



President's Annual Report: June 2020

Following my previous practice this report is a slightly up-dated version of my AGM annual report delivered to 35 members on the 16th of August this year.

Our membership stands at 157 members. 41 new Friends have joined us in the last year, almost twice as many as the previous year. We also remember with sadness the members who are no longer with us. I would like to thank Claire Mulcock who has done a Stirling job in revamping the data-base, maintaining the Friends' Gmail, and keeping you all well informed.

I would like to thank my committee, a fantastic team, who bring many skills and experiences to keep the Friends' business and activities running smoothly. They share responsibilities in such a way that makes my task so much easier. In addition to their committee responsibilities these dedicated folk volunteer in at least one other volunteering group working for the Gardens. A special thanks to Wolfgang Bopp, director Botanic Gardens and Parks, for his role on our committee.

At last years AGM we welcomed Pamela Niskanen, Jane Cowen-Harris and Nona Milburn to the committee and they have slotted into the team admirably in what you could say was a baptism of fire. A very big thank you to Pamela, who is retiring from her position as treasurer this year because of other commitments. Pamela has been an outstanding keeper of the coffers, and I am sure the committee all agree that the accounts have been in very safe hands. We welcome Carol Halstead as our new treasurer. Carol was seconded to the committee to work alongside Pamela for the past two months, a mark of how well the team works together, and I know Carol has been grateful to have had this introduction. At this year's AGM we welcomed Susan Lawrence to the committee, bringing our number up to 12 which is fantastic. My thanks to Jane Cowan-Harris who has taken on the role of Vice-President and will be my successor at the next AGM.

With the Kiosk as our new home we have had a wide variety of speakers for our Summer and Winter series of talks and Garden visits. Speakers have been drawn from our own



Veronica lavaudiana
Sun Hebe
Endemic to Banks Peninsula
Christchurch

garden staff, professional botanists, landscape gardeners, a taxonomist, and a geologist, with visiting speakers from Auckland Museum, Gisborne and the Royal Melbourne Botanic Gardens. We have also visited Gardens in Akaroa, Ashburton and Broadfields.

Our talks resumed under level 2 with Toby Chapman, Botanic Gardens and City Arborist, giving us a very interesting talk on 'Managing City Trees and People'. In July Alan Jolliffe stunned us with the beauty of the 'Alpine Flowers of Mt. Hut' and our August Talk was by well-known author, historian and botanist Joanna Orwin, who gave an engaging talk on 'Our Kauri our Heritage'.

My heartfelt thanks go to Mary Carnegie for being a great hostess at our talks with her cups of tea and wonderful baking, to Graham Chick and his team for meeting and greeting, and to all of you who help at these events, either supplying plates of food, helping set up the room

or meeting and greeting.

A very big thank you to Claire Mulcock and her team who organised an on-line 'order and collect' sale of 260 trees and shrubs during level 2 of the lock-down in lieu of our Autumn sale. This was a fantastic effort.

We are very grateful to our 77 volunteers who are giving their time to promote and support the Botanic Gardens.

A very big thank you to our teams of propagators working on Tuesday and Thursday under the guidance of Don Bell and Jeannie Gulyas. As you will see in our financial report, plant sales are on the increase and we have been expanding our nursery facilities to keep up with demand. It is

wonderful to be able to welcome a third propagating group who will be working on a Wednesday. Carolyn Dixon, a brand new Friend, will lead this group.

Special thanks to Vicki Steven and Jeannie Gulyas who continue to restock the plant stand with help from Tigger McKenzie. At the beginning of level one of the lockdown they were restocking daily for a time. Thank you to Hannah and Susan, Botanic Garden rangers, as well as the garden staff who help by opening and closing the stand daily.

As always a big heartfelt thank you to our Guides, in particular Faye and Neil Fleming who have lead and up-skilled the guides constantly over the past 17 years to be the great ambassadors that they are. I say have, because Faye and Neil are retiring from the Guide leadership. We thanked Faye and Neil (in absentia) for their dedicated service to the Guides at the AGM but know that they will still be very active Friends. We are indebted to Susan Lawrence who has taken over the Guide leadership role. This is a large and time-consuming job which I am sure Susan will manage admirably. Thank you Susan.

With a lack of tourists to guide through the Gardens, the guides are changing the way that they do things. In October they will be conducting themed tours in the Gardens which I know will be extremely informative for local and national visitors. These tours will begin at the Kiosk and be offered twice on specific days of the week. Keep an eye out for advertising and bring your friends to enjoy these walks.

We are very grateful to our army of volunteers who look after the Kiosk on Fridays and Sundays. This is a very big commitment throughout the entire year. I am especially grateful to Nona Milburn who has taken over the coordination of these volunteers. It is great to be back in action after the lockdown.

We now have 15 Friends helping the section curators in the Gardens. I am sure the staff find this very helpful as they are constantly busy keeping our fantastic gardens in great shape. Thank you all for your help. My special thanks go to Jane Cowan-Harris who has taken on the coordination of this group of volunteers to help Richard Poole, who manages the curators.

Last but certainly not least thank you to those of you who pick up the 'casual' volunteer role. I can speak for both Wolfgang and myself when I say we are very grateful for those of you that drop what you are doing to help out at a moment's notice.

Our sincere thanks must go to Annette Burnett our newsletter editor who has taken on this huge job, following admirably in Bill Whitmore's footsteps. Annette spends many hours organising the articles for publication and chasing up authors. She has some dedicated proof readers to help but otherwise she is head down for a few weeks each quarter giving up her evenings and weekends to bring this great publication to you all.

Thank you to Wolfgang for taking on photocopying for the newsletter, this is most appreciated and saves us money, and to Claire and Mary for distribution. I am sure you all look forward to each publication as much as I do.

Website

Thank you to our longstanding webmaster Murray Dawson for his time. Murray willingly up-dates our website each year for which we are very grateful. If any of you have skills in this area we would love some help with social media.

Study/Financial Grants

Last year the committee awarded the following grants to staff.

- Tim Connolly, CBG trainee, to attend the Canterbury University Cass Field Station (Biology 305).
- Luke Martin, curator of the New Zealand plant collection, to attend The NZ Plant Conservation Network and Australasian Systematic Botany Society combined conference in Wellington.
- Dr Janet Cubey, volunteer herbarium curator, Lawrie Metcalf Herbarium, to attend the ninth Botanical Gardens Australia New Zealand Congress at Te Papa, Wellington. Janet has been generously using her expertise to get the BG herbarium fully functioning. You will find Janet working quietly away most Fridays.
- Heidi Connolly, collections curator at Mona Vale, to attend the 'Melbourne International Flower and Garden Show', March 2020. Unfortunately Heidi's visit was postponed because of Covid 19.

The committee are very pleased to fund these grants on your behalf to support the development of the staff and raise awareness of the Botanic Gardens. These grants are over and above what is funded by the CCC.

In addition to these grants the Friends funded a brochure on Notable trees in the Gardens. Thank you to the sub-committee of Penny Martin, Graham Chick, and Lachlan Hunter along with



News Letter Contents.

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Editors Note.

The insidious advance of climate change was underscored in tonight's news: raging fires in California and a chunk of ice the size of Malta breaking free from an Antarctica glacier: it is hard to deny the reality that we face.

Some of this spring's newsletter articles touch on that which has gone before, and contributed to the situation that we find ourselves in: Di Madgin outlines how polymath Alexander Von Humbolt was shocked at the damage to the natural landscape by the Spanish colonists and predicted human-induced climate change as far back as the 1800's: Joanna Orwin's summary of her address to the Friends on the kauri tree speaks of the massive destruction of our native forest over barely a 1000 years and Bob Crowder's notes on this past winter's climate is illustrated with the survival of a tamarillo plant by the Heathcote river, where once heavy frosts would have given it no chance at all.

The signs it would seem are all around us and though reversing the abuses of the past seems quite the overwhelming task, there are small things that each of can factor into our lives to 'push back' — Perhaps one of those things is taking an active interest in our beautiful Botanic Gardens. —

Annette Burnett.



From Director of Botanic Gardens and Garden Parks.

Dear Friends of the Christchurch Botanic Gardens

As I am writing this my wife Janet and I are celebrating a mile stone. We have been in this country and this city for two years. Thank you to all of you for a wonderful welcome to the Gardens and to your city and your country.

As you will learn from your President, you have been incredibly generous again this year; recently we had a mist unit installed to help us propagate our hardy plants much better. Luke and other team members are already busy filling it with native and exotic treasures for our collection.

A couple of months ago we unwrapped the new herbarium dryer. It is like a warming oven to help dry herbarium specimens more quickly. Currently our volunteer Curator has it set on about 37 or 38

degrees, very gentle heat and air movement but it results in much quicker drying and much better colour compared to normal drying.

To explore this wonderful country, Janet and I try to discover new places further afield for a weekend every month. Currently we are in a lovely hut near Blenheim where we visited the garden at Welton House, a wonderful journey through a range of plants and styles and varying microclimates. Wendy the owner and creator sends all of you her best wishes, remembering

the most recent visit by the Friends, where the garden and morning tea had been greatly enjoyed as had other local produce the evening before.

Thank you all for your continued help and please recommend this wonderful organisation to your friends and family to join, to have even stronger support for our Botanic Gardens.

Wolfgang Bopp.

Botanic Gardens Library

Kia ora Friends. Thank you once again for the much appreciated \$1200 annual grant from the Friends to the Gardens library.

I could not make your recent AGM as I usually would to display the books, so please refer to the following list of titles purchased from the 2019/2020 grant:-

Virginia Woolf's Garden: The story of the garden at Monk's House Caroline Zoob 2013

Tulips: Peter Arnold 2020

Flourish: New Zealand Women and Their Extraordinary Gardens: Juliet Nicholas & Barb Rogers 2018

Monet's Garden in Art: Debra N. Mancoff 2015

Beth Chatto: A life with plants Catherine Horwood 2019

The Accidental Botanist: The Structure of Plants Revealed Robbie

Honey: 2018

1,000 Years of Gardening in New Zealand: Helen Leach 1984

Farewell Silent Spring – The New Zealand Apple Story: Howard Wearing 2019

Heritage Apples: Caroline Ball 2019

Private Gardens of Aotearoa: Suzanne Turley 2019

Plant Tribe – living happily ever after with plants: Igor Josifovic & Judith Graaff 2020

The Flower Expert – Ideas And Inspiration For A Life With Flowers: Fleur McHarg 2018

Indoor Green – Living With Plants: Bree Claffey 2015

'Cherry' Ingram – The Englishman Who Saved Japan's Blossoms: Naoko Abe 2019

Yates Garden Guide – New Zealand's bestselling practical gardening book 2017

Kauri – Witness To A Nation's History Joanna Orwin Revised and Updated Edition 2019

Vintage Roses: Jane Eastoe 2016

The Good Dirt – Improving soil health for more successful gardening Xanthe White 2016

New Zealand's Native Trees: John Dawson & Rob Lucas Revised Edition 2019

I have placed them on the horizontal display shelving in the library opposite the herbarium window. So come in and have a look, or just come along and enjoy the wider collection and expand your knowledge on your favourite plants and plant topics.

For new Friends – Welcome.

You might like to know that we have a number of copies of the Gardens centennial book *A Garden Century 1863 – 1963* which is still a good historical base read and often popular with new guides.

How to access the library and take out a loan.

I work Monday to Friday so just ask for me at the Visitor Centre reception. If I'm unavailable then ask for the on duty Visitor Centre supervisor who will swipe you through to the library.

Sometimes it is better to make an appointment with me so that I can assist and guide.

If calling in on the weekend or public holiday, speak to the on duty Visitor Centre Supervisor and they will swipe you through.

Books marked "reference" on the internal cover may NOT be loaned but if an old style card is in a pocket then it can be loaned. Fill in your name

and number on the card which you can either leave with me or If I am not here, leave the with a Visitor Centre host at reception. The same applies for returns. Loan time 3-4 weeks.

House- keeping reminder, no food and drink.

LEVEL 2 CONTACT TRACING PLEASE SIGN IN AT RECEPTION OR USE THE QR CODE ON DOORS OR AT VISITOR CENTRE RECEPTION.

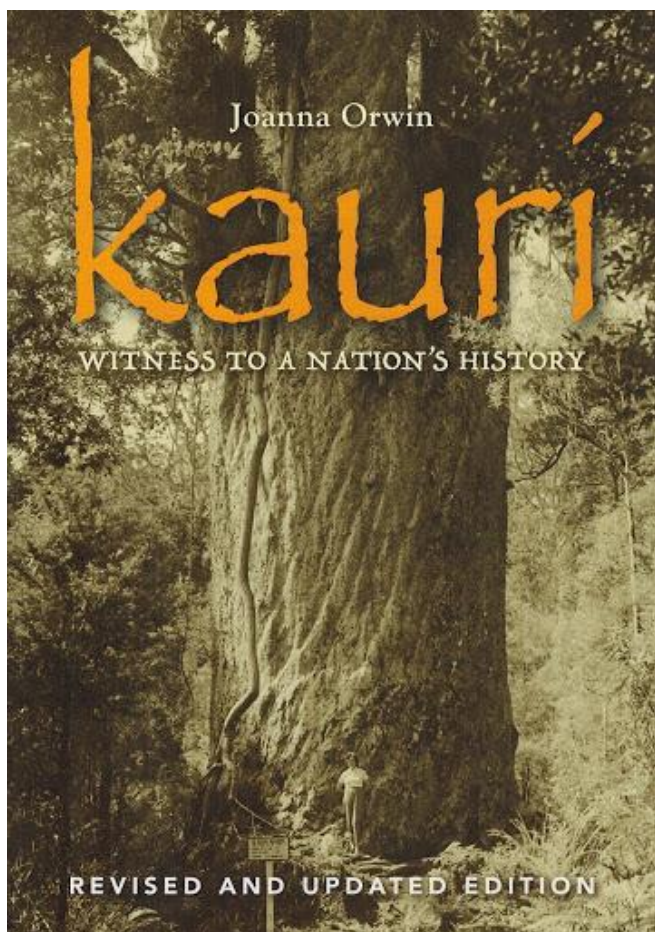
So come in and explore our unique botanical and horticultural collection of books, which is, the Christchurch Botanic Gardens library.

Sue Molloy
Botanical Resources Coordinator
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Articles

Kauri: Witness To A Nation's History



2: [Kauri: Witness to a nation's history by Joanna Orwin](#)

Joanna Orwin's August talk to the Friends 'Kauri: past, present and future', was wide ranging. After outlining the cultural and historical significance of kauri, Joanna focused on the botanical and

environmental aspects of kauri and kauri forest ecosystems. A brief summary follows:

The broad-scale geological history of kauri confirms its status as a member of one of the oldest still-existing conifer families. Fossil pollen records, subfossil tree ring data and molecular genetics provide evidence that kauri may be a true Gondwana survival. Kauri has persisted through millions of years of cataclysmic natural disturbances: the Oligocene 'drowning' of Zealandia, the volcanic and glacial activity of the Quaternary, and associated climatic changes. Its present natural range north of 38° latitude reflects that history.

The arrival of humans, first Polynesian then European, saw massive destruction of New Zealand's forest, including kauri. Over barely 1000 years, fire, both deliberate and accidental, was followed by timber extraction on a scale that reduced kauri forest to only 5% of its post-glacial extent. Despite that, kauri forest is still our most diverse and structurally complex forest, with many sub-tropical attributes and species. Little is known about community level ecology in these forests, and kauri's present apparent preference for ridges, spurs and plateaus is a human-induced distribution pattern.

Kauri's natural mode of regeneration is adapted to landscape disturbance on varying scales, resulting in mosaics of similar-aged stands of kauri that establish through 'nurse' crops of kanuka/manuka after forest destruction. Although young stands have established in this fashion

since kauri logging ceased, supported by many community planting initiatives, kauri is now facing yet another major disturbance – the emergence of *Phytophthora agathidicida*, a soil-borne plant pathogen that kills kauri of all ages.

The presence of this pathogen has been confirmed throughout the natural range of kauri.

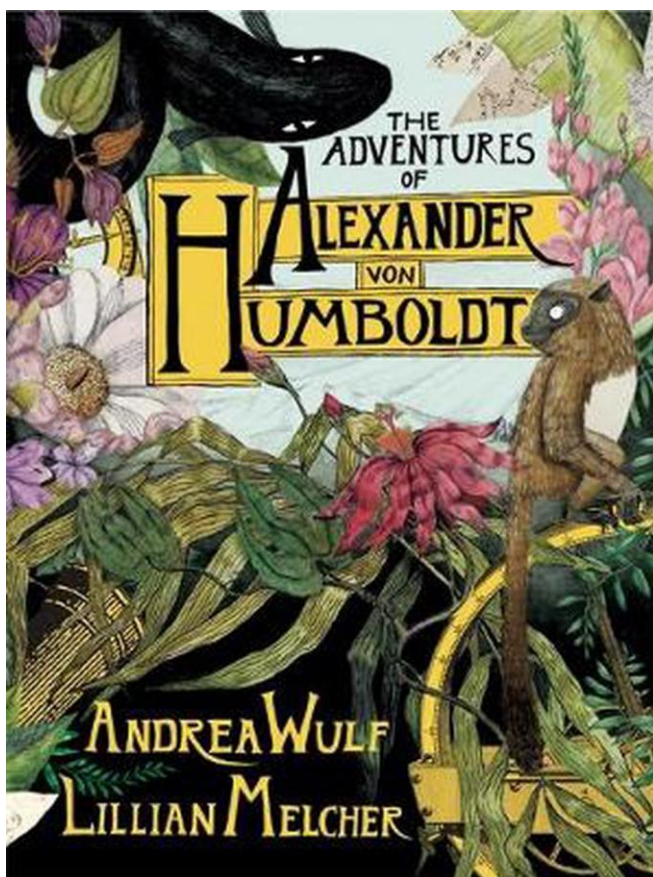
Although it was initially assumed to be a new invading pathogen, genome sequencing has now indicated that it has been here for at least 300 years. Many questions remain unanswered, including why has it emerged only now, its rate of spread, how long before its visible symptoms emerge (latency), and does it affect other

species. The Kauri Dieback Programme, set up in 2009 to combat the disease and answer such questions, has made some but not enough progress. The future for kauri remains uncertain. Kauri has survived millions of years of disturbances; only time will tell if it also survives this one.

Joanna Orwin.

Book Review: The Adventures of Alexander von Humboldt

By Andrea Wulf.



3: Andrea Wulf's book 'The Adventures of Alexander von Humboldt'

Alexander Von Humboldt was a world-renowned geographer, explorer and naturalist. He is widely recognized for his revolutionary work on botanical geography, laying the foundation for what is now

known as bio-geography that is the analysis of the distribution of plants throughout the world.

Humboldt was born in Berlin in September 1769 to a wealthy, aristocratic Prussian family. His family spent winters in Berlin and summers at a small family castle at Tegel about 10 miles from the city. The Humboldts had 2 sons, Wilhelm and Alexander. Their warm and loving father was an officer in the Prussian army and a chamberlain at the Prussian Court, but he died when Alexander was nine years old. Their mother was very wealthy but decidedly chilly. She had her boys privately taught by a long list of Enlightenment thinkers who distilled a love of truth, liberty and knowledge in their brilliant students. However she was insistent that her second son Alexander, who was driven by a sense of wonder for the natural world, who celebrated the connection between knowledge, art and poetry, and the bond between science and emotions, become a civil servant like his older brother Wilhelm. They had no alternative but to tow that line as she held the purse strings.

Humboldt did travel to England with his friend Forster, a German naturalist and when he saw some 1500 ships moored in the Thames and East India-men, with cargoes from all over the world he felt a desperation to see that world. When he saw palm trees in the Berlin Botanic Gardens he fretted to see them in their natural environment. His mother demanded he enrol in a prestigious mining college in Freiburg near Dresden, which did at least give him a leg into science and geology, and the latest thinking and theories in those subjects.

It took Humboldt 8 months to complete the 3 year course. Typically he rose before sunrise, rode to

the mines and spent the next 5 hours investigating the construction, working methods and the rocks. At midday he cleaned himself down and went back to the Academy. In the evenings he did his studies by candle light. He then moved his attention to his hobby; measuring, classifying and investigating the influence of light, or lack of it, on the thousands of plant specimens he had collected. From a young age Humboldt survived on very little sleep, coupled with naturally high energy. He was astonished that the miners knew so little and were without any protection. He invented breathing masks for them, and a lamp which lit the deepest mines. He wrote text books for the workers and founded a mining school.

Marie Elizabeth Von Humboldt died in 1796. She had never acknowledged her sons' achievements and neither Wilhelm nor Alexander attended her funeral. They were now free to pursue their interests and were very wealthy. Wilhelm and his wife Caroline moved to Paris. Alexander the polymath garnered a fine collection of new scientific instruments for measuring and experimenting with his passions for botany, geology, meteorology, zoology and astronomy. Throughout his life he published his findings to great acclaim. Humboldt climbed the Alps to investigate mountains because he planned to travel the world as soon as possible in order to find other mountains for comparison. He was desperate to find a country that would allow him to join a voyage which would at least grant him access to their colonial acquisitions, both land and people. Luck came when he travelled to Madrid in 1799 where King Carlos the 4th of Spain provided him with a passport to Spanish colonies in South America and the Philippines, in return for flora and fauna for the King's collection.

Alexander set off with his long-time friend Bompland, a field naturalist and easy companion, and Bolivar, a Venezuelan later to become a radical leader. They became famous for their extraordinary observations and experiences in Venezuela. Every single thing was grist for Humboldt's mill. Because his brain was instantly drawn to how something operated, the most frightening animals were more compelling than feared. Snakes, huge boa constrictors, a swamp full of enormous electric eels, his first response was excitement.

Humboldt set off for Venezuela with 42 instruments packed in velvet-lined boxes, vials for storing seeds and oil samples, scales, and reams of paper. The real purpose of his visit, he said, was to discover how all forces of nature are interlaced and interwoven. On 16 July 1799 after

leaving Spain they reached Camará, the capital of Andalusia, a province within Venezuela which itself was part of the Spanish colonial empire that stretched from California to Southern Chile. It was ferociously hot. They dressed simply in the loosest clothing and they took advice from the native people on what food was edible and how to stay safe with so many wild animals. Suffice it to say that even at that time, Humboldt was shocked at the damage to the natural landscape wrought by the Spanish colonists as they 'developed' huge swathes of land and altered natural water systems in the pursuit of production. Humboldt remarked that colonists, whenever and wherever have always denigrated and exploited native peoples and their land. His research led to discoveries of similarities between climate and vegetation zones on different continents and even in the early 1800s he predicted that human-induced climate change was inevitable.

On 23 June 1802 Humboldt and Bompland climbed Mount Chimborazo, a beautiful, dome-shaped, 12,000 foot inactive volcano in the North Ecuadorian Andes. It was believed then to be the highest mountain in the world. Humboldt was obsessed with scientific observation and the 32 year old had brought with him a vast array of the best instruments from Europe. "For this ascent he had packed a barometer, a thermometer, a sextant, an artificial horizon, and a cyanometer to measure the blueness of the sky."



4:Humboldt and companion at the base of Mount Chimborazo.

Standing exhausted on Chimborazo, Humboldt felt completely removed from the inhabited world. No-one had ever climbed this high before, or breathed such thin air. He began to see the earth as one great living organism where everything was connected. And no-one had looked at plants like this before, as types according to their location and climate. Humboldt could see down to vegetation zones stacked on top of one another. In the humid valleys he had passed through,

there were palms and bamboo forests where orchids were attached to the trees. Higher up were conifers, oaks, alders, and shrubby berberis similar to those he knew from European forests. On the highest slopes alpine plants were like those he collected in the mountains of Switzerland, and lichens that resembled specimens from the Arctic Circle and Lapland. "Here was a man who viewed nature as a global force with corresponding climate zones across continents."

Back home in Berlin, Humboldt's scientific work, his observations and his prolific publications on the connectedness of the globe earned him an immense following throughout the world, and

membership to all the venerable learned institutions. Humboldt desperately wanted to get to India to explore the Himalayas, but when that didn't come his way he was offered an all-paid coach journey to Siberia by Tsar Nicholas the First. Here he would research the Ural mountains and the Central Asian Steppe, and report that research into best-selling books that changed science and thinking. His radical vision of nature, that it is a complex and interconnected global force, that it does not exist for humankind alone, speaks loudly to us today.

Andrea Wulfs' book is an intense experience packed with the author's brilliant research that won her the Costa biography award and untold accolades. It is written for "every reader" as indeed Humboldt's voluminous outpouring of books and essays were. Every one of the up to three thousand letters written to him each year he answered in person. Humboldt's writings inspired great men to their best ideas, poets and naturalists such as Darwin, Wordsworth, Goethe, Thoreau, Thomas Jefferson, Theodore Roosevelt, Ralph Waldo Emerson, and Ernst Haeckel. Humboldt's influence inspired John Muir to his ideas around natural preservation, and eventually to the protection of Yosemite Natural Park.

Humboldt's restless life, his unstoppable curiosity, led to the Prussian king pronouncing him the greatest thinker on the globe. It is as timely now for us to sit up and take notice of his words as it was when Alexander von Humboldt died in May 1859 in Berlin. He was 89.

Diana Madgin.

Musings From a Herbarium

A Memorable Visit to Te Papa

For some inexplicable reason I seem to briefly be in favour with the gods of the natural world. Maybe they have watched me 'bottom up' in the Herbaceous Border in the Gardens, teasing out the roots of bishop weed, while hoping my supervisor will not notice that I am kneeling on a precious geranium. Whatever the reason, Tane and his colleagues arranged a special treat for me, on a recent visit to Wellington.

The city was full of botanical taonga. Spring was waking up their Botanic Gardens and the first magnolias were a glory of pink and white.

Zealandia was awesome and allowed me close ups of birds I had only ever seen in photos, like kieke (saddleback), kakariki (red crowned parakeet) and the resident pair of takahe.

Before we left Wellington, there was one more delight to savour, and this was a complete surprise.

I went into Te Papa to book a guided tour. By chance, there was a very special one leaving in a few minutes, arranged by the Friends of Te Papa — a visit to the Herbarium —. There was a cancellation – and I was in!

We were led through a secret door, behind the Gallipoli exhibition, down a long corridor, while guns boomed behind us and stopped before the Herbarium door.

Dr. Leon Perrie, one of the two Curators, was our guide. Before proceeding, we needed to know that no plant material could be allowed in and none could be removed. Sadly, we were all past the age of having blossoms in our hair and so could enter without hindrance.

The Herbarium looked like a cross between an enormous left luggage area and a shoe shop. It was filled with long shelves that reached from floor to a high ceiling. These were filled with identical cardboard boxes. Inside each were dried plant specimens, mounted on paper. Along one wall was a bench with microscopes and work areas.

Te Papa has about 300,000 plant specimens, but Leon confessed, "nobody is exactly sure". It is the third largest in the country after Manaaki Whenua (Landcare Research) at Lincoln and Auckland Museum. Te Papa has the biggest number of Type Specimens, of any New Zealand collection. This is a 'sort of' botanical gold standard....but you knew that anyway!

Looking after plant specimens, up to 250 years old, requires great care but the basics are no different from something we all started doing as children — pressing flowers. Here, that process begins with the plant material being placed between sheets of paper then sandwiched between cardboard. Layers are placed in a plant press, a wooden frame that can be screwed down, not unlike the press used to hold wooden tennis racquets — older readers will remember! This is placed in a drier before the specimen is mounted on acid free paper.

I think we all had two responses to this process; remembering a childhood excitement and relief that there is a branch of science, where simple technology remains the best. Record keeping has taken full advantage of the digital age, however and over 200,000 specimens at Te Papa can now be viewed on their on-line database.

One would think this a wonderfully benign activity but there are hidden dangers. For example, some older specimens were coated in arsenic or mercury chloride!

The atmosphere needs to be very dry as book lice thrive in humidity and would happily chomp their way through the collection.

That is a horrifying thought. Its scariness was underlined when some amazing taonga were produced. A box was carefully opened and inside were the very specimens collected by Daniel Solander during the Endeavour explorations in 1769/70. There was a sudden collective intake of breath among us visitors, as if a major celebrity had suddenly entered the room. Leon said he still gets a 'gooseflesh' moment when he opens these boxes.

These were the first ever plants from Aotearoa to leave its shores. They travelled in the cabin with James Cook, they were so important. So precious were they, that when everything else was being jettisoned to release the Endeavour from the Great Barrier Reef, these stayed. They created a sensation when the Endeavour returned to Europe, along with the drawings and paintings made by Sidney Parkinson of plants, animals and landscapes from the Pacific.'

We all took turns to draw close and take photos. The two specimens I concentrated on, were juvenile lancewood leaves and hydrocotyle. They were instantly recognisable, despite their great age. It was heartening to observe the awe generated by a little vilified plant like hydrocotyle and to think it is still having moments of glory.

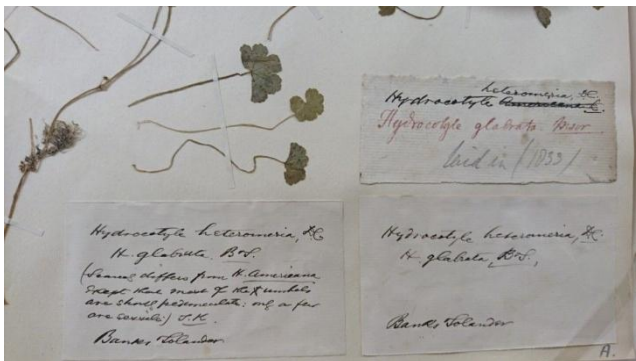


5: A specimen of *Pseudopanax crassifolius* collected by Banks and Solander.

Apart from the plant press there was more reassurance that while modern botany is a cutting edge science, it has not lost itself in genomes and digitisation. An example of this is the story of one genus of New Zealand's tangle ferns, *Gleichenia*. It was long thought there were only three species of these delicate plants. However, detailed comparisons under the microscope revealed differences sufficient to declare a new species, *G. inclusisora*. When plants are closely related, their genetics are likewise very similar and so not especially helpful. While it holds on to the best from the past, Taxonomic Botany is embracing modern technology and communication. Leon drew our attention to websites from www.nzflora for the specialists to www.inaturalist, where anyone can post a photo or sighting and have it identified.

I came away feeling extraordinarily privileged. That hour was like reaching back to see history in the making, while being given a view into the future and realising that science, like life, is constantly evolving. These specimens may seem dried up and irrelevant to some but they are the only record of how that New Zealand plant actually was, before Europeans arrived. They were collected by people who had a hand lens and not an electron microscope but they, like us shared a fascination for the natural world and they were prepared to sacrifice their lives to explore it.

Laura Jones
28/08/2020



6: *Hydrocotyle* collected by Banks and Solander.

Winter Weather Notes.

Another mild winter, indeed NIWA has just announced that it has been the mildest winter on the national record going back to 1909. How does this stack up locally?

At this site on the flat and on the banks of the Heathcote River all the temperature records show values above the long term average. Frost frequency has been below average for quite a few winters now. At this site a black bird has been able to walk across the bird bath on the ice on perhaps just one morning over the winter three months period and the extreme minimum of -2.3C on 24th July was hardly plant damaging even to the tamarillo plant.

I only really take note of screen temperatures in a Standard Stevenson screen with meteorological pattern thermometers but I do put out a grass minimum thermometer on occasions when frost threatens; both the 24th and 25th of July gave readings of -4.0 C. It is worth noting here that over the 40 years at this site an air minimum of -5.5 C has been recorded on several occasions over the years and certainly no tamarillo plant would come through that.

Other features of winter this year was the great gloom in June, when one week had just 2 hours of sunshine, yet things improved for the rest of June with the sunshine levels ending up very close to the average with 394 hours [av. 391 hrs.].

Rainfall was also of note with a very welcome wet June and early July producing above average rainfalls of 198.2 mm [av. 149.7 mm] and bringing soil moisture deficits after a dry summer back up to soil moisture capacity.

Something to keep in mind however is that August rainfall of just 9.8 mm was the lowest on my record. On average we can expect 82.9 mm. Winter precipitation stands at 208 mm [av. 243.6 mm] so keep an eye on this and hope that the spring rains of La Nina do eventuate or be on the safe side and install a few water butts on your roof down pipes, an easy thing to do in the interests of conservation.



7: A few water butts to collect rain water is a good conservation measure.

The winter ended on a brilliant note with a winter heat wave, the mean maximum on the three days 29-31st August a warm 20.3 C with an extreme on the 30th of 22.4 C and record breaking 24 C to 25.5 C in other areas.

The result of all this was spring really did arrive on the 1st of August rather than the 1st of September which as it happened was a winter day which produced the biggest dump of snow on the local club ski fields and led to a late start to their ski season.

Cheers for now.
Bob Crowder.
5/09/2020.



Awards Given at the AGM.

This year at the AGM two people were awarded the 'Life Membership Award' for long and outstanding service to the Friends. They were Di Madgin, and Nedra Johnson. (Nedra was absent from the AGM)



7: Di Madgin receiving her Friends Lifelong Membership Award. (Wolfgang Bopp on right)



8: Faye Flemming on the right being acknowledged for her long standing service to the Friends. (Penny Martin on the left).

Faye and Neil Flemming were also acknowledged for their long standing service to the Friends (They are already life long members) as Faye

briefly outlines below. (Neil was absent from the AGM).

"Neil and Faye were fortunate to have enough gumption to join the Friends of the Botanic Gardens in the early 1990s. Faye enjoyed the challenges involved in 30 years, moving through as a member, then a committee member and later for two terms as your President. As one part of the *Fleming package* Neil got involved in driving the electric toast-rack vehicle, while Faye provided the visitors with a commentary. Before our very first tour around the Botanic Gardens we invited our visitors to tell us where they had come from, and where they had sparked their enthusiasm for Botanic Gardens? One passenger in the vehicle said that he worked at Kew Gardens. That was almost the end of Faye's commentary but she was rescued by the fact that he was quite gracious and she knew the Christchurch Botanic Gardens better than he did. Our interest in education led to the formation of a formal training programme to add to our numbers of guides for the 90-minute excursions

Thank you for the gift of flowers and a bottle to give Neil lubrication and for the very kind words that were used for us. We also have a host of memories and a lovely collection of friends and will continue in new and active roles."

Faye Flemming.

WORLD PEACE BELL UPDATE.

MONDAY THE 21ST OF SEPTEMBER

WE WILL GATHER AT THE WORLD PEACE BELL AT 2.30 PM.

This is the United Nations International Peace Day. It is the day when the UN asks for armed conflict to cease. The 2020 theme is Shaping Peace Together. It is derived from the idea that several countries joined together to combat Covid-19.

We have speakers and the message from UN Secretary General, Antonio Guterres, will be read. This is one event we were obliged to hold as a condition of our bell being gifted.

Spring will have sprung by the third week of September. Cherry blossom trees near the peace bell pavilion will likely be in glorious bloom. An ideal time to be in Christchurch Botanic Gardens!

ANNUAL CHERRY BLOSSOM PICNIC

SUNDAY THE 29th OF SEPTEMBER

HALSWELL QUARRY FROM 11.00AM – 3.00PM



9: Halswell Quarry Park in full bloom. (Google images)

Join the annual cherry blossom picnic, held in the Kurashiki Sister City Garden at the Halswell Quarry. Bring your own drink and food. Enjoy a wealth of Japanese culture. This event is popular with World Peace Bell People. Cancelled only if wet.



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