneity is important.

So the point of this article is to demonstrate that the tree peonies divide into two groups in which the natural habitat has selected different systems of producing seeds—called the breeding system—and how this in turn affects their flower size, ease of cultivation, availability and the price we pay at the nursery.

But first I should introduce a few of the terms I shall use since plant biology is no longer taught in schools or most universities. (I recently read in *The Garden*, the journal of the Royal Horticultural Society, that only one department of botany still remains in universities in England. Canada is not far behind).

Plant biology

The flowering plants are *Angiosperms*, a word derived from Greek angeion, a flask, plus *sperm*, here used in the old sense of 'seed'—literally 'seeds in a bottle'. Enclosing the seeds certainly protects them from predators but it raises the problem of how does the male element, the pollen grain, gain access to the ovules when they are completely enclosed. It was finding a solution to this dilemma which catapulted the Angiosperms into dominance of the terrestrial realm. (I have to note that Canada is behind in still having many of an earlier plant group, the Gymnosperms—plants with exposed seeds—dominate the forests).

The female part of a flower, the *pistil*, consists of a stigma, style and ovary. The *stigma* is a pollen catching device, the *style* is a sophisticated filtering device and the *ovary* contains and protects the eggs. After fertilisation the ovary becomes the fruit, the ovules become the seeds.

The secret of the Angiosperms lies in the style. Usually dismissed as just a stalk, it is a subtle detection system which not only keeps out undesirables such as fungal spores but samples the surface chemicals on the pollen tube as it grows down the style, and either aids its growth or stops it dead. In other words the style is a biochemical gate that controls exactly which pollen grains get to fertilise the eggs and hence controls the genetics of the next generation.

I have to distinguish 'pollination' from 'fertilisation'. Pollination is the act of moving pollen to the stigma. It may be 'self-pollination' where pollen from the same flower or another flower on the same plant lands on the stigma, or 'cross-pollination' where the pollen comes from another plant.

Distinct from 'pollination' is 'fertilisation.' This occurs when a pollen tube successfully grows through the style and delivers its two sperm cells to fuse with the ovule (don't ask why two sperm—sex in plants is complicated).

Applying these terms to peonies: all peonies self-pollinate but only a few self-fertilise. The style acts as the controller and understanding which species has which system is the key to understanding how the wild species evolved and what happened and still happens in gardens. It also explains how the Chinese from the seventh century on were able to produce such wonderful hybrids.

Self-fertilising peonies

Imagine that a peony seed is somehow transported a considerable distance, or at least further than a pollen carrying insect can fly. This seed can germinate, grow and flower, but only if it can self-fertilise is it able to set seed and establish a new colony. Biologically this is termed long-distance transport.

Plants which can do the above are termed self-compatible and this property is useful in regions with unstable habitats where a particular site may only have a temporary existence.

Thus the ability to undergo long-distance transport and set up a new population requires this genetic system.

For instance on the western frontiers of China and into southern Tibet the cliffs are covered in forest and scrub but erosion from the great rivers causes landslides as do periodic earthquakes. These generate open areas of scree with richer soil and more sunlight than the adjacent forest and are the ideal habitat for the more mobile plants, some of which we call weeds. Over a period of years the forest recolonizes and the temporary habitat is eliminated.

Delavayanae, the small-flowered peonies

This sub-group of the tree peonies extends further west than the larger-flowered one. I am recognising three species in the sub-group for horticultural convenience: the vigorous, yellow-flowered ludlowii (lutea), the mid-sized red-flowered delavayi and the compact, orange or yellow potaninii. Of these ludlowii and delavayi self-fertilise, potaninii does not.

Among plants in general those that habitually self-fertilise often have smaller flowers than related species which outcross. This is explained as lessened evolutionary pressure to maintain large flowers since there is less dependence on insects for pollen transport. (Occasional pollen from another plant will prevent inbreeding depression, the importance of which is often exaggerated).

A few friends tell me they really enjoy their plants of the yellow tree peony. I had earlier been so unwise as to condemn it as a monstrous weed taking up space that could better be occupied by other plants. I am unrepentant. The flowers are small, short-lived and hidden. Many weeds share the same syndrome of reduced flower size, prolific seed production and vegetative vigour. I volunteer at the Abkhazi Garden in Victoria and the *ludlowii* there is becoming a nuisance with its extra-large seeds enabling it to come up at a distance from the original. But I must admit it is much easier to establish, requiring less care than others. It is the tree peony most likely to turn up at plant sales, sometimes in used plastic coffee cups for a dollar or so.

The odd man out in the Delavayanae is *potaninii*. I realised it was self-incompatible when my plant adjacent to a *delavayi* produced seedlings resembling the latter. This was an unpleasant surprise since I had distributed some seedlings as *potaninii*—my apologies to recipients. I now will have pure *potaninii* since I have hand-pollinated my plant with pollen from a separate plant, resulting in abundant seeds. Interestingly enough *potaninii* has a compensation mechanism if it grows at a distance from kin, it forms patches by producing shallow stolons which I have now observed. This gives the plants extreme longevity thus increasing the likelihood that distant pollen will arrive given a number of years.

The large-flowered peonies

I have been asked why I use the rather lumpy term 'self-incompatibility' rather than the shorter and easier to understand 'self-sterility'. While I didn't invent the phrase it is easy to justify in that plants may be self-sterile for all sorts of reasons but self-incompatibility is a finely tuned genetic system which functions to maximise genetic diversity in a population. These systems are widespread but usually only come to the attention of the public when choosing fruit trees, many of which require a companion of a different cultivar to provide compatible pollen needed for fruit production.

The ecological adaptations of self-incompatible plants are to relatively stable populations, sometimes thinly spread, in habitats where conditions change little. The peonies so adapted are to the (formerly) densely forested areas of central China which until the twentieth century population boom had been more or less forested for millions of years through the Tertiary.

East Asia was less affected by the Ice Ages than Europe or North America, hence China is a storehouse of rare plants.

Peony flowers are messy in the sense that pollen gets scattered over everything including its own stigmas. The beauty of the self-incompatibility system is that just a few pollen grains from another plant can be recognised and permitted to grow while the vast number of grains from its own flower are shut out. This is an effective method of maintaining genetic diversity.

In situations where plants are widely scattered there will

Tree Peonies continued on p.7

Helen Dillon

This is the year that I'm going to become horticulturally correct. The killing-shelf in the potting-shed is going to be hidden away behind a curtain. I'm investing in a head torch, the sort coal-miners wear, so insecticide and fungicide can be applied under cover of darkness. Little drops of poison will be dispensed to the weeds at night.

Take slugs. These days we are supposed to erect notices at slug level announcing 'Be my Guest'. At the mention of slug bait, the modern attitude is to become dreamy-eyed, mutter 'poor little things' and then offer slugs a lettuce leaf, half a grapefruit or a saucer of beer. After trapping them, you are supposed to lay them under a hedge in the Wicklow Mountains.

Weeds. Gone are the scorched-earth days of paraquating the lot. If you do use weedkiller, it's not something to mention in public. The green gardener now kills weeds by smothering them with old carpets. (Surely there are logistical problems here—the chance of there being the same amount of old carpets as there are weeds seems unlikely.j)

Compost heaps, on the other hand, can be mentioned at the best supper parties. Major bores on the subject abound, and each considers his method of making compost the one and only, and it is his duty to explain it in detail. As a topic of conversation, compost heaps have taken the place of burglaries—remember how everybody in the 1980s had to tell you about their burglary? Each individual story had to be told all around the dinner table. Now we have to listen, way beyond the coffee stage, as everybody expounds on the precise positioning of their grass cuttings.

Now to plants. Beware of mentioning cyclamen or orchids, unless you are certain that the origins of your plants are clean, ie that they haven't been dug up in the wild. Other subjects to steer clear of are Christmas trees (their cultivation destroys the habitats of many different creatures) and opium poppies (which we all have, despite its being illegal to grow them).

Here are some tips for the fashion-conscious plantsman. Ferns of all sorts are top of the chart: there are few pteridologists around to argue with you and ferns have wonderfully intimidating names—try saying *Polystichum setiferum 'Plumosodivisilobum Baldwinii'* a few times to shut other gardeners up. Box, white flowers, green flowers, old roses, seedheads, cow parlsley, clematis, herbs, seakale, decorative vegetable gardens, arbours, trellis-work and pergolas are 'in'. Dahlias (except for 'Bishop of Llandaff' and 'Bednall Beauty'), rockeries of all sorts and insectivorous plants should be treated with caution. A little dig here at chamomile lawns. Such 'lawns', in my experience, are a complete nonsense. Lazing around, sipping champagne on a fragrant, herby, carpet is indeed a romantic idea, but any chamomile lawn I've seen to date has been a muddy, weed-infested disaster.

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Helen Dillon, a native of Scotland, is a broadcaster, writer and plantswoman extraordinaire. She is the author of several books including On Gardening, Down to Earth with Helen Dillon and Helen Dillon's Garden Book.

Tree Peonies continued from p.5

be a low probability of pollen arriving from another plant. Under these circumstances Madison Avenue rules apply—advertise, be persistent. Thus these plants have been selected for long lasting and large flowers. When cruising a forest a bee is more likely to see a large flower than a small one. In this case size really does matter.

P. ostii

Little is known about the breeding systems of the large tree peonies but *ostii*, the medicinal peony is well known to be self-fertile. It is more or less a requirement for a field crop to self but it is not clear whether this has arisen over the centuries as a result of domestication, or whether this ability was already present in the original wild plants. Since there are reports of wild *ostii* it should be possible to test this, if they are indeed truly wild. Incidentally I can report that Mr Osti is alive and well and has published another book on peonies. I have not seen a copy but hope this one has an index.

P. rockii

It was a lucky accident that I ordered several seeds of rockii from Halda and that most germinated. This happy accident steered me towards writing this series of articles.

I initially used the pollen from my plants to make hybrids with the old cultivars of 'suffruticosa' I was growing. These set seed very well and at the time I did not see any significance in this. But after a year or two I wanted to multiply the rockii because at the time it was an extremely rare plant, but my main plant did not want to set seed. I suspected self-incompatibility and this was confirmed the next year when hand cross pollination between two separate seedlings produced a good crop of seed. Earlier *rockii* had been a plant only to dream about and specimens fetched exorbitant prices. Even in 2012 one nursery in the USA was asking $150 for a plant. Not having a nursery I cannot produce flowering sized specimens but second year seedlings can be either grown on in larger pots or given extra care in the garden. And yes, I admit they are not as easy to establish as *ludlowii*, but much more rewarding.

Other large flowered species

The remaining species are not available to the public. Growers have reported difficulties of obtaining and germinating seeds. Using my experience with the readily available plants I would start from the hypothesis that the seed shortages are most likely due to self-incompatibility with growers possessing single plants. Even when two plants are side by side natural pollen transfer may be poor as I have found with *rockii* and hand cross-pollination will result in an abundance of seed when the very young stigmas are pollinated by hand.

One problem would be cost. For instance if the exquisite *decomposita* were to come on the market individual plants would fetch, I presume, hundreds of dollars. To propagate it by seed would require two or preferably several specimens. I may not be able to afford that but at least we now have an indication of how to proceed.

The next article will deal with hybrids.

Events

University of Victoria's Annual Plant Sale

Sunday, May 5, 2013–10:00 am to 1:00 pm
McKinnon Gym on the UVic campus

Come join us at the ever-popular UVic Plant Sale in support of Finnerty Gardens. You will find almost everything for your garden: alpines, annuals, perennials, aquatics, exotics, native plants; geraniums, fuschias, hanging baskets, shrubs, trees, herbs, vegetables, berries and much more. We also have an entire table dedicated to plants which have been propagated from the Finnerty Gardens including rhododendrons, scented geraniums, fuschias, hardy perennials, hostas, bamboo and more.

Contact: Sue Doutre, UVic Finnerty Garden Friends
250-721-7014 • *sdoutre@uvic.ca*

Call for Volunteers

We are looking for volunteers to assist with the plant sale on Friday, May 3, Saturday, May 4 or Sunday, May 5. Plant sale volunteers are invited to a pre-sale on Saturday, May 5 at 12:00 noon as a thank you.

Contact: Kathleen Bellows
250-721-8488 • *bellowsk@uvic.ca*

Native Plant Sale Spring 2013

Presented by The Swan Lake Christmas Hill Nature Sanctuary
Sat. and Sun. April 20 and 21, 2013—9:00 am to 3:00 pm
Free Admission • *http://www.swanlake.bc.ca/plant-list.php*

Spring Plant Sale

Presented by Horticulture Center of the Pacific
Sat. and Sun. April 27 and 28, 2013—9:00 am to 4:00 pm
Free Admission • *www.hcp.ca*

University of Victoria Finnerty Gardens

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Membership

Membership in the Friends of Finnerty Gardens is $10 per year (single or couple). Membership includes an informative newsletter published four times a year. Funds raised through membership support enhancements within the Gardens which would not be possible otherwise.

This newsletter is also available on the University of Victoria's website at *www.external.uvic.ca/gardens/*. If you would prefer to view it electronically rather than in hard copy, please let us know and we'll update our mailing list accordingly.

Contact: **Sue Doutre, UVic Finnerty Garden Friends**
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