

Newsletter

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

No 81, Winter 2010

President's Report

Just as the leaves are winding up their autumnal changes and taking the free fall to the ground, the activity for the guides is packed up again for the winter and the propagating teams can shorten their hours to the nicer parts of the day. The Committee had earlier decided to reward both the guides and the "Growing Friends" with a coffee morning and that happened for the first time last week. A jolly occasion it was too and a great opportunity to get to meet and mingle with the others.

Other rewards for service have just been advised. Jim Crooks, a long term secretary of the Friends Committee, recently retired and Max Visch, another long term member serving as a guide, guide trainer extraordinaire, Committee member in various roles have both been awarded Community Service Awards by the Christchurch City Council.

While these things are slowing down for the winter, others are hotting up. The architects for the visitor's centre will be showing almost final version of the plans early next week and steady progress is being made on the "Gondwana" Garden plans.

About two years ago the Committee had documents drawn up to form a trust, which would seek to raise serious money for yet-to-be-determined projects in the Gardens. The registration of the trust was delayed until the development plans were advanced enough to provide a "vision" to demonstrate the need for funding over and above that provided by the Council. That time has come and the Committee is in the final stages of selecting the founding trustees who are needed to register the trust.

The Committee has been encouraged by expressions of interest in a Trust for the Botanic Gardens from outside of the Friends and this is being followed up. It is an indication that the time is right to get moving.

Take a good look at the programme for the rest of the winter. The Sunday talks are in direct response to an enquiry for more activities for members of the Friends. We had a wonderful turnout for the talk on "Herbals" and for the tour of Texture Plants but few were Friends members. The next talk is by Prof. Steve Wratten on Sunday June 13 at 2.30pm; a wonderful speaker with an important message.

The following Saturday, Max Visch (standing in for guide Daphne McConchie) is leading a walk themed "Shapes, Sizes and Silhouettes" showing that plants in winter may be short on leaves but certainly not without interest.

We look forward to seeing you there!

May the winter be kind to you.

Alan Morgan

Gardens' News

From Curator John Clemens

When I first sat down to write this article, I thought I would tell you about the various activities and events that have marked the last few months in the Botanic Gardens. There has been no shortage of (generally) fine autumn weather to join Friends' Saturday walks, or you might have enjoyed learning about Ngai Tahu use of plants and other resources in the Great Forest of Tane / Te Wao Nui a Tane exploration trail. The weather for the second Kitchen Garden Workshop was not so clement, but all attending were well looked after at the Curator's House and in the greenhouses. And, of course, Botanic Gardens staff and others in the team led by Jeremy Hawker enjoyed great success at the Ellerslie Flower Show in February.

However, I remembered I wanted to tell you about my first impressions of being on the job as Curator. It is hard to believe, but I realise only too keenly that in a very few months I will have been in the position for a year. Having become quite familiar with the job, and through the support and assistance of Sue Molloy and other staff, I have now given my first series of talks to various local audiences. These have included a residents association, a number of community education groups, and specialist growers (the NZ Alpine Garden Society). People want to know what is happening to their botanic garden, and what they can expect in the future.

Although there have been some testing questions and people are not shy to state their position, the response has been very positive. I have enjoyed the chance to stand up, speak, listen, and discuss. Not surprisingly, audiences are far more attentive and responsive (and knowledgeable) than undergraduate students, and they relate far more intimately to the topic than, say, a group of growers might to a research seminar. After all, this is our very own botanic garden and people care for it deeply.

The members of the Friends also share this enthusiasm and assertiveness. I have very much enjoyed the frank statements that have alerted me to problems or opportunities. Each of us has an opinion as to how things should be done, and I am always interested to come to walks and talks to hear each person's views. It might not always be

practicable to act on them in the short term, but each snippet of opinion, each idea, might help to shape the way the various plans and policies within which we must operate are implemented.

My impressions of the staff are also positive. Of course, each person is unique, and the work environment is a little different from ones I have worked in before. However, work feels increasingly like a home away from home, and strikingly similar to the time I spent at the "farms" west of Sydney (horticultural research stations) where I would do everything from digging holes to giving lectures. Incidentally, this is the place I passed Tractor Driving 101 by not driving into the dam! It has been good to assist grounds staff in a small way this autumn to get the bedding plants planted, and I thank the staff for letting me do that. To my way of thinking, we are all part of the work of advancing the Botanic Gardens together.

This brings me to my last impression for now, or rather a memorable moment. This relates to the fondness and care we express towards the Botanic Gardens, and the support we offer each other amidst the cut and thrust of resolving difficulties. A member of the Friends captured it very nicely by saying that we are all "family". Personally, I do not have a close-knit family beyond my now far-flung nuclear group, but I know what was meant. We share a common purpose to see our Botanic Gardens family thrive, to respect and build on the successes of the past while exploring the future. I will do all I possibly can to make it possible for succeeding generations to come here and enjoy this rather special and large family garden.

Lastly, I must say a special thank you to Nedra Johnson who went to such trouble to prepare and deliver her guided walk last Saturday on Papermaking through the Ages, which included samples of her own successful papermaking experiments. This followed on the heels of lively and informative walks in March by Max Visch on Botanical Treasures across the Avon River, and in April by Neil O'Brien on Cockayne and the Plants of New Zealand.

Thank you.

Articles

Leonard Cockayne, 1855 – 1934



Leonard Cockayne 1882

The Leonard Cockayne Memorial Garden lies nestled in a quiet area of our Gardens, surrounded by many of the trees and other plants that he so passionately studied during his long life here in New Zealand.

Leonard was the youngest of the seven children of William and Mary Cockayne. William had a drapery business in Sheffield, England and the family home was in the village of Norton Lees. It is then no wonder that as the youngest, Leonard was left to his own devices to roam the countryside, and in particular a steep wooded gully, saved from farming activities, was a favourite haunt. Leonard said "The little boy himself had abundant curly, fair, almost flaxen hair and one of those innocent faces, which it is well not trust too far." There can be little doubt that during his childhood he developed a great love of plants and animals. The lad had his own garden at five years of age. Not surprisingly he disliked school with some intensity but was passionate about cricket, rarely missing three-day county matches.

The Cockayne family were all avid book lovers, reading aloud together favourite literature of the times; poetry, drama, travels and Victorian novels.

Of his tertiary education, it has been said that it was "fragmentary and incomplete." He studied at the University of Manchester, the Royal Infirmary as a medical student in 1873 and the Royal School of Medicine. At London University he studied some Botany. It appears that during this period he suffered periodic ill health, which is given as the probable cause for him shifting to Australia. It is said that he was basically self-educated. In Australia he taught at schools in Tasmania, Victoria and Queensland. Educational records show him to be a good and competent teacher but he was twice reprimanded; once for intemperance and once for missing the first week of a new term.

After moving to New Zealand around 1880 he taught at both the Tokomairiro District High School and at Allanton from 1881 to 1883.

On the 26 February 1881, Leonard married Maria Maude Blakeley who also had arrived from Australia but was born in England. As a teacher she taught at Balclutha North School and later at George Street School in Dunedin. Maude, as she was known, devoted the rest of her life giving indispensable support to her husband and his work. She pressed "masses" of plant specimens arriving from mountains and forests each week and packaged countless packets of seeds destined for more than forty botanic gardens around the world. Botanist Dr Lucy Cranwell, who knew her well, said "she provided visitors with strong tea and fine pound cake usually consumed in front of the fireplace."

Leonard was always the horticulturist; he set up his Tarata Experimental Garden at New Brighton, Christchurch where he worked with both native and introduced plants. He lamented the changes that swept through England in the late eighteen eighties. Gone were the centuries old shrubberies, and herbaceous borders along with all those wild flowers that Shakespeare had immortalised. He abhorred the symmetrical beds of annuals with vast areas of mown lawns. The bright, gaudy plants did not appeal to him.

By 1903, apart from his experimental work, Cockayne published 17 scientific papers, including a

paper on native seedlings and one on “humble bees”. His first major paper concerned the freezing of New Zealand alpine plants in 1891. 1903 was also a significant one for Leonard in that he received an honorary. PhD. from the University of Munich. It was not until 1932 that he received an honorary D.Sc. from the University of New Zealand.

This same year he sold Tarata. Leonard and Maude moved to Wellington at the behest of their son Alfred who was also a botanist. Alfred later became the Director-General of the Animal Research Division of the Department of Agriculture. However, the couple were back in Christchurch by 1905 where they remained until finally shifting again to Wellington in 1914. “Wellington suits me, the wild nature and the many facts staring me in the face that I had been ignorant of.” Leonard devoted much of the rest of his life to the Otari Open-Air Native Plant Museum where he produced some of his finest work. Both he and Maude were later buried there. In 1907 Leonard was awarded a grant from the Government for his survey of the vegetation of New Zealand. It was from this time that he travelled widely throughout the country even to the Sub-Antarctic Islands.

There can be no doubt that Leonard believed the New Zealand flora was something very special. “Remarkable is too weak a word for a plant population, which can boast of including amongst its members the largest buttercup in the world with leaves as big as rhubarb, a speedwell 40ft. in height (ngaio), the smallest member of the pine tree family, tree-like daisies, arboreal plants of the carrot family with stiff leaves sharp as bayonets, mosses more than a foot tall, a brown seaweed hundreds of feet in length and those most striking members of the plant world, the vegetable sheep.”

In 1921 the “The Vegetation of New Zealand” considered his most important book was published. But his 1910 “The Native Plants of New Zealand and their Story” is still widely read. It has seen four editions, three by the man himself and one by Dr. Eric Godley. We can only stand in awe of a man who published 184 articles, 32 scientific papers and 37 articles and papers with other colleagues.

Over many years Leonard was a dominant figure in the field of botany in this country. Later, it was suggested the most other botanists were in awe of him, being disinclined to ever disagree with him. The question has been asked “Was this good for the science of botany?”

Among the many honours and awards, as well as the two doctorates already mentioned, bestowed upon him over a long life dedicated to the study of botany in New Zealand are: Fellow of the Royal Society, 1912, the Darwin Medal, 1928 and the Silver Veitch Medal 1931 awarded by the Royal Horticultural Society. On receiving the latter Leonard said, “No matter what my merits or demerits as a botanist, I will always consider myself a good gardener.” Leonard Cockayne, one of our greatest botanists, the father of New Zealand ecology, died 8 July 1934.

To commemorate this great man’s contribution to native plants, the Cockayne Memorial Garden in the Christchurch Botanic Gardens was started in 1937, opened in 1938 by C.J.S. Skotsberg, a Swedish botanist, and later reconstructed and enlarged in 1960-1961.

So why not pay a visit here sometime and sit for awhile in this quiet and restful area surrounded by many of those plants that so inspired Leonard Cockayne.

References:

Cockayne, L. New Zealand Plants and their Story.
Thomson, A.D. The Life and Correspondence of Leonard Cockayne. Botany Division, DSIR, NZ.

Neil O'Brien

Musical Tree walk

On Saturday 27 November 2009 Pat Whitman and Tricia Carr lead a Friends’ guided walk entitled “Trees are instrumental in making music”. On this extremely popular walk Pat and Tricia followed a route through the Gardens commenting on trees which have been used for the manufacture of different musical instruments. An excerpt of recorded music was played featuring instruments made from wood of each of the chosen trees. The following is based upon the informative commentary on the day.

***Carpinus betulus* or hornbeam: Bagpipe.**

The Scottish instruments have five pipes, a blow pipe, three drone pipes and a chanter. Each drone is tuned to a fixed background note, bass for the long pipe and two shorter tenor notes. The chanter pipe hangs down and plays the tune like a recorder. There are over a dozen bagpipe manufacturers in Scotland and the biggest turns out about 1300 instruments a year.

The preferred wood is mpingo from Tanzania

(*Dalbergia melanoxylon*) but hornbeam, apple or holly are alternatives. They have fine textured woods with a good grain. Hornbeam has a very hard wood and used to be called ironwood. Before iron became common, it was used in machines for cogs, spokes and axles because of its durability. Hornbeam is often mistaken for beech or birch, but it has a very fluted or corrugated trunk, unlike beech's smooth bark, and serrated, corrugated leaves. Its seeds are three-pointed winged nuts. The trees make good hedges and there is a famous pleached hornbeam avenue at Hidcote Manor in Gloucestershire

Fagus sylvatica or beech: Harpsichord.

Harpsichords (and spinets and virginals) are keyboard instruments that sound by the plucking of strings by very small plectra. It is the predecessor of the piano and produces a very distinctive tone used in early music. Modern manufacturers tend to use traditional materials because there is an emphasis on preserving the historic nature of the instrument.

There are many woods used in the making of the harpsichord; the frame alone can be made with beech, sweet chestnut, British Colombian pine or Sitka spruce.

The beech has species scattered across Europe, Asia and North America, though most are in China and Japan. They are deciduous with distinctive pointed winter buds with brown scales. The leaves are slender stalked. Male and female flowers are on the same tree. The fruits are small shaggy capsules which split open in autumn to release several strongly-angled, oil-rich seeds or 'beech nuts'. They are a major source of food for wild life. The trunks are smooth. The timber is valuable, being close grained and readily worked. It makes a large tree, reaching 40m in height. There are many cultivars; 'Purpurea', 'Cuprea' (copper beech, a favourite with foresters and gardeners), 'Asplenifolia', 'Rohanii'; 'Pendula' and 'Laciniata'.

Araucaria bidwillii or bunya pine: Guitar.

The bunya pine is actually a conifer and a relative of the monkey puzzle tree. It comes from Australia. Every three years it produces huge cones with edible seeds which are a source of food and celebration for Aborigines. All the trees belong to them. In public places there are warnings not to stand under the trees when the cones are ripe and liable to drop because they are so heavy, about 7lbs.

George Harrison, of Beatles fame, used a guitar with a soundboard made of bunya wood. According to the maker, Bill May, "it looks amazing, has a tonal quality similar to solid spruce, and provides power and punch". The bunya wood is pale and silky and the trees grow very fast, maturing in 80 years. The guitar backs are of Queensland maple and sides of rosewood.

Buxus or box: Clarinet.

We don't think of these aromatic hedging plants as trees, but if left to themselves they grow many stemmed and straggly. There is a Chinese box tree, *B. microphylla*, in the bed alongside the south side of the Archery Lawn. The wood has a hard even grain and is used for wood engraving blocks.

The clarinet is a long cylinder with a single reed and it can reach notes an octave deeper than the flute, which is a similar length. Again the preferred wood is African blackwood, but boxwood is a cheaper alternative. Clarinets need a long tube of heartwood with no knots and good grain. In the making, 75% of a tree is wasted. 100,000 instruments are made each year but only 1 in 10 is of wood, plastic being cheaper, but some sound quality is lost. To save wastage of the precious African blackwood one manufacturer has perfected the art of grinding up the wood and reconstituting it in a polymer matrix, reducing the wastage to only 10% and keeping all the qualities of the original wood. Conservation is very important if these trees are not to be lost.

Agathis australis or kauri: Harp.

The harp is a stringed instrument which has the plane of its strings positioned at right angles to the soundboard. All harps have a neck, resonator and strings. Some, known as "frame harps", also have a forepillar; while those lacking the forepillar are referred to as "open harps". Depending on its size, (which varies considerably), a harp may be played while held in the lap or while stood on the floor. Harp strings can be made of nylon, gut, wire or silk. A person who plays the harp is called a harpist or a harper.

Harps were invented independently in many parts of the world in remote prehistory. It is often said that the harp's origins may lie in the sound of a plucked hunter's bow string. A type of harp called a "bow harp" is nothing more than a bow like that of a hunter, with a resonating vessel such as a gourd fixed somewhere along its length. To allow a greater number of strings, harps were later made from two pieces of wood attached at the ends: this type is

known as the “angle harp”.

The oldest depictions of harps without a forepillar are from 4000 BC in Egypt and 3000 BC in Persia. While most English translations of the Bible feature the word “harp”, especially in connection with King David, the Hebrew word is actually *nevel*, a type of lyre with 10 strings and not a harp at all. The *kanun* is a descendant of the ancient Egyptian harp and was introduced to Europe by the Moors during the Middle Ages.

Kauri will grow to a great size, 46m in height and 7m in diameter. It lives to a great age. Tane Mahuta is 2,100 years old and at 51.2m towers above the forest at Waipoua in Northland; and this is relatively young, compared with records of other trees cut down in Victorian days. It has so many uses. Its honey-coloured, very light wood, makes beautiful furniture, the resin makes high quality paints and varnishes; and when it turns through age into amber it is carved into ornaments of value. Other plants in the forest use it as a host tree. It has great curiosity value in that it is so different when young from the mature tree. The male and female cones are on the same tree; the tree has low branches when young and it naturally drops them as it matures, and creates a magnificent tall straight trunk towering high, which proved its undoing, as early explorers used them for the main masts of their ships.

Bamboo: Panpipes.

Bamboo is an evergreen woody perennial of the grass family. It grows from rhizomes and is the fastest growing woody plant in the world, 3-4 ft a day for some sorts. There are 91 genera and 1000 species and it grows from cold areas to the tropics, E Asia, Northern Australia, India, the Himalayas, the Sahara, the USA to Argentina; anywhere down to 47°S.

It is used for many things; building material, scaffolding, food source, paper making, chopsticks, fences, etc. There are six Chinese musical instruments made from bamboo, a Bamboo organ in the Philippines, didgeridoos in Australia and flutes of the Andes. These are panpipes called zampona, which date back to the time of the Incas. The zampona is a concave arrangement of 23 pipes, each slightly shorter than the next, giving a unique pitch. Stopped pipes give deeper notes than open ones. Sharps and flats are produced by tilting the flute. The sound is a similar one to blowing across the top of a bottle.

***Pseudotsuga menzesii* or Douglas fir: Violin.**

All instruments in the violin family have the same basic structure; a sound box which converts string vibration (bowed or plucked) into sound via the bridge. The acoustics remain largely unexplained.

The belly (front) is the main sound board of the instrument; made of two pieces of wood joined in the middle. The timber must be resonant, thin, stiff and strong, with a clear straight grain. The tree stem is “quarter-sawn”, that is split, so the 2 sides match perfectly. While Swiss pine is the best wood; silver spruce, sycamore, western red cedar, hemlock, and Douglas fir can all be used. The base bar is of the same wood as the belly. The back also acts as a sound board, and must have the same wood qualities. Maple or sycamore are the common species, but pear, cherry, beech, walnut, willow and ash are also used. The back may be made from two pieces like the belly, or carved from one; it makes no difference to the final quality. The belly and back are often made of different timbers to create the correct tonal qualities. The neck and scroll must be decorative, strong and hard wearing. Fingerboards must be durable: Mauritius ebony is considered the best, but ebony, boxwood, Rio rosewood and Honduras rosewood are occasionally used. While boxwood was used for the pegs rosewood is now commonly used.

The earliest NZ violin was made by James McQueen in 1873, of maple, spruce, poplar, ebony and gut. The second (in a row of five at the Auckland Museum) had a rewarewa back. James Hewitt made one in 1933 using curl maple, maple and pine. Usual woods for violins were maple and spruce but a German one included kahikatea. Another violin was of maple, kauri and Southland beech.

The Douglas fir is another giant of the forest. The tallest extant tree to date is 90m in height. Its Latin name *Pseudotsuga menzesii* means false hemlock, named in honour of Archibald Menzies, a Scottish explorer. It is highly valued for the quality of its timber; it can grow almost anywhere like a weed, and grows fast, so despite the fact that the old forests have been destroyed, it is grown all over the world in huge plantations, and is actually a success story. One tree reached the ripe old age of 1,400 years, and 40 stories high, but today they are cut down after 50 years or so. The trunks of such trees are bare of branches for the first 150 feet.

***Liriodendron* or tulip tree: Fiddle.**

This is the same instrument as the violin but gives a

very different sound. Fiddles are cheaper and used by gypsies, for Irish or Scottish dancing, and bluegrass in America...

As well as the main instrument you need a bow. Pernambuco is the best wood but lancewood is an acceptable alternative. The wood needs to be strong and pliable as the bow can hold up to 200 strands of horsehair under tension. A ton of wood produces about 1000 bow blanks and the final shaping results in only 500 bows.

The tulip tree was discovered in North America by John Tradescant in the 1630s and was brought back to England. It is easily recognised by the distinctive squared off or lyre-shaped leaves, so it is sometimes called the lyre tree. The flowers are yellow-green cups with gold stamens and the fruit a long scaly cone-like shape which disintegrates into flaky seeds when mature. The tree can grow to 150 ft. The timber is one of the most popular in USA. For cheaper violins ash may be used at the back and liriodendron for the front.

Acer or maple: flute.

Woodwind instruments are made of wood with high densities and fine textures which produce a superior tone. The woodwind industry is very aware of the vulnerability of the woods they use – they find it difficult to secure adequate supplies of African blackwood. The price may affect the public's attitude and plastic instruments are considered inferior, but one manufacturer noted that if the same time, effort and craftsmanship were put into both, they could sound identical.

The name 'flute' describes a number of modern and historical instruments world-wide. Until WW1 wooden flutes were common in America and UK, but later were replaced by metal instruments which were felt to be more responsive and hold a more expressive tone.

Ebony, Madagascar rosewood, boxwood, cocuswood and African blackwood (*Dalbergia melanoxylon*) are all traditionally used in wooden flutes. The last is the most commonly used, but an American company produces flutes of maple, rosewood, apple and pear. Copies of Renaissance flutes have used boxwood and maple.

Norway maple (*Acer platanoides*) grows from the Arctic Circle in Scandinavia to France, the Urals, but not the Mediterranean or UK. Yellow flowers

appear before the leaves and autumn colour is gold to reddish orange.

Japanese maple (*Acer palmatum*) is the most widely grown maple in the world, valued for its compact size, delicate foliage, and brilliant autumn colouring. Brought to the West in 1830 by Philipp von Siebold, there are now over 300 cultivars. It needs shade and shelter or will start to shrivel in late summer. In the *Acer dissectum* group the primary leaf lobes are deeply cut into a filigree pattern.

Snake bark maple (*Acer davidii*). This was discovered by Pere Armand David in 1869 in the Sichuan Mountains of China. It has attractive bark with silvery grey stripes on an olive green background.

Juglans regia or common walnut, *J. nigra* or black walnut, American walnut: Piano.

The piano is one of the most popular instruments and has had more music written for it than any other instrument. It has strings sounded with hammers controlled by the keyboard, giving control over tone and volume. There are 2 basic types of piano, upright and grand, and both are constructed from same basic woods.

Traditionally the main timbers were rosewood, walnut, and mahogany for the basic frame. A major change in materials was the discontinued use of ivory from the 1960's and a reduction in ebony.

As with other complex instruments there is a huge variety of wood used to build a piano, each part requiring different characteristics from the wood. The case core uses walnut, African mahogany, Parana pine, wawa, obeche, agba and limba and is then covered by veneered casework. In school pianos the wood is usually plywood, though other wood is used. The back will normally be made of obeche which is a large tree from W. Africa, with large palmately lobed leaves, panicles of small flowers and single winged seeds. It yields soft white to pale yellow wood used for veneering.

The sound board is the most important part of instrument which requires resonant wood. Wood from old trees is preferred because slow growth rate produces timber of 14-20 rings per inch. It is difficult to find, so timber with as little as 6 rings will be used. The only suitable woods considered for the sound board and bars are European spruce and Sitka spruce.

In 1980 it is believed 800,000 pianos were produced

world wide, most in Japan and America but also Korea, China, Indonesia and Russia. The industry in the UK is now practically non existent.

Juglans regia is believed to have originated in SE Europe and temperate Asia. It is slow growing, reaching 15m. It has aromatic leaves. Yellow-green flowers are borne in catkins in late spring or early summer, followed by the nut. The timber is valued for furniture and the nut is sweetly edible. Walnuts yield excellent oil and the oil cake is a good livestock feed. Only the outer limbs produce perfect nuts.

Juglans nigra is native to eastern North America. It grows mostly alongside rivers. It is a large deciduous tree attaining heights of 30-40 m. The bark is grey-black and deeply furrowed. The pith of the twigs contains air spaces. The leaves are alternate, the male flowers are in drooping catkins 8-10 cm long, the female flowers terminal, in clusters of two to five, ripening in the autumn into a fruit (nut) with a brownish-green, semi-fleshy husk and a brown corrugated nut. The whole fruit, including the husk, falls in October; the seed being relatively small and very hard.

It was introduced into Europe in 1629. It is cultivated for its high quality wood. Nuts are produced more by open-grown trees. Black walnut is more resistant to frost than the Persian (also known as English) walnut, but thrives best in the warmer regions of fertile, lowland soils with a high water table. It is a light-demanding species. The wood is used to make furniture, flooring, and rifle stocks, and oil is pressed from the seeds. Nuts are harvested by hand from wild trees.

Black walnut nuts are shelled commercially in the United States. The hard shell is used commercially in abrasive cleaning, cosmetics, and oil well drilling and water filtration. The nutmeats provide a robust, distinctive, natural flavor and crunch as a food ingredient. Popular uses include ice cream, baking and confection. Consumers include black walnuts in traditional treats such as cakes, cookies, fudge and pies during the fall holiday season. The nut's strong nutritional profile leads to uses in other foods such as salads, fish, pork, chicken, vegetables and pasta dishes. Nutritionally similar to the milder-tasting English walnut, the black walnut is high in unsaturated fat and protein, with no cholesterol. While the flavor is prized, the difficulty in preparing the black walnut may account for the wider popularity and availability of the Persian walnut.

Black walnut drupes contain juglone, plumbagin and tannin which are used for dyes. The brownish-black dye was used by early settlers to dye hair. Extracts of the outer soft part of the drupe are still used as a natural dye for handicrafts. The tannins present in walnuts act as a mordant aiding the dyeing process; and usable as a dark ink or wood stain.

The US Botanic Garden, Washington DC



In May I rather unexpectedly found myself in the US Botanic Garden in Washington DC, a garden I had never heard of before. It is located in the National Mall, overlooked by the US Capitol.

The Garden is rooted in the USA's heritage. During the late 18th century George Washington, Thomas Jefferson and James Madison shared the dream of having a national botanic garden. There was an early garden controlled by the Columbian Institute for the Promotion of Arts and Sciences that opened in 1820 but ceased operation in 1837.

In 1838 Charles Wilkes, a naval officer with experience in nautical surveying, was given command of the United States Exploring Expedition, commonly known as the Wilkes Expedition. The Expedition, comprising seven ships, circumnavigated the world over a period of almost four years and in particular was given the task of exploring and surveying the Southern Ocean. It played a major role in the development of 19th century science. Among the many scientists and artists on the expedition were naturalists and botanists. The expedition returned to New York in 1842 with a staggering amount of data and specimens. Dried specimens formed the basis of the new Smithsonian Institution. As well as seeds of 648 species there were 254 living plants from around the globe. What was to be done with them? The idea of a national botanic garden was reestablished. In

1850 the plants were transferred in to a newly constructed glasshouse on the site of the former Columbian Institute's garden: this became the US Botanic Garden.

In continuous operation and open to the public since 1850, the US Botanic Garden moved to its present site in 1933. It includes the Conservatory, the National Garden which opened in 2006 and on the other side of Independence Avenue, Bartholdi Park, which was created in 1932. Since 1934 the Garden has been administered by the Office of the Architect of the Capitol.

Some of the original plants brought back to the USA by the Wilkes Expedition still survive in the US Botanic Garden.

One expects things in the USA to be bigger than anywhere else. I was surprised however by how compact the US Botanic Garden is; I found no indication of its area but it would be much smaller than our Christchurch Botanic Gardens.

While the quality of the plants is superb the US Botanic Garden is not as aesthetically beautiful as that in Christchurch. Where the US Botanic Garden does succeed is in providing information about plants and their uses. There is copious signage which is a model for other gardens. There are signs demonstrating how plants provide fibres, food, beverages, cosmetics, wood, spices, livelihood, meaning, therapy, ornamentation, tools, symbols and other enrichments to our everyday lives.

The Conservatory is extensive with rooms or spaces devoted to world deserts, Hawaii, children's garden, primeval garden, plant adaptations, economic plants, jungle (a tropical rainforest overtakes an abandoned plantation), medicinal plants, orchids, plant exploration, a southern exposure garden and rare and endangered species.

The National Garden has a regional garden of mid-Atlantic native plants, a rose garden, a butterfly garden and a First Ladies water garden – and the view of the US Capitol dome.

Bartholdi Park with an elaborate and decorative fountain at its centre serves as a home landscape demonstration garden.

The Garden does not have any café or restaurant area – it would have been good to have been able to buy a cup of tea on the hot humid afternoon of my visit!

Bill Whitmore

Look at that tree – *Arbutus canariensis* (Canary Islands strawberry tree, Canary Islands madrone)

There are a dozen or more species in the genus *Arbutus* with *A. unedo* being the most common. The flowers are small, white or pinkish bells in compact clusters at the branch ends. A small proportion of flowers develop into fleshy but hard, reddish yellow globular fruit, often with wrinkled surfaces, which take almost a year to ripen. The "strawberry" in the common name refers to the fruit which have been described "as being edible but hardly palatable".



A. canariensis comes, as the name suggests, from the Canary Islands. It forms a neat round headed tree to 4.5 m high. It has bold foliage to 15cm long.

You will find a specimen in the Woodland section of the Gardens between the bridge and the heritage rose garden. What attracts most people's attention is the very showy trunk of the tree. The bark is dark orange in most seasons, but with extreme heat and sun, it can become a mid-purple. Like gum trees, the trunk is smooth, and the bark is shed annually.

If you visit the garden of the Otahuna Homestead, developed many years ago by Sir Heaton Rhodes, look out for an even finer specimen of *A. canariensis*.
Bill Whitmore

Obituary - Liz (Elizabeth) Alicia Wolff 1927-2010



Liz Wolff, a member of Friends of the Botanic Gardens since January 1998, died suddenly on 15 March 2010.

She was born Elizabeth Alicia Inglis in Dargaville in 1927 and lived on her parents' dairy farm in the district. After caring for her mother at home, Liz trained at the end of World War II as a Karitane nurse with Jane Bayley, also a member of the Friends.

After working as a Karitane nurse throughout New Zealand Liz spent some time in Britain and worked for a while at Liberty of London. On her return to New Zealand Liz shared a flat in Christchurch with Jane Bayley and then married their landlady's son, John Wolff.

John and Liz farmed at Horrellville until retiring to Thornbank at Rangiora. Liz stayed on here after John's death and in recent years moved into Rangiora township.

During her twelve years as a member of the Friends, Liz was generous with her energy, time and talents. When she joined the Friends we still had the big annual plant sales and Jane Bayley re-

cruited her to help with refreshments for the hard-working sales team. Liz continued to arrange teas and suppers for Friends' events, organised garden visits and sometimes worked in the team preparing bulbs for sale.

She served as a Committee member, only retiring after her 80th birthday and regularly attended our walks and meetings.

A memorable promotion for the Botanic Gardens and the Friends, was "Beating the Bounds" held on 14 October 2006. This was initiated by Liz and organized with a team of helpers following somewhat the ancient English tradition of an annual walk to demonstrate Parish boundaries. City officials and invited guests and the public, joined the Friends and Friends' guides on a guided walk around the 'boundaries' of the Botanic Gardens with entertainment and historical stories en route.

Always very much a hands-on gardener and experienced plantswoman, Liz even after John's death continued to open her extensive garden and orchard at Thornbank to groups. The Friends spent a delightful time one spring exploring the beautiful old orchard and ornamental trees, spring blossom, masses of bulbs and an impressive vegetable garden. Several faithful helpers worked along with Liz at Thornbank and then in her Rangiora town garden. Here she was greatly challenged by the poor soil and her determination and hard work improved the conditions and created a charming garden of year round interest. She grew many lesser known perennials and had a thriving vegetable garden. A fellow plant enthusiast suggested Liz was addicted to gardening

Another talent was flower arranging and providing hospitality for many visitors. Only days before she died, Liz was at the Ellerslie Flower Show enthusiastically checking out new ideas.

Liz will be missed by many people and remembered for her energy and forthright ways. Some fortunate members of the Friends will have plants from her gardens as living reminders of this special lady who enlivened our society in recent years.

Adrienne Moore

Distribution of Newsletter

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

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Events in the Gardens

Coming events include:

Its a Wild Life. Discovery Trail. Advertised through Kidfest as Botanical Explorer, this trail explores the wildlife within the Gardens. Pick up booklet from the Information Centre.
Saturday 3 to Sunday 18 July.

Kitchen Garden Workshop. This winter workshop considers caring for your vegetable garden in winter and preparing for spring sowing and includes a seed swap and seasonal snack provided by the Curator's House Restaurant. \$20.

Bookings essential christchurchbotanicgardens@ccc.govt.nz or phone 941 7590

Saturday 31 July, 1 - 4 pm.

The chemistry of gardening. Friends' demonstration with Alan Hart.

Saturday August 7, 2 - 3.30pm.

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