

Newsletter

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

No 112, Winter 2018

President's Report

May heralds in shorter days, cooler temperatures and sometimes, like today, over-cast skies. I think that I am ready for the winter months and have really enjoyed a lovely autumn with spectacular colours. As I round up the fallen leaves to compost I spied new shoots, both flower buds and leaves, pushing through my hellebores and can't wait to see the flowers.

Since our last newsletter Dr Antony Shadbolt, recently appointed Biodiversity Team Leader, gave us a very interesting talk on Native Forest Restoration in Christchurch. Following this David Barwick, section curator, took us on a very informative walk to the Asiatic border during April, completing a really busy three days of the Autumn Garden Show.



Lynda Burns, Team Leader Visitors Experience, explaining the Bio-diversity project

At the Garden Show the Friends shared a stand with the Botanic Gardens and I believe this was most successful in showcasing part of what the Friends and the Botanic Gardens do. The second Backyard Mistletoe Project and a future Backyard Bio-diversity Project, proved very popular with many signing up to take part. I will be calling for volunteers to help with both these projects in the near future.

The Friends promoted the Horticultural Hub, and our wonderful Guides offered 'Themed half hour walks' which were taken up by fifty local visitors. This was an excellent outcome and we have had new membership applications as a result of our presence at the show. A very big thank you to all those Friends who gave their time and expertise so willingly.

Our Growing Friends held a plant sale on the Saturday of the show and made a tidy profit of over nine hundred dollars. Many thanks to all those who helped with this large, important sale.

During April the Committee put forward a submission to the City Council Long Term Plan, explaining why it is important for the Council to spend more, not less, on the Botanic Gardens. New management positions are currently being filled and I feel we are ready to see many things happening within the CBG which have been on hold for nearly two years. Watch this space.

While the Horticultural Hub is closed at the Old Information Centre for the winter we will however keep the service alive through the CHS Facebook page "Hort Talk". People will be able to ask Hub questions through this service. When this is up and running I will let you know how to access this site.



Diane Boyd, Conservatories Collection Curator and her assistant Paula Silva tending the Kalanchoe

I am very pleased to announce that the Committee has recently awarded four Study/Financial Grants to garden staff. We will hear reports from these applicants either through the Newsletter or as a featured talk at a later date. Congratulations to the following staff for their successful applications:

- Keely Gwatkin (Park Ranger), attendance at Green Pavlova Conference (Day 2)

- Amy Johnston Bray (Interpretation and Exhibition Designer), attendance at Museums of Aotearoa Conference “Outside Insights”.
- Sue Molloy (Botanical Resources Coordinator), “Historical Research: the people and projects of the first 50 years of the Christchurch Botanic Gardens,”
- Heidi Connolly, Victoria Taylor, Angela Reid (Trainees), “Educational Tour of Southern Gardens” (Timaru, Oamaru, Dunedin and Larnach Castle).

I visited a haven of warmth and colour in Townend House at the Gardens today. The tastefully displayed *Kalanchoe* and *Cyclamen* were a riot of colour. It is a great place to visit on these cooler days. While you are there have a chat to Diane or Paula who keep these plants looking immaculate.

A welcome introductory walk and afternoon tea for the twenty three new Friends (joined since the end of 2017) will be offered on the 24 May. Many of these folk have already been active volunteering in a number of different ways. Thank you to all who volunteer, your work is much appreciated by the garden staff.

Keep warm and enjoy the sun when it shines.

Jeanette Christensen

Garden News

Winter volunteer opportunity – Kidfest 2018

The Botanic Gardens is looking for volunteers to supervise the Old Info Centre for Kidsfest between Saturday 7 July and Saturday 21 July. Volunteers will need to keep an eye on the Centre and be happy to do a 3 hour shift. Shifts will be either 10am to 1pm or 1pm to 4pm. If you'd be interested in getting involved then please contact Hayley Luke on Hayley.Luke@ccc.govt.nz or 03 941 5498.

Luke Martin – section curator, NZ plant section

Thanks to Hayley Luke for organising this contribution from new(ish) section curator, Luke Martin. Luke recently treated the volunteer guides to a tour of the native section of the Gardens; the tour was of great interest and we were very impressed by Luke's enthusiasm.

My name is Luke Martin and I am the new collection curator for the New Zealand plant collection. I have a long running interest in art, conservation and environmental restoration and have worked for the Department of Conservation and the Christchurch Botanic Gardens most of my working life.

I completed a bachelor's degree in design. My focus was on New Zealand birds and conservation as my theme and inspiration for my art. Upon finishing my degree I decided that “getting the message out there” through my art wasn't enough. With less than 1% of Canterbury vegetation left I set a new life goal and set out to learn about New Zealand plants and how to regrow a forest! I posted a letter to all the native nurseries in the phone book and the following day got a part-time job in a small backyard nursery in Cashmere that specialized in eco-sourced natives. This was my introduction to botanical Latin names, Canterbury plants, seed-cleaning, sowing, pricking-out and growing-on of plants.

I was lucky to get a job with DOC trapping rats and stoats in Arthurs Pass National Park. This led on to a few years of nest-finding work with orange fronted parakeets and mohua/yellowhead. I thoroughly enjoyed those summers living in huts, traversing the valleys looking for parakeets and learning the plants of the mountains.

One winter in the off season I saw by chance a job advertised at the Christchurch Botanic Gardens and decided to give it a go. I was fortunate to be taken on as a horticultural trainee and spent three

years at the Botanic Gardens learning about the plants of the world, bedding flowers and a new array of native plants from the North Island that I had not previously met on my travels. While at the Botanic Gardens I was lucky to take part in a number of training experiences. I received funding from the Friends of the Botanic Gardens to attend the biology field course at Cass and volunteered at the Tasmanian Royal Botanic Gardens in Hobart and the Auckland Botanic Gardens.

When I finished at the botanical gardens I returned to DOC carrying out bird and vegetation surveys throughout the South Island – this was really the most amazing experience as I got to see such a huge range of vegetation types and ecosystems! I was granted a “staff development” trip to the Chatham Islands to take DNA samples from Forbes and Chatham Island parakeets. Here I saw the great work DOC has been doing to restore the vegetation on Mangare Island to increase habitat for black robins! From that trip I was invited to Norfolk Island to survey Norfolk Island parakeets. It was so interesting to see the related and shared plants of this neighbouring island!



Luke in the Chatham Islands with a Forbes parakeet

For the last four years I have been working at the Motukarara Nursery growing 130,000 Canterbury eco-sourced plants a year for revegetation projects (life goal achieved) and threatened plants for different restoration programmes (including

Mangare island plantings). This got me out and about around Canterbury visiting the few remnants left to collect seed for growing on. It's pretty amazing collecting seeds from some of the last groups of trees in Canterbury and producing thousands of young plants for planting out.



Castle Hill buttercup grown at the Motukarara Nursery

I have to pinch myself now that I'm back in the Christchurch Botanic Gardens as the curator of the New Zealand plant collection. It is amazing to see this “bush” here in the central city after around 100 years of growth – it is a great inspiration to think of the thousands of plants that go out the door from Motukarara and all the other native nurseries each year! One day they will form a great patchwork of Canterbury vegetation that the native birds can inhabit as they do here in the Botanic Gardens.

I have big goals for the Botanic Gardens New Zealand plant collection that I have been dreaming about since I was a trainee and I can't wait to get stuck into it. There are many small changes and tweaks I wish to make in the New Zealand plant collection and you may notice these slowly happening over time. Currently I'm into ferns as I feel there is nothing more quintessentially Kiwi about our forests than our wonderful fern diversity. I have been busy planting ferns in prominent locations and adding to the fern diversity around the icon garden this autumn. Through the winter I will be thinning out some of the natural regeneration that is taking over areas of the bush.

One of my main priorities is the development of the Canterbury dry shrub land collection. I feel it is important to highlight the local ecosystem, a plant community that is extremely rare and not well known. "The Canterbury plains... it is now one of the most depleted New Zealand regions, in terms of loss of native flora and fauna. Less than 0.5% of the plains still supports native vegetation" (Meurk, C., 2004). "The loss of these native plant communities has reached a point where habitats for our native wildlife have been reduced to a level where they are now insufficient for continued survival" (Christchurch City Council, 2004). "Canterbury is an extremely important place for native plants and associated wildlife, with almost 25% of New Zealand's threatened flowering native plants species" (Native plant communities of the Canterbury Plains, Department of Conservation, 2005).

Developing a Canterbury plains plant collection provides a great opportunity to showcase local threatened and unusual plants and provide an ex-situ setting for local plant conservation initiatives. It will also serve to show Canterbury plains species that are drought tolerant and do well in dry Canterbury conditions, similar to the "drought tolerant" display garden. One day this shrub land will provide an environment where we can reintroduce some Canterbury's local threatened species like lizards and weta so they too can find a safe home to thrive like our forest bird species do in "the bush" section.

The Canterbury plains shrub land is intended to run down to a wetland margin along the lake where I plan to open up views of the lake, and install a

showcase wetland/lakeside boardwalk as seen in Travis Swamp. There are many great opportunities to showcase our local reserves and promote local ecosystems.

One of the more visual changes is happening along the river. The old overgrown *Pittosporum* cultivar beds are being removed to develop the Canterbury lowland podocarp forest. I am excited to source all my plants from local forest remnants through the Motukarara Nursery to build on the existing kahikatea growing along the river bank. This area is also destined for parts of the Mahinga kai trail, showing traditional usages of waterways and the plants Maori used for food collecting. I will be working with local iwi to design sculptures and interpretation for this area and hope to incorporate rongoā (Māori medicinal plants) into the design also.

Work to enhance the Cockayne memorial garden includes the creation of a Chatham Island/offshore island collection. Some of these plants already exist in the collection but an effort will be made to group these plants together. I am looking forward to redeveloping the native cultivar collection around the Cockayne garden, building and refining the work done by Lawrie Metcalf to showcase native plants suitable for home garden use.

I am quickly realising there are not enough hours in a week to achieve all my goals! I know I've got my work cut out for me and have to take it all in steps, but I look forward to the challenge and am dedicated to the goal of making this one of the best New Zealand plant collections around.

Articles

The New Zealand garden in the Savill Garden

After seeing "New Zealand gardens" in a number of different countries I have often been rather disappointed. New Zealand plants that are tough and grow like weeds at home, can struggle to thrive, let alone survive, elsewhere in the world, especially in Northern Hemisphere countries. For example, the New Zealand garden in the well-

regarded Geneva Botanic Gardens is rather sad and unappealing.

There are exceptions. Frankfurt's Palmengarten has a sub-Antarctic collection containing many New Zealand plants growing in the absolute peak of health. But this is achieved at some considerable effort and expense; the collection is enclosed in a sizeable glasshouse in which the weather conditions we are used to are reproduced. This includes a constant "wind" blowing through the

glasshouse to mimic the winds that we experience over so much of the year.

On a visit in early August 2017 to the Savill Garden in England it was pleasing to see a particularly good New Zealand garden.

This New Zealand garden was originally created to house a collection of native plants given to the Queen on a state visit to New Zealand in 1986. Over the years since then new plants have been added but the demolition of an old restaurant in 2006 gave the opportunity for a significant expansion. The innovative design of the new upgraded garden is by Sam Martin, a London-based New Zealander. He emphasizes the textural qualities of New Zealand plants, concentrating on species that will be reliably hardy in the English climate. The new garden was opened in 2007 by the Duke of York.



Two views of the NZ garden in the Savill Garden

The Savill Garden, covering about 35 acres, is one of Britain's finest ornamental gardens. It is in an enclosed part of Windsor Great Park and managed by the Crown Estate. It was created by Eric Savill with the support of King George V and Queen Mary. Eric Savill (1895–1980) had served in the First World War and was awarded the Military Cross at the Battle of the Somme in 1916. He returned to Cambridge University in 1920 and like his father, Sir Edwin Savill, became a chartered surveyor. From 1930 until his retirement in 1970, Sir Eric was involved in managing the Windsor Crown Estate, which includes Windsor Great Park. He held various posts including Deputy Ranger and Crown Estate Surveyor from 1930 to 1958, Director of Forestry and Gardens from 1958 to 1962, and Director of Gardens from 1962 until 1970.



Eric Savill

Although the garden was started in 1932, because of the intervention of World War 2, it could not be completed until the early 1950s. Immediately following the war Savill used bricks from bombed houses in the East End of London to create the Walled Garden. He opened the Garden to the public in 1951 and left it as a heritage to the nation. It had originally been known as the Bog Garden, but in 1951 George VI asked that it be renamed in honour of Eric Savill. Savill was knighted in 1955

In creating the Garden Savill used the natural features of Great Windsor Park including lakes, woodland, streams and heaths. The Savill Garden mixes native and exotic species and has bred many important garden hybrids. There are many gardens within the Garden. As well as the New Zealand garden there is the spring wood, the summer wood, the hidden gardens, the summer gardens, the

glades, the autumn wood, the azalea walks and the Queen Elizabeth (referring to the Queen Mother) temperate glasshouse.

In June 2010, a new contemporary rose garden was opened by Queen Elizabeth II. It is interesting and innovative but did not appeal to me greatly. (I much prefer the central rose garden in the Christchurch Botanic Gardens.) I could not see the rationale for its elevated walkway. And the flower colours of the many different rose varieties seemed so muted as to be rather wishy washy.



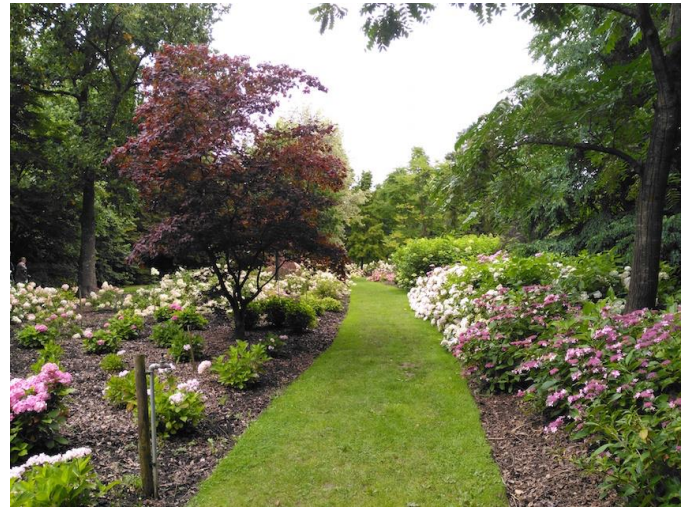
The rose garden and elevated walkway.

What did impress were the extensive herbaceous borders. The British know how to do these well and the ones in the Savill Garden are magnificent. And the collection of hydrangeas was the best I have ever seen.



An herbaceous border, Savill Garden

A comparatively recent addition, in June 2006, is a specially designed new visitor centre, the Savill Building. The wavy roof is particularly impressive



Hydrangeas in the Savill Garden

and is an architectural triumph. The timber for the floor and roof came from the Windsor Estate.



Savill Building, the wooden gridshell roof.

I can recommend a visit to the Savill Garden. You can reach it by public transport. My wife and I walked there from Windsor town. This involved a hike of about 1 and half hours – along the full length of the Great Walk - and then on a bit further. To return we caught a local bus back to Windsor where we were staying.

Bill Whitmore

Mona Vale and its Grand Lady

One significant achievement for which the Christchurch City Council can take credit is the restoration of the earthquake damaged Mona Vale homestead. It seems an appropriate opportunity to reprint the story of the history of Mona Vale. It is based upon an article prepared by Diana Madgin for the Newsletter 12 years ago.

Mona Vale is Annie Townend's story: she named it, she developed it. My short history of Mona Vale offers a look at the life of this remarkable woman within the context of the garden story itself.

Mona Vale is that jewel in the Garden City crown that doesn't get quite the glory it deserves. With Cantabrians, that is. For Asians and North Americans, it's another story. On a fine day in October, they are all there, enjoying the sun dimpling the waters, feeding expectant ducks, the waft of azaleas every which way, the wondrous tulip tree, *Liriodendron.tulipifera*, just about to pop its limey cups, the thick froth of flowering cherries in the palatial gardens over the river. And that was just the first hundred yards!

Mona Vale has always been botanically interesting. Its original owners, the Waymouths, bought the land from the Deans in 1897 and named it Karewa. Alice Waymouth was a keen amateur botanist and planted some of the trees that are still there. The Waymouths had a four-acre garden and built the neo-Elizabethan house. In 1905, Annie Quayle Townend paid six thousand pounds for the property, added another nine acres and renamed it Mona Vale after her mother's birthplace, a sheep station on the Macquarie River in Tasmania.

I don't think Annie had a particularly happy life. Her father, George Moore, had come to Tasmania from the Isle of Man, invited by his friend Robert Kermode, whose sister he married in 1839. It was an unhappy marriage with four children; two died in infancy and one later, by his own hand. Annie was born in 1847.

At age three, little Annie was sent back to England to live with an aunt when her parents separated. At nineteen, she came to New Zealand to live with her father, who now owned Glenmark Station at Waipara. George Moore had 150,000 acres there and later, in partnership with Annie's uncle, Robert

Kermode, bought Longbeach, then Wakanui next door, and Rokeby at Rakaia.

The wealthiest man in New Zealand maybe, but George Moore was not popular. Known as "The King of Scab" because he wouldn't dip his sheep, Moore was mean and jealous of his money, terrified that his daughter would marry and fritter away his wealth. He made it clear that marriage would compromise her inheritance, and he kept a very close rein on visitors, especially men.

He did, however, help Julius von Haast recover the large clutch of moa bones found on Glenmark and helped transport them to the Canterbury Museum, a foundation collection. He also built an extensive garden at Glenmark, which would have strongly influenced his daughter Annie's choice to buy Mona Vale.

Thelma Strongman writes that Glenmark was probably the most fashionable Victorian garden in Canterbury in the 1880s. She describes a sweeping carriage drive with clipped box hedges and parterres surrounding the house. Doulton vases graced the corners of low walls. There were several glass houses, a system of hot houses and an aviary, where Annie kept canaries. Twenty-five dozen loaves of bread were delivered each week to feed the ducks, swans, peacocks and emus.

The fabulous home at Waipara was burned to the ground in 1881, three years after its completion - and uninsured. Annie and her father moved to Christchurch. By then, "Scabby Moore" was an old and broken man and had become blind. His obsessive control on Annie's social life forbade all male visitors to the house excepting his elderly lawyer and middle-aged doctor. By a stroke of luck, her father's blindness made it possible for Annie to enjoy two years of secret marriage to the doctor, Joseph Henry Townend, who was 53 - her own age - but in poor health. Dr Townend lived a few doors away from his new wife. Two years later, in 1902, their short-lived happiness ended in his death, and three years after that, Annie's father died, too. He never learned of the marriage, and his daughter inherited all his wealth. One million pounds made Annie Townend the wealthiest woman in New Zealand.

Mona Vale was Annie's town house. She also owned a large property on the Esplanade in Sumner with house cows and a model dairy. Her

cowman was permitted to give surplus milk to less fortunate residents, infuriating the local borough councillor, who was the town supplier. He had Annie's dairy condemned, and her indignation took the town by storm when she arranged for a very young W H Williamson, just setting up his own construction business, to use two traction engines to draw the house from Sumner, along Ferry Road and up the dirt track that was Dyers Pass to rest in two parts on Macmillan Avenue. Annie lived with her housekeeper at Glenholme, number 8, and her coachman lived in the smaller wing of the old house at number 3 with the stables nearby. Annie employed 24 servants between her two homes.

time a fernery was about the trendiest feature a serious English gardener could possess. Indeed, New Zealand was known in England as the "Land of the Ferns". At the exhibition there was rapturous praise for these, "the sweetest of Tane's children, all plumed and feathery fronded." After the exhibition, Annie Townend bought the fernery for five thousand pounds and had it dismantled and moved by horse and cart to Mona Vale.

The fernery is an oval structure, 25 x 19m, supported within by ornate wrought-iron arches. Iron pillars and rafters were covered in cork bark to provide a base for ferns to sprout. Outside, concrete buttresses support the double-skin brick wall. The open lattice roof was covered by a green glass dome during the Great Exhibition, but that was removed and used for the new conservatory at Mona Vale.



Mona Vale homestead

At Mona Vale, her stables were at what is now 48 Matai Street West, complete with gold-lettered horse names and the red carpet laid down when she visited. I discovered her black coach, with monogram still visible, at the Yaldhurst Transport Museum.

Annie Townend built the gatehouse in neo-gothic style, emulating the gatehouse at Glenmark. She also built the bathhouse and the Edwardian-style bridges over the Wairarapa and Waimairi Streams. But without doubt her most unusual and rare bequest to us is the fernery. The fernery was one of the most remarkable buildings at the Great International Exhibition, 1906-7, staged in Hagley Park. It contained a collection of eighty species, mostly from the mainland or coastal islands. At that



Inside the fernery

Following Annie Townend's death in 1914, Mona Vale had a succession of owners before Tracy Gough bought it in 1939. Gough was an outstanding gardener and added a fine collection of trees, particularly maples. He also planted rhododendrons and azaleas (Edgar Stead's Ilam Garden was just down the road.). The Buxton

Bridge leading to the island in the Avon and the charming Edwardian lily pond were his additions to the garden landscape.

After Tracy Gough's death in 1954 followed by his wife in 1962, the property fell into disrepair. Mona Vale was saved from demolition and subdivision by the Civic Trust, which appealed to the public for funds in 1967. There was a generous response, and two years later the citizens of Christchurch were the owners of what was to become one of the city's star attractions. Since then, many organisations and groups have volunteered their time and expertise for renovations on the buildings and in the garden. The Rose Society and Heritage Roses designed the fabulous rose garden and still work to maintain it in partnership with the Botanic Gardens.

In Annie Townend's day, there was an iris water garden, fashionably Victorian. In the 1980s, C S Thomas gave Mona Vale his bearded iris collection as the foundation of a new iris garden. A decade later, the McLeods of Skyedale created a camellia and rhododendron garden to frame the elegant sundial they bequeathed to the memory of their plantsman son.

In the 1990s, two comprehensive collections of ferns were added to the restored fernery: Akaroa plantsman Eric Ericson donated his collection of more than 300 ferns just a month before he died in 1992, and Landcare Research gave its collection of mostly South Island ferns.

In 1997 an ornate, Edwardian-style gazebo was gifted to Mona Vale by arts patron Sheila Winn. The stained glass windows are copies of illustrations for the story "Flora's Feast" created by Walter Crane, who was famous for his illustrations in pre-Raphaelite style. The gazebo itself, with its rimu ceiling and copper dome, is a work of art.

When Annie Townend died in May 1914, her will, most unusually, was printed in full in the newspapers. What is not well known is that this rather old-maidish, reclusive woman was benefactor to many good causes. Her obituary said, "There has been no deserving cause which she has not helped, and few organisations for the relief of the suffering which she has not assisted." Restoring Mona Vale not only enhances our Garden City, it perpetuates the memory of the outstanding Canterbury woman who created it.

Note on sources: Over the years, I have collected information from various people and publications, including copies of material from the Lyttelton Times about the Great International Exhibition. Neil O'Brien gave me a fascinating essay about Annie Townend written, I think, by his daughter. I have also used Stevan Eldrid Grigg's Southern Gentry and Thelma Strongman's The Gardens of Canterbury.

Diana Madgin

Weather notes for autumn 2018

Following on from the warmest summer on record autumn came in determined to follow suit with a mean temperature for March of 16.2 C (av. 14.9 C): only one other year, 1999, has been warmer when it was significantly warmer at 17.0 C but three other years, 1984, 2007 and 2016, had very similar scenarios. As with so many recent months it was the mean minimum, 11.9 C, which was well above average (av. 10.2 C). Once again it was 1999 that holds the record with 12.7 C. The mean maximum of 20.5 C (av. 19.7 C) has been exceeded on 10 other occasions. Rainfall however fell back to near average 57.7 mm (av. 50.0 mm) and the airport was well below average at 31.4 mm (av. 54.0 mm). With sunshine levels exactly average at 183 hrs it was time to get out the irrigation sprinklers again.

Then April reverted to form with renewed northerly intrusions bringing in the rains again with 61.8 mm between 9-12th, more than adequate for bringing soil moisture levels back to near soil capacity. Being on the cold side of this low pressure system some good snowfalls again fell across southern ski fields and local susceptible areas would have had some damaging frosts as minimum temperatures, even at this site, fell to 1.5 C; this was following some significant hail falls on two days which did some damage to susceptible vegetable crops. But an Indian summer followed with renewed warmth and sunshine and dry conditions until the golden weather ended on the 28th, with the exception of a brief but sharp thunderstorm and hail on the 21st. Despite these intrusions of cold air temperatures during April were very close to average for the first time since the spring, the mean being 11.9 C (av. 12.2 C), sunshine was just above average at 166 hrs (av. 161 hrs). But rainfall for the third month this year exceeded 100 mm with 117.0 mm (av.

64.5 mm), while the airport recorded 118.6 mm (av.51 mm).

What a growing season it has been. Looking back over the last 100+ years of climate records for the coastal Canterbury region close to Christchurch I am reasonably confident that this growing season has been unprecedented. In those 100+ years there has never been such a warm and wet season. There has been a wetter season; for older persons; the 1950/1 season will be etched on their long term memory. In that season every month from December to April had greater than 100 mm rainfall with a grand total of 629 mm and led to one of the wettest years on record with over 900 mm rainfall. "I remember it well" someone will say; if so share it with us especially if you were farming at that time.

This season we had an exceptional dry in November and December and average to dry conditions in March but January, February and April delivered a total of 437.1 mm. But the greatest advantage this season was the warmth and sunshine. In 1950/1 the mean temperature for those months was a chilly 14.0 C whereas this season it was 16.6 C. In January 1951 the mean temperature was 14.4 C in 2018 it was a record 19.6 C. No other growing season in Canterbury comes close to this last season; I am reasonably confident that no summer month has had a high rainfall (in excess of 100 mm) with a mean temperature significantly at or above average.

The result is plain to see in the countryside and the gardens. At my site, at river level, I am putting off harvesting my full crop of very nearly ripe tamarillos; they look so attractive and exotic from the window I shall have nothing to brag about once they are harvested.

How does all this stack up with climate change, climate warming and those sceptics who deny the findings of science? It is only rarely at present that absolute meteorological records occur in the New Zealand record and we only have reliable records going back a little over 100 years. Also there is no denying that over those 100 years considerable climate change has occurred and had significant effect on the landscape. The best example of this is seen in the work of Dr David Jackson, K. Young and R Crowder at Lincoln University during the

establishment of the grape and field tomato research programme in the late 60's to 70's. I remember that there was much ridicule about the prospects at the time - grapes in Canterbury? Rubbish! Looking back over the meteorological records we discovered that such opinions were justified? Had the research taken place in the 1950/60's it would probably have been justified, but then the climate changed and it became warmer.

This can be illustrated by using Accumulated Heat Units as a guide. Grapes and tomatoes respond to warmth based on the accumulation of units above a base of 10 C. From 1939 to 1949 the growing season at Lincoln over a 10 year period accumulated a mean of 790 heat units each growing season, regarded as marginal for the crops being considered. Moving on to 1965 -1975 we find the mean heat unit accumulations over the 10 year period had risen to 973 heat units each growing season. As most agricultural research grants rarely extend over such a time period one can see that climate change has considerable implications for that industry. The tomato field research project proved very successful therefore from 1969 through to 1975 but then the climate changed again and the two seasons that followed, 1975/6 and 1976/7, were a disaster with heat unit accumulations of 669 and 659 respectively.

Grapes are more resilient and as we know have been a great success but field grown tomatoes are more perishable and less resilient to major climate change and remain the domain of the smaller fresh market producer. The 10 years 1980-1990 had heat unit accumulations of 985 but the highest mean accumulation over a 10 year period was the 10 years from 1907 - 17 when accumulations of 1005 occurred, probably beyond anybody's living memory?

I might add that I am not a climate change sceptic but it is easy to see why such beliefs are held when such major climate change scenarios occur well within a human's life time.

Bob Crowder.

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Friends' website

Have you visited the Friends' website? The address is
<http://www.friendschchbotanicgardens.org.nz/>

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 Penny Martin – phone 332 6866 or email graememartin1@xtra.co.nz

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