Dunedin Botanic Garden – Camellia Collection

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A brief history – the Dunedin Botanic Garden

Despite the hardship and challenges faced by the early pioneers when establishing their 'New Edinburgh' in Dunedin these hardy souls also had excellent foresight, setting aside land in the original 1847 survey plan for a 'Botanical Garden Reserve'.

However, with a focus on the basic survival of a developing settlement, it was not until 1863 that the first plantings occurred. Two 'Royal Oaks' were planted on 30 June to celebrate the marriage of the Prince of Wales. This commemorative planting officially marked the opening of the Dunedin Botanic Garden, narrowly but decisively beating other towns to the claim of the 'first botanic garden in New Zealand'.

The original site of the Botanic Garden (now occupied by the University of Otago) was of limited size so it was probably fortuitous that the February 1868 flood came before plantings in this first garden were too well established. Almost an acre of cultivated land was washed away, along with a bridge and one of the 'Royal Oaks'. The decision was made to move to a new site, which was occupied by the Acclimatisation Society.

In 1869 work began on the new site, which the Garden still occupies today. A number of plants, including the surviving 'Royal Oak' were transplanted successfully. Time has shown that this was a very positive move, with the new site providing varied topography with many different aspects and microclimates. There was also potential for future development, which has still not been exhausted today.

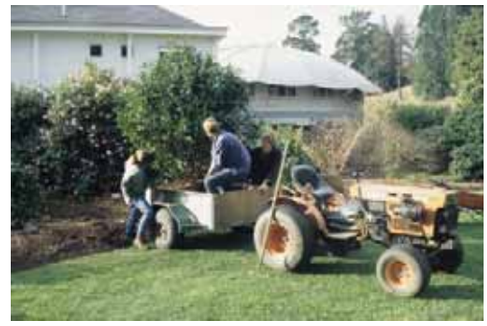

Fig. 1 *Camellia* are easy to transplant and respond well to good aftercare.

Fig. 2 Ornamental fruit capsules on *Camellia yunnanensis* ripen over summer.

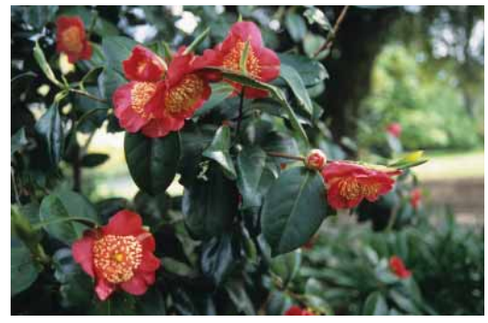

Fig. 3 *Camellia japonica* 'Hinomaru' is a classic Higo camellia; it has a single flower form with no more than nine petals and a central boss of over 100 showy stamens.

The era from 1903 to 1940, during which David Tannock served as Superintendent of Garden and Reserves in Dunedin was of great significance to the Botanic Garden. Tannock's ability to motivate people and his passion for the Garden resulted in many of his visions being realised. He established many of the plant collections and created an excellent framework upon which the future of the Botanic Garden would flourish.

The Camellia Collection

Initial and relatively modest plantings of *Camellia* occurred in the 1950s with the creation of the Camellia Walk in the Rhododendron Dell and a group planting in the formal lower garden. Many of these plants have established into mature, well-shaped specimens.

In 1983, an opportunity arose for a new landscaped area to be planted in the lower garden. Garden staff were inspired to utilise *Camellia* and began to formally establish a new collection. These original plantings were well considered with an exceptional variety of all the major *Camellia* cultivar groupings represented and a number of well-chosen species.

Throughout the eighties and early nineties plantings continued to increase, an acknowledgement of the growing popularity and importance of camellias to horticulture.

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The alluvial soil of the lower garden has been formed over years of periodic flooding from the Waters of Leith and Lindsay Creek. This land is friable and very well drained – perfect for the cultivation of *Camellia*.

Dunedin has a temperate climate and average rainfall of 780mm per annum. Additional irrigation is required during dryer periods and when new areas or plants are being established.

Consideration for the future of the Collection led to a decision to arrange the *Camellia* species and cultivars into formal botanical groupings based on their parentage. This would provide better definition and enable us to extend and fully utilise the education and interpretation opportunities. This process began by mapping the existing *Camellia* plantings, confirming the identification of plants and researching parental groupings and preferred growing conditions. Transplanting of many of the established specimens would be required.

Database software called BG-BASE, specifically designed for botanic garden plant collection management has been in use at the Garden since 1994 and has proved invaluable. Integrating the records into this programme has assisted greatly in the management of all related information specific to each individual plant, ensuring no important details are lost.

The collection transplanted

Now the real fun began! With very able support and assistance from both management and co-workers, the exciting process of transplanting about 250 *Camellia* over the next four years commenced. This project enabled me to have a good answer to the most often asked question from visitors: "What on earth do we do in the winter?"

A decision was made to place the first group of transplants, the *Camellia* ×*williamsii* cultivars, at the southern end of the lower garden. This hardy group was considered most suited to the bitter winds that this boundary of the garden is exposed to and would in future act as the first line of shelter for the formal lower garden collections. Throughout this process one was always amazed at camellias' ability to transplant with minimal affect on their growth and health. Specimens up to 3m high, and nearly as wide, have responded well. Only the weight of the root-balls prevented us from moving the very largest plants, but we became adept at the process of transplanting – large *Camellia* were shifted with, at times, up to six gardeners assisting; smaller plants were moved by wheelbarrow. Many of these plants were being taken out of full sun into shaded areas with an almost immediate improvement on the health of their foliage.

Fig. 4 Over 100 years old the beech avenue (*Fagus sylvatica*) provides shelter and atmosphere.

Fig. 5 The beech avenue transforms into a glowing orange tunnel through the autumn.

With the *Camellia* ×*williamsii* cultivars shifted, work began simultaneously on the groupings of *Camellia japonica*, *C. pitardii*, *C. reticulata*, and *C. sasanqua* cultivars and increasing the species collection. Many of the original plantings were growing much too closely together. The additional space provided after transplanting allowed the remaining plants the chance to reach their potential as specimens and enabled clearer labelling for visitors.

More ground was required, so existing borders were incorporated into the Camellia Collection. With each new group of transplants it was like re-organising a patchwork quilt, However, still more ground was required and staff were encouraged to incorporate the existing 'herbaceous trial' borders, sited nearby, into the Camellia Collection and at the same time investigate the option for more new beds as the need arose.

The beech avenue

Plantings were then extended to include the ground under an avenue of European beech, *Fagus sylvatica*, planted more than 100 years ago and now providing wonderful shaded areas. This avenue of magnificent trees is a landscaper's dream, creating its own sense of drama with the changing seasons. Extending the plantings in this area has also had a beneficial effect on the *Fagus,* reducing both root compaction and mechanical damage as well as providing a cool root run accompanied by regular and generous applications of compost that have increased their health and longevity.

Herbaceous material

Once the transplanting was completed, it was time to start integrating the herbaceous plant material which was always intended to complement the *Camellia* plantings. The dark green, glossy foliage of camellias is attractive and bold throughout the year. However, during the flowering season the colours of *Camellia* are very strong, especially the range of pinks, so careful

consideration was necessary when deciding on compatible colours and textures for the under-plantings.

Before work began, there were several practical considerations regarding the long-term management of the collection. These included the availability of labour and best use of time, using herbaceous plant material that did not require extra watering during dry spells, and did not need staking. However, every good rule needs an exception for an exceptional plant, so an allowance has been made for the comprehensive *Paeonia* collection. Paeonias contrast well with camellias and are all carefully staked annually to provide the best display.

Herbaceous material is planted in drifts through all the beds. Many of these drifts are large and often repeated throughout the borders, with the aim of creating a sense of unity and peacefulness. Many of the herbaceous plantings are diverse in content and representation and can easily be interpreted as collections in their own right. These include *Paeonia*, *Helleborus*, *Hosta*, *Meconopsis* and *Thalictrum*. With the variety of cultural conditions available in the different borders, the options for use of herbaceous plantings has been extensive.

The herbaceous plantings provide an attractive foil for the *Camellia* and have the added bonus of trapping leaves, improving the moisture levels in the soil and keeping the weed maintenance in many of the borders to a minimum.

The Camellia Collection today

There are currently twelve borders of *Camellia* covering a large area of the southernmost section of the lower garden. Each spring and summer the collection of 500 plants is checked and each *Camellia* is shaped and heavy foliage thinned to allow light penetration for improved flowering. Half the collection is mulched using 50–60m^3 of an organic soil-based compost every year resulting in the entire collection being covered over two years. This is further enhanced by the natural leaf-fall and decomposition of the European beech leaves during autumn.

Evaluation and assessment of all the plants continues to be an ongoing process. They are regularly checked for health, vigour, pests and diseases, flowering and fruiting abilities, and notes are made on the individual specimens. It has been particularly interesting trialling the many *Camellia* species in the collection for suitability as ornamental garden plants in Dunedin conditions.

Fig 6. *Camellia ×williamsii* 'Waltz Dream' is floriferous and hardy, a characteristic common to all the *Williamsii* hybrids.

Most of the *Camellia* species, hybrids and cultivars have been supplied by reputable New Zealand nurseries. However, to procure true *Camellia* species and ensure genetic integrity and known provenance, it is more desirable to obtain seed from wild sources from the plant's country of origin wherever possible.

Presenting the collection to the community

In 2005 a brochure about the Camellia Collection was launched to enable visitors to become more aware of the diversity of plantings of the *Camellia* genus in the Dunedin Botanic Garden.

All *Camellia* specimens in the collection are individually labelled, to provide basic plant information, including name (including synonyms and translations into English where appropriate), plant family, country and year of registration (for cultivars) or country of origin (for species).

Other strategies are used to encourage interaction between Garden visitors, the Dunedin public and the plant collections. These include presentation of displays and blooms at the Otago/Southland Branch of the NZ Camellia Society, tours for locals and overseas visitors, slide shows and presentations to gardening clubs, and occasionally local television gardening programmes.

Another important aspect of the development of the Camellia Collection is the opportunity to meet colleagues and exchange information at the annual NZ National Camellia Conventions.

A vision for the future

To improve the quality of the Collection in the future, there is a need to concentrate on a number of *Camellia* groupings. Further *Camellia* species, including the yellow flowering group will continue to be sourced for trial. Other areas of interest include New Zealand raised cultivars, increasing the *Camellia sasanqua* and *C. reticulata* cultivar collections, fragrant flowers, new registrations and decorative foliage, fruit and habit.

All further extensions to the Camellia Collection need to be completed with reference to Dunedin Botanic Garden Plant Collection Policy Document and Landscape Plan. There are some perfect opportunities for future expansion of the Collection with these criteria in mind.

Camellia species

Many of the small leaved species are grouped together along with a small number of their cultivars in the Species Border. This includes a small hedge of the tea plant, *Camellia sinensis*. Species are planted with their related collections of cultivars and in positions best suited to their health and needs.

***Camellia* species at Dunedin Botanic Garden**	
C. brevistyla	*C. maliflora*
C. caudata	*C. microphylla*
C. chekiangoleosa	*C. minutiflora*
C. crapnelliana (syn. *C. gauchowensis*)	*C. nitidissima*
C. crassipes	*C. oleifera*
C. cuspidata	*C. pitardii*
C. euryoides	*C. polyodonta*
C. fluviatilis	*C. puniceiflora*
C. forrestii	*C. reticulata*
C. fraterna	*C. rosaeflora*
C. granthamiana	*C. salicifolia*
C. grijsii	*C. saluenensis*
C. handelii	*C. sinensis*
C. henryana	*C. transarisanensis*
C. hongkongensis	*C. transnokoensis*
C. impressinervis	*C. trichocarpa*
C. japonica	*C. trichoclada*
C. kissi	*C. tsaii*
C. longicarpa	*C. yuhsienensis*
C. lutchuensis	*C. yunnanensis*

Camellia japonica

Originally from China, Korea and Japan, there are claims that today *Camellia japonica* has given rise to some 30,000 cultivars and hybrids. A dense, rounded shrub with broadly elliptic and very glossy leaves, as well as a floriferous nature are dominant characteristics. For many of these cultivars, shade results in darker, glossier foliage.

Camellia pitardii

This species from south-western and central China is closely allied to *Camellia reticulata*, but the species and cultivars have much smaller blooms and leaves. As a group they have a dense, stiff form and dark green foliage. The clusters of flower buds are largely unaffected by Dunedin frosts.

Camellia reticulata

Originally discovered in the Yunnan Province of China, *Camellia reticulata* is a loosely branched tree capable of reaching up to 15m tall with large (broad to oblong) elliptic leaves. The flowers are often very large and informal with an iridescence, which is very appealing. The cultivars require a sunny position with no overhead competition. The large brown ornamental capsules mature over autumn.

Camellia sasanqua

The fragrant *Camellia sasanqua* cultivars start flowering in autumn. Flowers are usually single with a central flared boss of stamens. Sazankwa is the name of this camellia in Japanese. The open, branching habit makes them very suited to training as espaliers and in Dunedin they perform well in a warm and sunny position.

Camellia ×williamsii

These hybrids are formed using the pollen of a *Camellia japonica* cultivar to fertilize the flowers of *Camellia saluenensis*. The resulting hybrids have desirable qualities from both parents as well as hybrid vigour. They have an abundance of flower, dark narrow foliage and are hardy to the coldest winters.

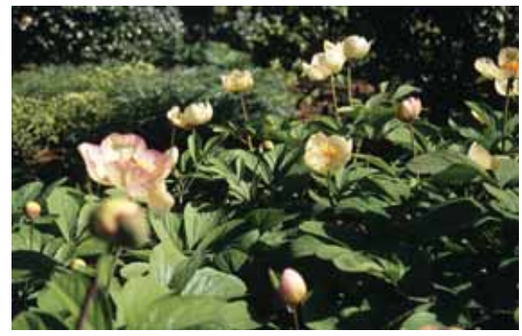

Fig. 7 *Paeonia mlokosewitschii* is among the herbaceous material used extensively to complement the camellias.

Marianne Groothuis is the Camellia & Thematic Collection Curator at Dunedin Botanic Garden. She first began working at the Garden in February 1988, and has been working as a Collection Curator for 11 years.

As a Plant Collection Curator she is responsible for the management and presentation of the Camellia and Thematic Plant Collection, which includes the associated structures, features and services related to its performance and public presentation. Marianne is also required to take a key role in the development and promotion of the Collection within the Botanic Garden and the wider public arena.

Marianne enjoys being actively involved in the decision-making on the collections she curates and gains satisfaction from working in the garden long-term, and the history the garden holds.

Marianne was awarded the Peter J. Skellerup Prize in 1990, and received her National Certificate in Amenity Horticulture in 1992 through the Royal New Zealand Institute of Horticulture.