Newsletter

For Friends of the Christchurch Botanic Gardens Inc
To Promote, Protect, & Preserve

No 79, Summer 2009/10

President's Report

Russell Moffitt and I represented the Christchurch Friends at the Australasian Conference of Volunteer Guides in Botanic Gardens a couple of weeks ago in Hobart. It was a wonderful opportunity to see another botanic garden in some depth and to swap ideas with folk with kindred interests from all over Australia.

There's a fuller report later on but there are a couple of features that I think are particularly relevant to our Gardens. Firstly I was very impressed with the way the Hobart Gardens tell the story (*their* story) of the Tasmanian flora, by habitat, with a section devoted entirely to the flora of Hobart. As the closest botanic garden to Australia's subantarctic islands they also tell that story, including the geology and fauna, in a very special refrigerated subantarctic house. They even sacrificed a tropical house to do that!

The other feature that came through is the extent of volunteerism in the botanic gardens across Australia. While we all have guides, of course, and 'growing friends', some gardens have volunteers in many other roles – in visitors' centres, shops, databases, children's gardens and general garden work.

Your committee has been looking at both of these areas, firstly by staging the Gondwana Garden workshop last year and, when the time is right in the near future, a similar project looking at the way we tell the story of our flora. We are actively investigating opportunities to extend the involvement of volunteers in the Gardens which hopefully will provide a stimulus for new members. The new Visitors Centre will provide both the need and the opportunity for volunteers and we expect to be ready for that.

We are constantly facing the question of "What's in it for our members"? Many gardens overseas charge entry with discounts for their Friends. Melbourne charges $25 for one lecture with $10 off for their Friends. It's a bit tricky to give discounts when you don't charge anything! So if you have any ideas, or unfulfilled expectations please let a committee member, or me, know.

Enjoy this newsletter, painstakingly put together by Bill Whitmore and if you are one of the several people who have not yet paid your subscription please treat this as a friendly reminder.

Alan Morgan

Don't forget the Christmas Party for Friends. It starts at 4 pm Saturday 12th December in the P. C. Browne Room, Canterbury Horticultural Centre, in South Hagley Park off Hagley Avenue. See the Coming Events Programme for further details.

Editor's note

We distribute the Newsletter by email to those members who have given us their email addresses and who have not requested otherwise. If you would prefer to receive the Newsletter by mail, rather than electronically, please contact Philippa Graham – phone 348 5896 or email philippa.graham@gmail.com

INSIDE

FCBG
PO Box 2553
Christchurch

Gardens' News

From Curator John Clemens

So, following on in the spirit of Jeremy Hawker's report in the spring edition of the Friends Newsletter, in which he commended the typically unsung heroes of the Botanic Gardens staff who have tended the collections over the decades, I need to thank Jeremy for his continuing and strenuous efforts directed towards giving visitors and residents a memorable experience for all the right reasons. He makes a good point: we create the environment that helps to create memories, and memories of landscape are powerful determinants of what we tell our friends and family, as well as what might drive us to repeating a pleasurable experience.

Memories are charged with emotion. Sifting through all that has been written about the Botanic Gardens, the local botany, and the Canterbury setting, what it must have felt like to be there when the Gardens started shines through the description of events and species lists. A mere 140 years ago, Julius von Haast was expressing his sincere thanks to his "two botanical assistants", John F. and Joseph B. Armstrong, for the work they were undertaking in the vicinity of Christchurch while he himself was pioneering the description of the alpine flora. All parties express the satisfaction of cataloguing vegetation that "gladdens the eye of the friend of nature".[1]

Fifty years later, Leonard Cockayne was advancing botany and plant ecology in his work on natural hybrids and plant-environment interactions. With his passing away, Dr F.W. Hilgendorf and others expressed their heartfelt appreciation of his efforts at the opening of the Leonard Cockayne Memorial Garden within the Gardens.

These and many other happy or moving events give us snapshots of the shaping of the Gardens that have delighted and informed visitors over the years. The Gardens continue to be shaped today against the backdrop of an accelerating concern for the conservation of biodiversity. There is also the increasing realisation of the significance of the botanical world for providing environmental stability as well as delight, sustenance and shelter. The tools we have at our disposal for understanding plants and plant-environment interactions have burgeoned since Cockayne's time, especially in the use of molecular techniques to unravel plant development and evolution.

We now have a better understanding of the origins of our own flora, and how, through intercontinental dispersal, local evolution, and extinction, New Zealand's part of the original Southern Hemisphere flora has diversified and radiated to become what it is today. The New Zealand Plant Radiation Network held a meeting at Landcare Research this month. Research talks were given on new genomic techniques, fossil remains of the Oligocene-Miocene flora, the *Senecio* tribe, origins of the Chatham Island flora, patterns of distribution of *Chionochloa* and *Festuca*, and the genetic diversity of *Pseudopanax*, *Plantago*, *Wahlenbergia*, and *Myosotis*. This was a wonderful showcase from some of the most talented people working on New Zealand botany. Leonard Cockayne would have been in his element!

Particularly striking was a keynote address from Daphne Lee of the University of Otago. Her talk was beautifully illustrated by the images of fossilised leaf and spore surfaces that had been carefully, even lovingly, prepared by Jennifer Bannister. Daphne felt the need to remind us that these were images of fossilised plant remains from 20 or more million years ago: none of the species from which they came exists today. Yet they bear an uncanny similarity (and we presume close relatedness) to many still present in the modern flora: *Todea*, *Agathis*, *Dacrydium*, and many other. Others have been lost from the extant flora: fossilised plants resembling *Banksia* and *Casuarina*.

This and other information will be used to shape the new collection in the Gardens that will highlight the New Zealand flora from Gondwanan origins to its recent diversification. Change has been a feature of the Botanic Gardens over the decades, but the implementation of new developments over the coming years will need to be made with care so that we conserve those features that we and visitors love and find most memorable.

[1]Armstrong, J.F. (1869). On the vegetation of the neighbourhood of Christchurch, including Riccarton Bush, Dry Bush etc. (p. 120). *Trans. Proc. Royal Soc. NZ 2*: 118-128.

Three cheers for the new curator!

Hip Hip Hooray! After three years of waiting, the Christchurch City Council has finally appointed a curator we can be proud of. Dr John Clemens is the newly appointed Curator of the Christchurch Botanic Gardens. His qualifications, indeed, even his family up-bringing, offer us, the Garden City, a very broad knowledge base in a man with excellent teaching and communication skills.

Clemens received his doctorate in organometallic chemistry from Bristol University. "Dad insisted I became a scientist, and I must say that kind of chemistry is very visual, lots of colour and spatial relationships, a good foundation for landscape architecture, but that came later."

Clemens went to Switzerland for his post-doc, and once there became enthralled by woodland lilies, "in fact, all the woodland plants we don't have in England." His botanical interest was so aroused that he went back to Wye College in Kent, part of the University of London, and did a Masters in Landscape Ecology.

No sooner had he graduated than a visiting professor from the University of Sydney offered him a newly created position teaching environmental horticulture, "and in the 1970s and 80s, nobody knew how to do that." Sydney had remnants of declining native forest within the city boundaries, landscapes in urgent need of rehabilitation, what today is called ecological restoration.

Clemens' one-year contract expanded to 12 because it suited him so well. Lecturing in plant science, he discovered his love of teaching. The job-offer had described Australia as romantic and large, and he loved it, including the climate "the opposite of Kent!" At that time, the spotlight was on those native plants that were outstanding ornamentals, such as grevilleas that thrive in the heat, and a diverse range of species potentially useful in restoration plantings. The problem in a big city like Sydney, however, was the distance to the university's trial farm, at least an hour's drive away.

From Sydney, Clemens moved across the Tasman to a position at Massey University. In partnership with the Nursery Research Centre, Massey was developing plants for the nursery and cut flower industry and trying to solve associated production problems. Nursery plants, heliconia and zantedeschia for example, required a lot of experimentation as part of their promotion as cut flowers and pot plants for the nursery trade, both local and overseas. Clemens revelled in the focused and demanding scientific research involved, as well as the relationship with industry. Later he developed a research programme for (the then) Crop & Food Research in New Zealand ornamental plants, including pohutukawa and kowhai, with his wife Professor Paula Jameson.

Some years on, "Paula was appointed Head of Biological Sciences at the University of Canterbury, and I went back to Uni at Lincoln." He graduated Master of Landscape Architecture with distinction and then worked two years with Peter Rough Landscape Architects before the curator's job was advertised.

I asked Dr Clemens how he envisages the role of a botanic garden, both in general terms and more specifically. "Generally, a botanic garden is a permanent collection of plants, not just today's fashionable ones, but those that have been important over the decades economically and for society and culture. A botanic garden has collections that are organised and displayed and accessible to the public, for example, the succulent and cacti collections, the alpines, the Australian

collection." He draws attention to the large collection of exotic woodland trees combined with the woodland ground cover of daffodils and bluebells. "A collection has to make sense in one or more ways: for interpretation and education, for science and research, and for relaxation and enjoyment."

Specifically, he emphasises the importance of the history of the Botanic Gardens, "how we were 50 years ago, even almost 150 years ago when the Armstrongs, first curator and son, typified an appreciation of all plants: newly introduced crops and ornamentals, as well as those native to Canterbury." A botanic garden, he believes, needs to reflect an appreciation and balance of both indigenous and introduced plants. We might well say that Christchurch Botanic Garden is already so incredibly popular, so why change anything? Clemens says "That's a good point, but we are continually looking for ways to improve what we are doing, and there are specific things that need to be done. We're looking at a wave of interpretation right through the Botanic Gardens so that people can both find their way more easily and learn as they go along, if they want to."

"The herbarium in the Botanic Gardens needs evaluating", Clemens says. Originally established by Curator Armstrong (1866-89), "a herbarium is part of the function of a botanic garden, a permanent reference collection, where pressed and dried, each plant on a page can be studied." Current planning includes space for a new herbarium, which Clemens sees as a long-term research resource, a part of the educative role of the gardens.
So, what else? "We're missing prominence in a number of collections. There's a real gap in ornamental cultivars of New Zealand plants important to horticulture; we need to organise and display collections of hebe species and hybrids, and other typically New Zealand plants, such as the divaricates and heteroblastics, our native legumes and grasses, and the economic and cultural importance of plants to people. A story needs to be told of the origin of our New Zealand plants: from early Zealandia beginnings over 80 million years ago to the modern flora that is the result of isolation, dispersal, and diversification in the face of extreme sea level, geological and climatic events. New Zealand is a botanical hotspot, matched by the wealth of botanical knowledge and expertise that surrounds us."

Exciting times for the Garden City. Curator Clemens himself is an easy speaker with a zany sense of humour that adds to his energy and acumen. It was gardens all the way as he grew up, with parents who moved house frequently and established many gardens from scratch. "There was lots of soil talk. Dad grew rhododendrons and vegetables and was obsessive about lawns. Mum was the herbaceous one." Maybe that's why Clemens loves the herbaceous plant so much, "You can split it and get so many more." Having said that, he loves New Zealand's divaricating plants, the scientific debate around their evolution as much as their being "beautiful plants to grow." At home he's a hands-on gardener. "I just love growing things, digging in the soil. The doing of it is the key."

Diana Madgin

Art in the Gardens

The sundial in the herbaceous border

This was presented by the Superintendent of the Canterbury Provincial Government, William Rolleston, in 1873. It was made by Wise of London and mounted on a stone pedestal carved by Mr Brassington whose craftsmanship can be seen in the Provincial Chambers. The dial is made of bronze on an Oamaru stone cairn with a bronze shadow marker. It has four brass inscribed plaques around the outside edge of the dial.

The plaque reads:

"The desert shall rejoice and blossom as the rose".

Faye Fleming and Barbara Brailsford.

(Woops! Dieter Steinegg pointed out a mistake in the last Newsletter in the article on Llew Summers' sculpture *The Wrestlers*. It would have difficult for Llew to have held his first solo exhibition in 1971 if, as the article indicated, he was born in 1974. Llew was actually born in 1947.)

Articles

Botanic gardens guides conference in Hobart

The Australasian Conference of Voluntary Guides in Botanic Gardens was held in the third week of November in Hobart. Alan Morgan and Russell Moffit represented the Christchurch Botanic Gardens volunteer guides at the Conference. Alan and Russell have contributed the following two articles on their return.

There was a total of 160 guides attending – 157 from around Australia and (only) 3 from New Zealand! But we made our presence felt and were awarded the conference in 2013.

The 14 hectare Royal Tasmanian Botanical Gardens was established in 1818 and is funded by the State of Tasmania as the only botanic gardens in Tasmania. It is beautifully located on a gentle hillside overlooking the Derwent River harbour and is next door to the State Governor's magnificent mansion.

The gardens have collections of over 6000 species including the largest collection of conifers in the southern hemisphere. Tasmanian flora is unique in that 30% of its species are endemic.

One of the outstanding features of the gardens is the Subantarctic Plant House which has a collection of plants from Macquarie Island where the mean temperature is only 4.8 degrees C and where it rains or snows 300 days per year. The house is relatively small, approx 12 by 8m, oval-shaped with approximately 4m high walls covered full-length with an accurate mural depiction of the island's various habitats. The translucent roof is designed to simulate the light intensities found on the island, requiring heavier shading in the summer. The climate is simulated by a blast of well-refrigerated air coupled with a misting system.

The conference programme was a well-rounded blend of lectures, workshops, field trips and the all important socialising time. From registration time to farewell we were kept busy – in fact I opted out of one of the workshop sessions just to have time to look at the gardens.

The afternoon for registering was supplemented by one hour tours of the gardens, enough only to whet the appetite and then a bus trip to the top of the 1400m high Mt Wellington which is just behind the city. It is geologically interesting in that it consists of dolerite which forms columnar structures similar to columnar basalt as it cooled. The mountain is high enough to have a range of altitude habitats, breaking in to a distinct sub-alpine range at the top. The top lookouts provide dramatic views of Hobart and surroundings and the interpretive information boards give a potted history as well as stories or the fauna and flora and geology of the mountain.

The welcome reception held in the ample gardens cafeteria was the first of several great socialising occasions.

Tuesday was split into a session in the magnificent Hobart Town Hall with two keynote speakers – Professor Jamie Kirkpatric from the University of Tasmania and Peter Timms, garden writer and designer. Prof Jamie talked about the ongoing research into home garden trends and the impact on the overall urban environment. There was a myriad of facts and figures to impress and baffle but for me the enduring conclusion that the higher the income and the acquiring of a tertiary education, the more trees you would have in your garden. The Prof's advice was that if you didn't have either wealth or degree you could fool your neighbours that you had by planting lots of trees.

Author Peter Timms scanned garden design over the past couple of generations starting from Kiwi Noel Lothian (past director of Adelaide Parks) whose book reckoned a reasonable garden needed about four acres and a minimum would be a quarter acre. Peter divided gardens into two basic types; those for gardeners and those for non gardeners, and both are legitimate. And size doesn't matter as the Japanese prove that the tiniest space can be magical.

The other keynote speaker on Thursday morning was Prof Patrick Quilty, Honorary Research Professor, University of Tasmania and recently retired Chief Scientist for the Australian National Antarctic Research Expeditions. He is a geologist with a special interest in paleontology with a long involvement in Antarctica and the subantarctic islands. He explained that geology was much more than just rocks, 'geo' meaning earth and he took the holistic view that geology was all the earth sciences. The talk centred

on a garden that he and the students and staff of the local TAFE (Technical and Further Education College) built at the Australian Antarctic Division's Headquarters in Hobart. It features the Tasmanian flora that has ancestral links with that growing on Antarctica over 35 million years ago. That was when Australia, through Tasmania, was still linked to Antarctica which was some 45 million years after Zealandia broke from Australia. It would have some relevance to our proposed Gondwana Garden but, unfortunately, we didn't get to see it.

Tuesday and Thursday afternoons were taken up with workshops each 90 minutes long on a wide range of subjects. About 24 topics to choose from but only time to take four – some difficult choices. Topics ranged from Macquarie Island and the Subantarctic House to Darwin's discoveries in Tasmania (not published by him because they were too radical at the time, only recently published as 'Charles Darwin in Hobart Town' from Darwin's notebooks by the presenter, Dr David Leaman).

The full list of topics will be useful prompts for when we plan the conference in 2013.

Tuesday evening we were all in our Sunday best gracing the State Governor's mansion for the state reception for delegates. The mansion, beautifully designed and built in the 1860's from finely cut sandstone quarried from the site, once had gardens which included the 14 hectares now occupied by the Botanic Gardens next door. We partied in the ballroom and were free to wander through the gardens and the public rooms including the state dining room with a table to seat maybe 30 guests. That will be a hard act to follow for us!

On Wednesday we had the choice of three full-day bus tours – to the Huon Valley, to the Mt Field National Park and to the Port Arthur historic site. I did the Huon Valley tour.

The Huon valley extends 100 or so km south of Hobart and is a productive farming, vineyard and orcharding area extending into extensive native forests which are sustainably harvested and managed. Notable stops were at the private Inverawe Native Gardens (well worth a visit) and Woodbank Gardens, a real plantsman's garden, formerly with a retail nursery attached and still cared for by the nearly 80 year old Mr Gillanders. Amongst the amazing collection was a beautiful weeping *Nothofagus menzesii*, a first sighting for me.

The focus of the Huon valley tour was the Tahune Forest Reserve where the famous treetop Tahune Airwalk is located. It does a 600m loop 20m above ground level through the forest canopy of predominately *Eucalyptus regnans*, the tallest flowering plant in the world. We searched too for the elusive Huon Pine *Lagarostrobus franklinii,* notable for its very fine timber and impressively growing to 40m or more, but found only unimpressive specimens along the river bank. In Tasmania all their conifers seem to be called 'pines', but none of them are, and their native *Nothofagus* are called 'myrtles' which is curious when Australia has to have more true myrtaceous plants than anyone else.

The final dinner, at the Grand Chancellor, rounded out a most enjoyable and valuable conference. It was there that it was announced that the venue for the next conference in 2011 will be Brisbane and, of course, it was confirmed what everyone knew, that it will be our turn in 2013

Hobart showed us how to do it – they will be a hard act to follow.

Alan Morgan

The Native Vegetation of Tasmania - an Overview

The South Island of New Zealand shares a number of features with Tasmania including a similar latitude, Gondwana history and climatic features. Some of our vegetation shares the same genus or is from the same family. Our sub-alpine *Dracophyllum* plants look the same as the Tasmanian *Richea* genus (both are in the *Epacridaceae* family).

Tasmania lies in the path of the roaring forties. The mountain ranges on the West coast are clothed in dense rain forest and receive an annual rainfall of up to 3500mm (140 inches) while the midlands and parts of the east coast can receive as little as 375mm (15 inches) a year.

A mosaic of cool temperate rain forest covers about ten percent of Tasmania, mostly in the west. This rain forest has little variety in tree species and many mosses and ferns. On more fertile sites at 600-700 m in the hills are the myrtle (*Nothofagus cunninghamii*) type forest up to 30m in height with an open park-like understorey of ferns and mosses. On less

favourable sites the forest is more open with eucalypt trees and a thicket type understorey, occurring on poorer soils at various altitudes. The undergrowth includes varieties of *Acacia, Grevillea, Hakea*, *Boronia*, and pea flowers (of the *Fabaceae* family). Open montane forest above 1000 m is dominated by pencil pine (*Athrotaxis cupressoides*). Woodland type forest is more open with smaller eucalypts and occasionally *Casuarina, Callitris, Malaleuca* and *Acacia* species. Two forms of tree ferns grow in this forest, *Cyathea australis* (rough tree fern) and *Dicksonia antarctica* (soft tree fern). The understorey in woodlands varies with rainfall, soil type, and available sunlight with a range of small herbaceous plants such as terrestial orchids, pea family members and *Goodenia* family plants. Heathland occurs on exposed mountain ranges and also along sandy coastal strips. Banksias dominate many of the coastal heath regions with some grevilleas, bottlebrushes, pea flowers, boronias, wattles and many species of the Australian heath family *Epacridaceae* (now classed as *Ericaceae*). The alpine regions are characterised by low-growing shrubs, herbs and grasses. They form a variety of communities such as herb fields, heath, feldmark (small colonies of pioneer plants growing in the stable margin of mountain shingle slips), fens and bogs.

Since European settlement Tasmanian rainforest has suffered from the logging of endemic conifers and eucalypts. There has also been a greater increase in fire frequency. Fifty percent of Tasmania is now in various forms of nature reserves.

In many parts of Tasmania the dominant hardwood tree is the eucalypt. Throughout Australia there are over 700 species ranging in size from forest giants taller than 100 m down to the many-stemmed shrub-like species commonly known as mallees. The Tasmanian blue gum (*Eucalyptus globulus*) is one of the most commonly cultivated eucalypts grown overseas. It is so common in California it is known as the Californian gum. Other important temperate genera represented in Tasmania include *Nothofagus, Acacia, Atherosperma*, *Eucryphia* (leatherwoods), *Phyllocladus* (celery pine), *Athrotaxis* (King William pine), *Lagarostrobos* (Huan pine) and *Dacrydium*.

Russell Moffitt

The Huntingdon Garden – by Patricia Carr

I visited the Huntington gardens in Spring 2008 only finding out about it by chance. I have since seen one book of great gardens of the world, which says that this is one of the top twelve gardens in the world:

> "Some people see the Huntington estate as one of the world's most beautiful gardens. Some see it as a living museum of the rare and wonderful in the world of plants, a laboratory for the pursuit of botanical and horticultural knowledge. Some see it as a princely repository of books and paintings amid decorous lawns and groves. All the above views are valid."

Henry Edwards Huntington was a railroad and real estate developer who had a huge impact on S. California in the early 20th C. He achieved an enormous amount in the decade before he retired from business in 1910. In 1913 he married, for the second time, Arabella, a widow who was close to his age, and one of America's wealthiest women, and one of the most important art collectors of her time.

Huntington bought the 600 acre San Marino Ranch, about a fifty minute drive from Los Angeles, from the bank that had assumed ownership of the estate after the death of his friend and previous owner, James Shorb. He built a new house and new landscaping was a top priority for him.

The site occupies an eminence above the San Gabriel Valley north-east of LA. It has the San Gabriel mountains as a backdrop to the north. To the south the property commands a sweeping view over the broad valley and on the clearest days to the sea beyond Los Angeles.

By the turn of the century S. California was full of plant enthusiasts from the East and Europe, all happily trying out what would thrive there in the mild Mediterranean climate.

Founded in 1919, 'the Huntington", with its library, art collections, and botanical garden, forms an educational and cultural centre serving both scholars and the general public. Henry assured its future with a trust to create and fund the library, gallery, and gardens that would grow into today's institution, on 207 acres of the original 600 acres. Arabella died in 1924. In 1927 Henry left the house, living mainly in San Marino until his death a year later.

The library is one of the largest and most complete research libraries in America in the fields of British and American history, literature and science. The art collections are housed in four galleries and a fifth space presents changing exhibitions. The Huntington Gallery was originally the estate residence.

The Gardens

Surrounding the buildings are 120 acres of gardens with sweeping lawns and vistas, graced by pavilions, pergolas, arbours, fountains, ponds, statuary and little temples. It has 15,000 different kinds of plants from all over the world.

Henry was fortunate in finding the German-born William Hertrich, whose professional experience had begun at 16 as an apprentice in Austria. He was superintendent of the Huntington Botanical Gardens from 1905 until 1948. He continued to watch over his beloved gardens until, frail at 88, he died in 1966.

Huntington wanted to emphasize flowers for colour in winter and early spring, the time of year when he intended his house to be occupied. The annual bloom calendar still shows the most kinds of plants flowering in February through April.

He was a practical rancher, and amongst all the other plantings, he raised 20 acres of orange groves as a cash crop. He started the first commercial avocado orchard in California with 300 seeds, many of them saved for him by the chef at the Jonathan Club in LA! Huntington proudly pointed out that its production of citrus and other crops had made the estate self supporting.

The Lily Ponds

In 1904, the lily ponds were the first special garden – a set of ponds started by his predecessor but completed by Hertrich. Six ponds were installed for the practical purpose of replacing a shallow unsightly gully in the south-east corner of the gardens. Around them are several acres of groves, lawn, and tall trees. More than 75 species of bamboos grow near the lily ponds, in the jungle, and Japanese gardens. The ponds are home to koi (Japanese carp) turtles, frogs, and visiting birds. Nearby, a cascading stream from the jungle garden enhances the scene and through aeration contributes to water quality.

The Palm Garden

This was started next in 1905, on four acres. The first collection did not survive severe winter frosts: thus the emphasis now is on temperate climate palms and is one of the nation's largest collections of temperate climate palms.

Henry loved palms, by themselves and as landscaping subjects in gardens, public places and along streets and rail routes. There is a very fine specimen of *Jubaea chilensis* endemic to the valley of Ocoa in central Chile. It is the most massive of the palms, with a 3ft thick trunk that resembles a stocky column from an early Greek temple. Because the species is prized for its sugary sap, which ferments into a crude wine that can be extracted only after the tree is felled, many trees in native stands have been lost and the species is endangered.

The Desert Garden

Henry, while loving palms, was less keen on desert plants, remembering an earlier prickly encounter. Yet, in 1907, little-known desert plants seemed the only solution for a prominent area of poor soil that defied conventional greenery. This was eventually enlarged to 12 acres. The desert garden achieved such stature that some former competitors for specimens donated their collections to the Huntington. In our time it shines as the star of the show. It is one of the world's foremost collections of cacti and other desert plants; botanically it is one of the most important parts of the Huntington and supplies material for research on desert plants for food, pharmacology, and industrial uses. I was lucky enough to be there in the spring, when literally hundreds of the desert plants were flowering, from tiny to huge. There is now a desert conservatory, for the more fragile and delicate plants.

The gardens display, as few others anywhere do, a rich variety of plants, bold geometric and sculptural shapes, strong textures and some of nature's most dazzling colour in flower and leaf. It reveals the astonishing ways by which desert plants cope with drought and defend themselves against enemies. Today the collection contains more than 5,000 species, including half of the plants in the world considered to be succulent.

Two examples, which I liked especially, because of their weird shapes and prickles and names are *Stenocerus eruca* - Creeping Devil, which it was do-

ing in a large area, and *Chorisia insignis,* a tall tree with bulbous and extremely prickly trunk and yet beautiful delicate mass of yellow flowers as a crown.

Stenocarpus eruca – creeping devil

The Jungle Garden

Near the lily ponds four acres creates a tropical ambience with species that thrive in a subtropical climate. It has a high forest canopy; understory trees and shrubs, vines, climbing tree trunks, and especially plants that people associate with the tropics. The waterfall encourages moisture loving plants. Near the ponds rears the most remarkable tree in the jungle garden, if not on the entire estate, an Ombu tree, *Phytolacca dioica*. It is fast growing, up to 60ft, and nearly as wide, and is the unofficial emblem of Argentina. This tree was grown from seed received from the Buenos Aires Botanical Garden in 1912 and was planted in 1914. On the grassy pampas of Argentina Ombu trees are often scattered many miles apart and are often the only trees to be seen. The native cowboys or gauchos have long used them as shelters and landmarks. In seasonally dry conditions Ombu trees form a massive base which stores water for use during drought periods.

Part II of this article will be included in the next Newsletter.

Look at that tree – *Sequoiadendron giganteum* (Wellingtonia, bigtree, giant sequoia, Washingtonia)

The kingdom of plants has a king, the *Sequoiadendron giganteum*. The largest specimen of this species, in terms of volume, is the 'General Sherman' tree located in Sequoia National Park, California. It has a trunk volume of over 1500 cubic metres of wood and is claimed to be the largest living thing known. It is also very old, being thought to be at least 2,700 years old.

There is a specimen growing on the Armstrong Lawn (over the fence from Rolleston Avenue) that often attracts attention and admiration. This is one of the oldest trees in the Christchurch Botanic Gardens.

The plaque at its foot tells us that it was planted in 1869 by the Duke of Edinburgh. No, this is not the present Prince Philip, Duke of Edinburgh; he might look old but he is not that old. This earlier Duke was Prince Alfred, the fourth child of Queen Victoria and Prince Albert and the first member of the royal family to visit New Zealand.

The Duke wasn't supposed to have planted the tree. It had been arranged that His Royal Highness was to plant an oak near the centre of the lawn, and four other trees were to be planted in different places later on the same day. When this was made known to the royal visitor he insisted on planting them all. (When he planted the oak he specially requested

that the tree should never be touched with knife or axe, and, though it badly needed it, the Curator Mr Armstrong would not allow it to be touched during his period of office.)

To his family the Duke was known as Affie; he was a most affable man. He received a warmer welcome in New Zealand than he had in the previous year when visiting Australia; while picnicking at the Sydney seaside suburb of Clontarf, a would-be assassin took a shot at him with a revolver hitting him just to the right of his spine. He survived, enabling him not only to later plant the trees in the Christchurch Gardens but also to continue a career in the Royal Navy where he apparently became a most efficient, active and innovative admiral. In 1893 the Duke succeeded his paternal uncle, Ernst, to become the reigning Duke of Saxe-Coburg and Gotha in the German Empire.

Sequoiadendron giganteum first came to the notice of tree lovers in New Zealand in 1859 when J.B.A. Acland of Peel Forest Station obtained five potted specimens of this tree from a Devon nursery, John Veitch & Sons. Mr Veitch wrote "I am also including five *Sequoia gigantea* (the old botanical name) in pots. We are calling them Wellingtonias and you may have them established in New Zealand as soon as we can in England". (Three of these trees are still alive and are among the largest exotic trees in New Zealand.)

The giant sequoia is native to the western slopes of the Sierra Nevada in Central California. They occur within a narrow belt of 72 isolated groves of trees scattered over a distance of 420 km from north to south. The greatest numbers of trees are concentrated in the large National Parks, towards the southern end of its range. Some northern groves only contain a few giant trees, the largest ones up to a thousand each.

The existence of these trees did not become widely known until 1852 when a local hunter by the name of Dowd, employed to supply meat to a mining company, came across one of these giant trees while tracking a grizzly bear he had shot and wounded.

Following Dowd's discovery of the Calaveras Grove of giant sequoias, foliage and cones were sent to England, where the botanist John Lindley after examining the plant material published a scientific description of the species. He named it *Wellingtonia gigantea* in honour of the Duke of Wellington, the victor of Waterloo. This greatly annoyed some America scientists who had wanted to name the tree *Washingtonia gigantea* after George Washington.

Neither Wellingtonia, nor Washingtonia, remain as valid scientific names for the tree but are still used as a common names in Britain (and New Zealand), and the USA, respectively. The now accepted genus name of *Sequioadendron* comes from *Sequoia* plus the Greek *dendron* or tree. *Sequoia* commemorates the name of Sequoia, otherwise George Gist, the son of a German-American merchant and an American Indian girl. The name *sequoia,* in Cherokee the name of the opossum, was used as a nickname for a half-breed. Growing up as a full-blooded Indian without the knowledge of English, Sequoia invented the Cherokee alphabet. The adoption of this alphabet quickly made half the tribe literate, but sadly did not save them from eviction from their territory by the US Army and the death of 4000 Cherokees on behalf of white Americans greedy for their land.

The specimen on the Armstrong Lawn is not the only one in the Christchurch Gardens; look around and you will see quite a number more, including the row along the northern edge of the Archery Lawn parallel to the Perennial Border. The Duke of Edinburgh's tree on the Armstrong Lawn has been allowed to grow naturally and you will see that it retains its lateral branches almost to ground level. This contrasts with a specimen growing near the children's playground which has its lower trunk trimmed of its branches, as would be the practice in a forestry plantation.

The Wellingtonia is noted for its rapid growth, huge size and long life. Many of the largest and oldest specimens in the Sierra Nevadas have been given names, as has been done with of the largest kauri trees in New Zealand. Some Wellingtonias in the Sierra Nevada groves are believed to be two to three thousand years old, or more. Some have reached heights up to 95m and with diameters, measured above the broad base of the tree, of over 6m. One colossus of the Calaveras North Grove, was, soon after it was discovered and in accordance with the American pioneering spirit, speedily cut down and the base remaining in the ground transformed into a dance floor where 30 couples at a time could waltz!

The Wellingtonia has a very soft, fibrous, cinnamon-coloured bark, up to 45 cm thick in old trees. This bark acts like asbestos in that it gives the tree considerable protection from forest fires. Yet protection

is not absolutely complete and many of the giant trees possess huge fire scars; on at least one occasion this enabled axe-men to cut a tunnel through the rest of the trunk, of sufficient size to allow the passage of horse drawn and motors vehicles with ease.

Wellingtonias almost never die from disease or senility and are extremely wind firm. The only forces of nature that will destroy them are lightning strikes. Although rather brittle the heartwood is extremely durable and in the USA in earlier days was used for fence stakes and roof shingles. Supplies are now very limited and most of the "old growth" trees are protected in National Parks and Reserves

In New Zealand Wellingtonias have been much planted to form shelter belts and as an amenity tree in parks, domains and large garden.

Bill Whitmore – largely based upon 'Notable trees in Christchurch Botanic Gardens' by Max Visch.

Events in the Gardens

Lynda Burns, Visitor Services Team Leader at the Gardens, reports that

> "the Team is busy preparing for the summer influx of visitors. We have lots of new greeting cards and calendars in the Information Centre as well as a new product of realistic artificial flowers, ideal for allergy sufferers who still want the beauty of floral arrangements in their home. Our Seasonal Highlights display will be installed in the Information Centre before Christmas.
> During the summer we are running a family nature activity on Sunday afternoons as well as all the summer music favourites.
> The next few months will be spent planning for the above, installation of new directional signs in the Gardens and developing a permanent children's trail."

Coming events include:

Buskers Festival - Kids Pitch at the Peacock Fountain.
22 to 31 January, daily from 11am to 3 pm.

The Breeze Lazy Sundays. Back by popular demand, The Breeze Lazy Sundays again presents a variety of fine local music on the Central Lawn of our very own, world-class botanical backyard!
Sundays from 10 January to 28 February, 3:30 pm. Central Lawn (by the Rose Garden). Free.

Sunday Bandstand. Free outdoor concerts by the city's finest brass and pipe bands.
Sundays from 7 February to 28 March, 1-2pm. Weather Station Lawn.

Tree Magic. Family nature activity for 5-10 year olds on the lawn behind the playground. Sundays from 17 January to 7 February, 2-3pm. Free.

Anthony Harper Lawyers Summer Theatre. The Anthony Wilding Story is an award-winning tale based on the life of four-time Wimbledon winner and Kiwi sporting icon Anthony Wilding. 27 January – 7 February daily at 7.30 pm (except Mondays and 6pm on 5th February). Matinees at 2pm Saturdays and Sundays. Daffodil Lawn. Free.

Festival of Flowers. Activities within the Gardens will include a range of performances and activities for families.
19 February - 14 March.

Practical Demonstrations for Gardeners
Waterwise Gardening. This event combines a tour of the Gardens exploring drought-tolerant plant options with a demonstration of water conservation gardening techniques. This event combines the Friends' Saturday tour with the Friends' Seasonal Gardening Demonstration.
Saturday 20 February, 2-3.30 pm. Meet at the Information Centre.

Contact Numbers

Committee

President	Alan Morgan	384-9976
Vice President	Charles Graham	348-5896
Immediate Past President	Don Bell	343-6699
Treasurer	Gwenda Murfitt	981 3124
Membership Secretary	Ruby Coleman	355-8811
Minutes Secretary	Alan Hart	332-6120
Other Committee Members	David Moyle	358-8914
	Diane Percy	385-6769
	Des Riach	352-9803
Ex Officio	John Clemens	

Helpers

Plant Sale	Helen Constable	980-9358
Membership database	Philippa Graham	348-5896
Newsletter Editor	Bill Whitmore	339-8356
Newsletter formatting	Maria Adamski	
Newsletter mail out	Joy Minnery	385-5198
New media contact	Jim Crook	981-3124
Botanist	Bill Sykes	366-3844
Guide Co-ordinator	Pat Whitman	384-3475

Enquiries Info Centre 941-6840 x 7590

Christchurch Botanic Gardens Inc
PO Box 2553
Christchurch
or friendsofthegardens@gmail.com