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EDITORIAL

GREAT EXPECTATIONS

YOU WILL NOTICE ON THE NEXT PAGE an appeal by the Waikato District Council for assistance from other District Councils in providing cut flowers and other plant material for the R.N.Z.I.H. exhibit at the World Rose Convention being held in Hamilton next November.

The Waikato District Council will be playing a dual role for though there are many strong specialist societies centred in Hamilton there is no large parent horticultural society there and it has fallen to their lot to fulfil the role of such a society as well as the more usual functions of the Institute. Its great success in this role certainly provides much food for thought, but far be it that anyone should suggest that the District Councils of the Institute should supplant horticultural societies. Rather the role of the Institute in representing all facets of horticulture, economic as well as ornamental, should always be borne in mind and we are sure that the R.N.Z.I.H. exhibit will emphasise this. In national affairs our Institute represents the humble home owner with a few vegetables right through the whole spectrum to nurserymen, hybridists, park directors, research workers, etc. It is worthy of the support of all genuine gardeners.

This Convention is undoubtedly the greatest event in New Zealand horticulture history since Sir Joseph Banks and Dr Solander commenced the serious botany of Australia and New Zealand at Cook's Cove, Tolaga Bay, almost two hundred and two years ago. It is expected to enrol two thousand conventioners including some hundreds from overseas, many of them noted hybridists. Three rose shows occupying six days, and extensive tours covering points of horticultural and scenic interest have been arranged and there will be a series of lectures, morning and afternoon, by noted hybridisers, rosarians and other horticulturists, horticultural scientists, floral artists and other authorities. One of particular interest to the R.N.Z.I.H. is that to be given by Mr Ray Mole, Curator of Otari Native Plant Museum, on our Native Flora.

The venue will be the hall complex at the Claudelands Showgrounds

which has a floor area practically equivalent to a rugby football field and apart from the Shows, etc. there will be displays of floral art, numerous trade exhibits, a Maori meeting house with a carver at work, a garden of native flora, a stream with live trout and many other attractions for the visitors.

Though naturally convention functions such as the lectures, tours and various social events, etc., are limited to those enrolled for the convention the shows and associated displays will be open to the general public and if you live nearby or are visiting the Waikato next November you must make a point of attending. Better still if you are a member of a District Rose Society enrol for the convention but do not leave it till tomorrow for time is becoming short and accommodation is not unlimited. **WE HOPE TO SEE MANY R.N.Z.I.H. MEMBERS AT THE CONVENTION AND SHOWS.**

JOHN GOVER



R.N.Z.I.H. EXHIBIT AT WORLD ROSE CONVENTION

You will be aware that the World Rose Convention is being held in Hamilton from 8th to 13th November, 1971.

This letter serves to give you an opportunity to assist the Waikato District Council with any cut flowers or potted plants in your area at this time which could be used to enhance the show.

For cut flowers they would need to be such that they could be kept in water for a week and would need to be air freighted to reach Hamilton not later than Saturday, 6th November. Potted plant specimens would need to be available the week before the show.

Already over 500 overseas visitors have been booked in during the period of the Convention and many thousands are expected from all parts of New Zealand to visit what could be the outstanding Horticultural event in New Zealand's history.

The Waikato District Council is responsible for only one section, but feel that all District Councils should be given the opportunity to contribute something of a unique or outstanding nature suitable for this exhibition. Any such contribution would be suitably acknowledged on the display tables.

If Councils would like to help, could they advise the Waikato District Council as soon as possible, to the Secretary, Waikato District Council, R.N.Z.I.H., P.O. Box 145, Hamilton.

R. T. FEAR, A.H.R.I.H., President,
Waikato District Council, R.N.Z.I.H.

(The above was circulated to all District Councils under date 23rd April, 1971).

NEWS FROM DOMINION COUNCIL

Appointees to Examining Board and Sub-Committees

Examining Board: Miss J. M. Dingley, Professors H. D. Gordon, J. A. Veale, T. M. Morrison, Dr. J. S. Yeates, Messrs E. Hutt, J. F. Living (ex-officio), A. M. W. Greig, P. C. Gardner, G. G. Henderson, H. G. Gilpin, J. O. Taylor, J. E. Hume, J. W. Bolton, P. McCliskie, G. Hyde, I. D. Galloway, R. J. Ballinger.

Finance: Messrs J. F. Irving, I. D. Galloway, E. Hutt, R. Syme, J. O. Taylor (with power to co-opt).

Plant Raisers' Award: Mrs O. D. Du Pont, Messrs A. M. W. Greig (Convener), I. D. Galloway, V. C. Davies, H. J. Poole, W. R. Sykes.

Publications: Mr R. H. Mole (Convener), Mrs O. D. Du Pont, Messrs E. Hutt, I. D. Galloway, J. F. Gover, J. O. Taylor, W. R. Sykes, L. J. Metcalf, J. E. Hume, J. F. Living (ex-officio), H. T. Hall. An Editorial Advisory Committee to be appointed comprising Canterbury members of this sub-committee.

Nomenclature: Messrs J. P. Salinger (Convener), A. L. Poole, P. C. Gardner, W. R. Sykes, R. H. Mole, L. J. Metcalf, J. F. Living (ex-officio), H. B. Redgrove.

Associates of Honour: Mr J. F. Living, Dr J. S. Yeates, Messrs V. C. Davies, A. M. W. Greig, R. Syme.

Judges' Register: Mrs H. L. Bennett, Mrs B. Matthews, Mr C. V. Holyoake, Mr H. L. Poole.

Award of Garden Excellence: Miss J. M. Dingley (Convener), Miss P. Bates, Mesdames M. M. Martin, K. Reynolds, Messrs A. Farnell, J. A. McPherson, H. B. Redgrove, with power to co-opt.

Historic Trees: Mr A. W. M. Greig (Convener), Messrs J. F. Living, R. H. Mole, S. W. Burstall, J. G. Short, I. A. Frost, H. T. Hall, S. T. Shayle-George, L. J. Metcalf.

Preservation of Trees: Same as preceding committee.

Plant Selectors' Rights: Dr J. S. Yeates, Messrs J. P. Salinger, P. C. Gardner, R. J. Ballinger.

Banks Lecturer: Dr J. S. Yeates, Messrs J. P. Salinger, J. O. Taylor.

"Flowers for Shows" publication: Mr I. D. Galloway (Convener) with power to co-opt and co-ordinate.

THE BANKS LECTURE**EARLY AUCKLAND GARDENS**

Delivered to the Royal New Zealand Institute of Horticulture, Auckland,
12th February, 1971.

By DR. ROBERT C. COOPER, Auckland Institute and Museum

Thank you for inviting me to give the Banks Lecture. It is appropriate to talk of gardens tonight, for Sir Joseph Banks was very interested in the Royal Gardens at Kew, and gave great encouragement to plant collecting and introduction.

The history of gardening in New Zealand has been written several times. In the Banks Lecture for 1932, Mr Robert Nairn, of Christchurch, described the early history of horticulture in New Zealand.¹ In the Banks Lecture for 1949, Mr J. A. McPherson described plant introduction in the Auckland district.² In 1952, Mr T. D. Lennie, of Christchurch gave an address on past and present nurserymen to the Annual Meeting of the Horticultural Trades Association at New Plymouth. Biographies of early nurserymen were compiled by Mr Allen Hale in 1955,³ and further valuable information was recorded by Mr W. H. Rice in an address to the 1957 Annual Conference of the Horticultural Trades Association.⁴ Nairn, McPherson, Lennie, Hale and Rice knew many of the pioneers, and there is little I can add to their facts and judgments.

The purpose of my talk tonight is to cover in more detail the first twenty years of gardening in Auckland, from 1840 to 1860. Most of the information about this period is buried in early books and newspapers, and I am indebted to Miss Enid Evans, former Librarian of the Auckland Institute and Museum, and her staff, for helping me to find items of interest in the splendid collection at the Museum. I am most grateful to Mrs Janice Mogford, who looks after the Museum early photograph collection, and to Mr W. H. Rice, for a copy of his paper, and for encouraging me to go ahead with this talk. ("Don't worry Bob, half the blighters won't know what you are talking about, and the rest won't care".)

The story of early Auckland gardens begins in the journal of Sarah Louisa Mathew, wife of Felton Mathew, the first Surveyor General.⁵ Mrs Mathew recorded, on the 3rd October, 1840, that she had spent the day ashore, in a little valley, enclosing a small plot of ground for her bulbs, which were all shooting and should be planted. In her journal, Mrs Mathew described the expedition that sailed from the Bay of Islands in the barque *Anna Watson* during September, 1840, the selection of the site of Auckland, the flag-raising ceremony, and the erection of a store and tents. She planted the bulbs in what was later known as Official Bay.

One of the first public works in Auckland was the erection of Government House. Captain Hobson took official possession in March, 1841, and, on 3rd October, John Logan Campbell wrote to his father as follows:

"Mr Cleghorn is at present . . . superintending the domain and garden of His Excellency Governor Hobson who thinks it proper to indulge in such expensive follies before he makes the roads and streets passable."⁶

Dr. David Monro, who arrived in New Zealand in January, 1842, described the garden as follows:

"The Government has a garden about a mile from the town under the care of Mr Cleghorn from Edinburgh, which is worth looking at as a good specimen of the country. Part of it was in process of being trenched when I went to visit it and displayed a rich brownish black soil at least 4 feet deep: several natives were at work here digging, handpicking the fern, and Mr Cleghorn informed me he got them to work very well. It would not do to cross them he said, but by humouring them, encouraging and exciting them, he found they worked with great diligence. Their pay was 2s 6d per diem. In this garden there was to be seen a large variety of vegetables, flowers, young vines and fruit trees and several plants the seeds of which Mr Cleghorn had brought from Rio Janeiro. Everything appeared to thrive luxuriantly, with the exception that young plants were much injured by a species of grasshopper which did a great deal of damage . . ."⁷

The first Government Gardener, Thomas Cleghorn, bought a farm at Tamaki in 1842,⁸ and was succeeded by Mr J. Lynch, who was a frequent prizewinner at the early Flower Shows.

In May, 1844, the following Government Notice was published in the *Southern Cross* newspaper:

"Colonial Secretary's Office,
Auckland, April 26, 1844.

Plants, seeds or cuttings may be obtained gratis from the Government Gardener, when he has any to spare—by addressing a note to the Private Secretary, who will obtain an Order for them from the Governor.

By Command,
Andrew Sinclair,
Colonial Secretary."

This would be during the term of office of Governor Fitzroy.

The first town allotments were sold in April, 1841, and a number were reserved for Government officials, including Mr Felton Mathew, the Surveyor General, Captain David Rough, the Harbourmaster, and Dr. John Johnson, the Colonial Surgeon.⁹ Mrs Sarah Mathew recalled, in her reminiscences, that her husband obtained two sections in Official Bay and had a house built much after the fashion of an Indian bunga-



The Auckland Domain was set aside in Governor Hobson's time, but was not developed until a Domain Board was appointed in 1860. From a sketch in the Hobson Album, Turnbull Library, attributed to Dr J. Johnson, c. 1843.

low, all on the ground floor, with windows to the ground opening on a wide verandah, and a terrace. Beyond there was a sloping lawn with flower beds, and then a shrubbery. This was partly natives trees, but sown with acorns, chestnuts and walnuts, and planted with vines and fig trees which they brought from Sydney.¹⁰

Captain Rough, in his reminiscences, recalled:

"The cultivation of our gardens in Official Bay was a source of great enjoyment. Clearing ground, planting fruit trees and shrubs imported from Australia and Tasmania, and cuttings from the Bay of Islands, making roses bloom where no flowers grew before, was comparatively an easy matter, and afforded delightful exercise to all who were willing to work in the healthful and charming morning air."¹¹ (Possibly Mrs Rough did the actual gardening.)

Dr. Johnson's allotment in Official Bay was just below Government House. A drawing of the house and garden in 1843 shows a cucurbit in the left foreground and three weeping willows in the centre. (Weeping willows dominated early Auckland gardens.)

Dr. Johnson founded the Auckland Agricultural and Horticultural Society in 1843, and served as the first President. The Society held its first Show on Tuesday, the 19th December, 1843, "in the presence of a numerous and respectable assemblage of the people." Prizes were

awarded in two departments, Animal and Vegetable. The Cattle Show was held in the Government Domain, and the Exhibition of Floral, Horticultural and Farm Produce took place in Hart's Hotel, Shortland Crescent. The *Southern Cross* newspaper commented¹² as follows: "The flowers from the garden of Lieutenant Bennett were exceedingly beautiful, and show how much the lovers of Flora may expect in such a delightful climate as this . . ." (Lieutenant George Augustus Bennett was officer in charge of a detachment of Royal Engineers, and won a prize for the best Flower Bouquet.)

Captain Rough, the Harbourmaster, won prizes for his cauliflowers, carrots, lettuce, cherries, apples, gladioli and other Cape bulbs. The Government Gardener won prizes for table cabbage, hops, Heart's Ease (pansies), and the Greatest Variety of Flowers. Among the other prizewinners were:

Mr Clarke, possibly George Clarke, the Protector of Aborigines, who won prizes for strawberries, a Moss rose and hollyhock; Mrs Mathew, for ranunculus and marigolds; and Mrs Connell, for Clove carnations. (Possibly this was the wife of William Connell, then Postmaster General, who served as a judge at the 1850 Show, and whose firm was later a large importer of plants and seeds.)

The *Southern Cross* report of the Show concluded as follows: "The Committee of the Society deserve a certain amount of blame for the badness of their arrangement . . . The show room was extremely badly laid out, and the vegetables were almost immediately swept away after the prizes were awarded. Perhaps they were required for the dinner which took place in the evening . . ."

One of the judges of the Show was John Edgerley. He came to New Zealand, at the age of 21, in 1835. For the next six years, from 1835 to 1841, he was employed as a gardener and botanist by Lieutenant Thomas McDonnell, at Horeke on the Hokianga. He introduced many European and Australian plants to McDonnell's garden. He shipped live plants, and dried and pickled specimens, to Mr A. B. Lambert, of London, who was preparing his classic work on the conifers, and who had succeeded to the role of Banks in collecting live plants for the Royal Gardens at Kew. Edgerley also shipped plants from New Zealand to the Earl of Mountnorris and the Duke of Bedford. In April, 1842, he returned to England with a large shipment of New Zealand plants for Sir William Hooker, the newly appointed Director of Kew.

I have written and talked before about John Edgerley,¹³ and I must apologize to Auckland members for repeating tonight one of his letters to Kew:

"To
Mr Jno Smith,
Royal Gardens, Kew.

From
Upper Arley, England,
November 19th, 1842.

“Sir,

Having now made up my mind to leave this country for New Zealand I hasten to inform you so that you might have plenty of time to prepare the two boxes of plants you so kindly offered me. I intend to leave England on the 15th January by the ship *Mary*—and propose being in London towards the beginning of January—when I shall do myself the pleasure of calling upon you.

“I dare say I shall be enabled to get what fruit trees I may require from Mr Knight so that I shall require nothing of you but some good flowering shrubs—such as rhododendrons, camellias, arbutus or strawberry tree, lauristine, Portugal laurel, common laurel, azaleas, a plant or two of lilac, *Wisteria sinensis*, tree paeonia, with a few plants of fuchsias, corymbiflora if you can spare it, *Ribes sanguinea*, *Magnolia grandiflora*, etc., *Deutzia scabra*, box for hedging, with a few good roses, white moss if you can spare it, *Ajuba japonica*, cedar of Lebanon, jasminum, or any others you may think proper to give me. Boxes equal in strength and size to those I brought home would do well. It would be advisable not to close the boxes until the last thing and if you had a few acorns, chestnuts, hawthorn berries or any other seed that you thought would germinate, to sow them in the boxes. I should also be very glad of a small collection of good flower seeds—with fir cones.

I am Sir,
Your very obedt servt,
JOHN EDGERLEY.”

There is a note from John Smith to Sir William Hooker, mentioning six boxes, so it seems that Edgerley's request was filled most generously.¹⁴ John Edgerley and his wife sailed to New Zealand by way of Australia and, at Hobart town, refused great prices for the plants. They arrived at Auckland in August, 1843, and established a nursery at Newmarket. So John Edgerley had been in Auckland only a few months when he served as a judge at the first Flower Show on the 19th December, 1843.

The Society held a second show, an Agricultural Show, on the 27th February, 1844. The *Southern Cross* commented¹⁵ that: “The arrangements on the present occasion were much better than at the former Exhibition of the Society. The large room of the Royal Hotel was procured by the Committee, and very tastefully laid out. The fruits, vegetables and seeds, were placed on a table in the centre of the room, leaving abundance of space for the visitors to walk round it, and to inspect the various specimens . . . In the evening the members of the Society and other gentlemen met at the Royal Hotel, when an excellent dinner was prepared for them . . . Dr. Johnson presided. The Colonial Secretary, Dr. Sinclair, and several other official gentlemen

were present at the dinner. Several loyal and patriotic toasts were given, and excellent speeches made, which we regret our limits do not admit of reporting . . ." (A fortunate loss, horticultural speeches being what they are.)

Among the prizewinners were our old friends: Mr Rough, with a vegetable marrow, dessert apples, and a capsicum, and Mr Edgerley, with rhubarb and a cucumber. And new prizewinners were: Mr Lynch, the Government Gardener, with baking apples and hops; Major Bunbury, with a sample of Egyptian wheat; and Mr Kempthorne, with water cress, white thorn, wheat, grasses, mangelwurzels and furze (or gorse).

Major Thomas Bunbury came to New Zealand in 1840, in charge of a detachment of the 80th Regiment. At the land sales in 1842, he bought a farm at St. Heliers, and lived there when he could leave Fort Britomart. In his reminiscences, he recalled forming a road from the beach, clearing and fencing the land, and planting a garden with one hundred and fifty fruit trees. Bunbury and a neighbour grew carrots two feet in length and about the thickness of a man's leg, and turnips the average size of a man's head. Indian corn reached a height exceeding that of a man, and pumpkins were of enormous size. He obtained the prize-winning Egyptian wheat from a French priest at Hokianga and, like the other plants mentioned, it was of remarkable size.¹⁶ In the Alexander Turnbull Library, Wellington, there is a sketch by Edward Ashworth of Major Bunbury's cottage, but the view is too distant to show the garden.

The Mr Kempthorne who won a prize for gorse, was Sampson Kempthorne, a farmer, school teacher and architect. He bought a farm at Tamaki, near St. John's College, in 1842,¹⁷ and probably used the gorse for hedges. He also bought two suburban lots on Parnell Road,¹⁸ and, from 1850, was a preceptor or school teacher there.¹⁹ He had been trained as an architect, and assisted Bishop Selwyn with the designs for early Anglican churches. I have a view of his Parnell home but, again, it is too small to show the garden.

Owing to Heke's war and general financial depression, shows ceased for several years. Another factor may have been the absence of Dr. Johnson; he sailed for England in October, 1844, and was away until 1846.

It was during these difficult years that George Augustus Selwyn, Bishop of New Zealand, began to develop St. John's College. In September, 1846, Bishop Selwyn described the gardening activities of the schools at St. John's College as follows:²⁰

" . . . eight acres of wheat are just now beginning to be green . . . This is the work of our native schools [i.e. the Native Boys' School and

the Native Adult School], and it has occupied forty spades, great and small—the adults and boys all working, the older digging, the younger breaking up and pulverising the soil . . . the English schools [i.e. the Primary English School and the Lower Collegiate School], have subdued from the waste two acres of garden ground, in which vegetables of many kinds and several flowers are just beginning to show their spring shoots. Our little army of seventy spades, working regularly two or three hours a day, soon changes the appearance of the land . . .”

Reverend Richard Taylor, on a visit to Auckland in May, 1847, noted in his diary that St. John's College lacked shrubs and had a very naked staring look.²¹ In one of the letterbooks of Brown and Campbell, an early Auckland firm, there is a letter from William Brown to Bishop Selwyn, recording the arrival of a shipment of plants, as follows:

“Auckland,
1st April, 1850.

“Mr W. Brown presents his compliments to His Lordship the Bishop and forwards herewith a case of plants obtained by Mr George Graham from the Botanical Gardens in Regent Park and sent per *Clara* for His Lordship—with Mr Graham's respects.²²

We can get some idea of the contents of the shipment from a second letter, sent by William Brown to the Chief Justice, William Martin Esq. In it, Mr Brown advised that he had received a box and a jar of flower roots and seeds from Mr Graham for the Chief Justice. Mr Graham's instructions were as follows:

“Care must be observed in taking the roots out of the jars. When out, let them be planted in rich earth such as is found about Mount Eden and give them a little heat in a melon frame—keeping them shaded with as little air as possible for a few days . . . Plant out as soon as the jar is opened. Shake off the sawdust—but a little will not injure plants though it will do them no good. The dahlias are all new kinds and very beautiful. The seeds of the scarlet hawthorn—the Alnwick Box and Yew and some of the other seeds collected by me will be a long time coming up, but they will repay the trouble. They come from Magna Charta Island and are fit plants for New Zealand which I hope will ever be the land of freedom.”²³

This Mr Graham was George Graham, who had been stationed at Auckland from 1840 to 1848 as a member of the Ordnance. In later life, he mentioned that he had the area of Albert Barracks enlarged to ensure space for a future park.²⁴ He served on the Committee of the first Show in 1843.²⁵ Several Grahams of early Auckland were gardeners of note. As well as George, there was David who helped to revive the Horticultural Society in 1848,²⁶ Robert who had gardens at the Waiwera Hotel, Ellerslie, Lake House in Rotorua, and Wairakei,²⁷ and lastly,



Garden of Sir William Martin, first Chief Justice Taurarua (Judges Bay). The house is obscured in the trees on right.

Thomas Graham who was the proprietor of a nursery called Glenburn Gardens at Herne Bay.²⁸

The Chief Justice, William Martin, lived at Taurarua, now known as Judges Bay. The Martin garden can be seen in early photographs of the bay, and again, weeping willows are a dominant feature. Nearby, the Attorney General, Mr William Swainson, had a pretty cottage. Mr Swainson was a Vice-President of the 1843 Show,²⁹ helped to revive the Society in 1848,³⁰ and exhibited his grapes at the next Show in 1849.³¹

The Society, still an Agricultural and Horticultural Society, was reformed during 1848, with Sir George Grey as Patron, and Major Henry Matson as President.³² On the 3rd March, 1849, the following advertisement appeared in the *New Zealander* newspaper:

“We beg to remind our readers that on Tuesday next the *first* great Horticultural and Agricultural Show will take place. Mr Robertson has kindly thrown open his ropewalk for the occasion. (The ropewalk in Stanley Street is now the property of Donaghys.) The Band of the 58th Regiment will be present to discourse most eloquent music, and we hope everyone who can, will give encouragement and support to a most useful Society, and cheer it by their presence . . .”

The Governor and Lady Grey, and “almost all the elite of Auckland” cheered the Society by their presence. In the evening, a dinner was held at the Masonic Hotel. With the worthy President, Major Matson, in the chair, a social and a pleasant evening glided rapidly away. (I am quoting from the press report.³³)



Sir George Grey's home, Kawau Island. Probably 1880s or later.

The leading exhibitor at the Show was Mr Percival Berrey, the Sheriff of the Supreme Court, who won prizes for his linseed, melons, stone fruits, nosegay, turnips, onions, cabbages and beans. His grapes and hops were also admired. (Mr Berry lived in Khyber Pass Road, and his home was advertised in 1853 as the very best in the province. This, however, was a common expression in sale notices of the fifties.)

Some of the other prizewinners at the 1849 Show were Captain Rough, for apples again, and Mr J. Lynch, the Government Gardener, for dahlias. A wreath of flowers, exhibited by Dr. Weekes, and arranged in a most tasteful manner by Mrs Weekes, attracted general attention.³⁴

Dr. Henry Weekes had been a surgeon of the New Zealand Company at the New Plymouth settlement in 1841. After a brief stay, and the profitable sale of his land, he went back to England. He returned with Mrs Weekes in 1845, and farmed on Puketutu Island from February, 1846, to February, 1847. His gardening activities were described in his journal, which has been published.³⁵

First, he had a fence built, six feet high. It was made of stout sticks, tied together with rods and lengths of the native clematis vine. In a few months the garden was in a flourishing condition. One variety of peas, Sangster's No. 1, was fit for table forty-seven days after planting. Dr. Weekes gathered his green peas and early yorks (a variety of

cabbage), and had mignonette of great height and beauty, and a border of evening primrose. A little Quarenden apple tree, brought from Plymouth, had exhausted itself in the excitement of the tropics and, after sending out buds, each time nearer the root, at last passed away. Fruit trees and vines presented by Auckland and Onehunga friends did better. (The Quarenden was a common variety—a small, dark red, dessert apple from Devon.)

In February, 1847, Dr. Weekes moved to Quartly Grange, a farm closer to Auckland. Here he grew fruit trees, vines, shrubs and flowers until 1849, when he left for California to combine gold prospecting with medicine. The floral wreath at the 1849 Show was his farewell to gardening in Auckland.

In the early 1850s, the Society held two shows each year, an Agricultural Show in February or March, and a Horticultural Show about November. Newspaper notices provide some glimpses of the organisation. For example, there is a notice in the *New Zealander* of 8th October, 1851, requiring Committee members to attend a meeting at the Exchange Hotel at 2.30 next Saturday afternoon to discuss arrangements. Prizes were not high; the award for the best marrow, pumpkin or cucumber was usually half a crown, while that for the best dahlia or nosegay was a prize card. Admission, for non-subscribers was one shilling.³⁶

At the Agricultural Show in February, 1851, the potatoes shown by Mr J. Williams and grown by the Band of the 58th Regiment were commended.³⁷ According to one report,³⁸ the soldiers' gardens were on the north-west side of Albert Barracks, and extended down the slopes (about where Bowen Avenue now runs). Among the prizewinners were Mr Lynch, best hops, and Colonel Wynyard, a vegetable marrow and carrots.

Colonel Wynyard was in command of the forces in New Zealand, and lived close to Fort Britomart, in the house formerly owned by Felton Mathew. A painting of his garden shows mature trees, including a weeping willow, shrubs, hedges, and a lawn with a circular flower bed.

The Floral and Horticultural Show in November, 1851, was held in marquees in the garden of the first Government House.³⁹ The Band of the 58th Regiment enlivened the scene with many choice pieces of music. The leading exhibitor was, again, Mr Percival Berrey (gardener T. Roach), who won prizes for his strawberries, cauliflower, rhubarb and cabbage. Other winners were: Mr J. Lynch, the Government Gardener, for ranunculus, and the second best floral device; Mr C. O. Davis, best collection of roses (this was probably Charles Oliver Davis, the Native Office Interpreter, who lived in Albert Street); Colonel Wynyard (gardener Mr Castle), white Hobart Town potatoes, radishes, and skinless peas (after hunting through old books for this variety,

without success, we have decided that the "skinless peas" must have been shucked); Mr J. Blackett (gardener J. Henry), best floral device, best fuchsia, geranium and cactus (at this time, Mr Blackett's home in St. George's Bay was considered to be the most handsome in the province.⁴⁰ Reverend Richard Taylor, of Wanganui, who visited Blackett's several times, recorded in his diary that it was a beautiful garden, with bananas in full bearing each year, and a fine collection of fuchsias. The garden was laid out in the old English style, with squares, circles and parterres.⁴¹); Mr Thomas Parr, gooseberries (Mr Parr was a gardener and lived at Mt. Eden. In 1854 he obtained a Crown Grant at Oratia, and planted an orchard, mainly of pears and apples.⁴² I understand that his descendants have continued in horticulture to the present day).

The November, 1857, Show was held in the Hall of the Mechanics' Institute in High Street, and the Band of the 58th Regiment performed many popular pieces.⁴³ His Excellency, the Governor, attended and Mrs Gore Brown contributed a giant shield of flowers. This was of elegant design, the ground work being of moss, the centre of white lilies, geraniums, Cape bulbs or gladioli, roses, etc., and the whole having a fringe of ferns. Mr Lynch, the Government Gardener, and Mr Henry, Mr Blackett's gardener, collected clematis, tree ferns, cabbage trees, nikaus and other native plants from the Domain and elsewhere to decorate the hall.

The outstanding exhibits included: Some rock work, covered with ferns and surmounted by a fountain, the shield of flowers from Mrs Gore Brown, a floral wheel from Mrs Fischer, a shield of flowers in the form of the Harp of Erin from Miss Connell, bouquets after the latest fashion of Her Majesty's drawing rooms from Mrs Lewis, and a lofty bouquet, called a Brobdignag bouquet, from Mr Lynch and his Maori assistant.

As well as the flowers, fruit and vegetables on display, there were specimens of native woods, paintings, drawings and maps, stuffed kiwis, minerals, Maori and African weapons, flax samples, and some excellent iron castings from a local foundry. All this, under Dr. Fischer's skilled direction, made a delightful bower or grove fit for Oberon and Titania to sport in. (I am quoting from the press reports.)

Mr G. B. Owen appeared as a prizewinner for the first time, winning awards for two bouquets containing yellow peony, fuchsias and gladioli. (Mr Owen had a fine garden at "Brightside" in Epsom. From the late 1860s, he and his neighbour, Judge Gillies, of "Rocklands Hall", were two of the leading gardeners of Auckland.)

The prize list in 1857 also included: Dr. Carl Fischer, of Emily Place (gardener John Brown), for a cactus in full bloom, a beautiful *Euphorbia splendens*, a tree salvia, ranunculus, antirrhinum, and a

mimulus named 'Defiance'; Mr J. Lynch, Government Gardener, for the monster Brobdignag bouquet, a fine rhododendron, scarlet hawthorn, ranunculus, and a rose, 'Madame Laffay', an early hybrid perpetual.

The 1859 Show was held in March at "Brookside", the farm of Major Matson between Parnell Road and the Domain, just above the Alexandra Hotel.⁴⁴ Among the many prizewinners were: Mr H. J. Hawkins, for apples and plums (from 1854 Mr Hawkins advertised fruit trees for sale at his nursery, the Glen, Soldiers Bay, North Shore.⁴⁵); Mr Reader Wood, pears (Mr Reader Wood was an architect, surveyor, and noted gardener. His home was in Brighton Road, Parnell); Mr Caffler, grapes (this is probably Edouard Eugene Caffler, who had a fine garden in Whangarei); Mr C. Heaphy, fuchsias and best bouquet of rare cut flowers (Mr Charles Heaphy, the surveyor, lived in St. Georges Bay Road, Parnell); Mr Hay, melons, capsicums, French beans, peas, parsnips, rhubarb, second best collection of flowering shrubs, best collection of trees grown from seed and so on (Mr David Hay founded the Montpellier Nursery at Hobson Bay in 1855, and for many years he and his son, Mr D. A. Hay, introduced new plants to Auckland. Most of the next generation of nurserymen trained under Mr David Hay or his son.⁴⁶).

Before 1855, when David Hay started, the main nurseries were those of John Edgerley, at Newmarket from 1843, and Thomas Graham, at Herne Bay from the late 1840s. After Edgerley's sudden death in 1849, Messrs Hanson and Aitkin ran the nursery. They raised vegetables, and gradually sold off the stock. The last sale was probably that of March, 1852, when they advertised ornamental shrubs and equipment for sale at the Eden Nursery (late Edgerley's).⁴⁷ The list included *Fuchsia corymbiflora* (mentioned by John Edgerley in his letter to Kew), *Azalea indica*, *Salvia fulgens*, *Daphne japonica*, *Daphne odora*, *Buddleia lindleyana*, and *Kennedya rubicunda*.

Thomas Graham was a gardener at Hobart Town in 1822, and later worked at the Government Gardens, Sydney.⁴⁸ He came to the Bay of Islands in 1836,⁴⁹ and bought land at Waiheke in 1839.⁵⁰ He was gardening in Auckland in 1847, and offered fruit trees for sale in 1852, shortly before his death.⁵¹

Mr W. B. Baker was in business in Khyber Pass Road from 1852 to 1856, possibly longer, but we have little information about him. In May, 1852, he advertised a large assortment of fruit trees, "from the Bay of Islands, warranted free from blight."⁵² Other little-known men were Mr G. Hendry, of Newmarket,⁵³ and Mr Thomas Roche, of Khyber Pass.⁵⁴

All nurserymen of the fifties must have faced severe competition from auctioneers of imported plants. For example, Connell and Ridings,



Mt. Hobson Nursery in foreground, established by Charles Wren, 1859.

a city firm, advertised in July, 1851, that they were holding an auction of fruit trees and seed, brought by the *Isabella* from Hobart Town.⁵⁵ The shipment included grape vines, apples, pears, cherries, damsons, apricots, nectarines, currants, etc. They had a similar auction in August, 1852, of ornamental forest trees, choice fruit trees, and rare and beautiful flowering shrubs, brought by the *Moa* from Sydney.⁵⁶ Later in 1852 they had an auction of named varieties of dahlias.⁵⁷

The leading nurseries at the beginning of the 1860s were those of Mr Hawkins, on the North Shore, mainly fruit trees, Mr Hay, of Hobson Bay, offering a very wide range, and Mr Wren, of Mt. Hobson, growing general lines and citrus. (Charles Wren started the Mt. Hobson Nursery at Remuera in 1859 and, after some years there, moved to Pah Road, Mt. Roskill.⁵⁸)

The exhibits of the three firms at the Show in 1863 must have been outstanding. Mr Hawkins showed collections of apples, pears, quinces and medlars; Mr Hay entered collections of pines, annuals, basket flowers, and vegetables; and Mr Wren displayed lemons, oranges, pomegranates, figs, ferns, flowering shrubs, and so on.⁵⁹

Throughout the first 20 years, from 1840 to 1860, the only public garden was that at Government House, where Mr Lynch was in charge. The Domain had been set aside in Governor Hobson's time but, apart from complaints about vandalism, we hear little of it.⁶⁰ Part was used for stock,⁶¹ and development was slow. In June, 1851, the Colonial Secretary, Dr. Sinclair, called tenders for grassing and fencing 15 acres,

and putting a ditch round the area.⁶² In August, 1852, he called further tenders for a track through to Parnell.⁶³ In 1860, a Domain Board was appointed,⁶⁴ and walks were laid out.⁶⁵ Albert Park was established after the Barracks were demolished in 1871.⁶⁶

Auckland during the 1840s and 1850s differed from other settlements in having a comparatively large number of Government officials, a military force, a number of disappointed land claimants, and several strong religious groups. The press was often critical, and quarrels were frequent. At the early Shows, however, everyone took part—official and unofficial gentlemen, their ladies, military men and civilians, Maoris and Pakehas, farmers and townspeople, nurserymen and amateur gardeners. This must have been of great benefit to the town.

Another benefit of early gardening, that will be evident from the slides to be shown, is the remarkable change that the gardeners made in the landscape of Auckland. In 1855, Dr. William Harvey, of Dublin, visited Auckland, and described it as bare, like the bleaker parts of Ireland and Scotland.⁶⁷ Today most suburbs have a wealth of trees and shrubs, as you will see on the tour tomorrow. Thank you.

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GARDENING BOOKS

I am always interested in adding to my collection of gardening books. Please contact me if you have books on plant collecting (Kingdon-Ward or Farrer); N.Z. native flora; trees and shrubs (R.H.S. Rhododendron year books); bulbs; botanical and colour plate books, etc., etc., that you wish to dispose of.

S. CHALLENGER,
Lincoln College, Canterbury.

OUTWITTING THE VIRUS

(A talk given at the 48th Annual Meeting of the Dominion Council of the Royal New Zealand Institute of Horticulture.)

By DR. E. E. CHAMBERLAIN, Plant Diseases Division, D.S.I.R., Auckland

Mr Chairman, Ladies and Gentlemen,

It is a privilege to speak at the Institute's Dominion Conference and I am grateful to our Council for inviting me to address you this afternoon.

I trust that the title of my talk "Outwitting the virus" has not been too misleading. It is true that we seem to have been able to outwit some plant viruses but there are many others over which we have been able to exert little control. Before telling you of some of our achievements at Plant Diseases Division I wish briefly to explain the constitution of the team involved in the production of virus free plants, to define a virus and to outline an investigation which illustrates the type of problem with which we are sometimes faced.

Mr J. D. Atkinson, now Director of Plant Diseases Division and I with the assistance of Mr J. A. Hunter commenced the investigation of fruit tree virus diseases in 1947. In 1957 Mr G. A. Wood was appointed to assist Mr Hunter and when the latter retired in 1966 Mr Wood took charge of the technical work and Mr J. Appleby was appointed to assist him. About four years ago responsibility for stone fruit virus investigations was passed over to Dr. P. R. Fry with Mr Wood remaining in charge of the technical work.

Investigation of grapevine virus diseases which was commenced in 1969 was undertaken by Mr A. J. Over de Linden and myself with the help and advice of Mr F. Berrysmith, Viticulturist to the Department of Agriculture. Control of this project is now being taken over by Mr W. Thomas.

The initial rose virus research was done by Dr. Fry and Mr Hunter and is being continued by Drs. Fry and K. R. W. Hammett who are being assisted by Mr Wood.

Work on meristem culture is being carried out by Dr. Ruth Elliott.

A virus is an infectious disease producing agent invisible under the ordinary microscope. It consists of a nucleoprotein, a pure chemical substance which, for some viruses, can be purified and crystallised. Although crystallisation is usually associated with inanimate matter, viruses also possess such indisputable properties of life as the power to multiply and mutate. They may be considered, therefore, to occupy a borderline position between the living organism and the non-living chemical.

Viruses can multiply only within living cells and, as they occur in

the tissues throughout infected plants, they cannot be controlled by normal procedures such as the application of sprays. Plants, once infected remain infected for life and there is nothing a grower can do to get rid of the infecting virus.

Some years ago we received an enquiry from a nurseryman concerning a problem he was experiencing with flowering cherries. He had been a successful producer of both sweet and flowering cherries but over recent years he had experienced increasing graft failure losses in his flowering cherry nursery trees and over 10 per cent of surviving trees made weak growth with rough bark and curled leaves resembling severe aphid damage (Fig. 1). Less than fifty per cent of the grafted stocks produced marketable trees. It was purely the nurseryman's problem as no infected trees were offered for sale. There did not appear to be any problem with production of sweet cherry trees.

A search of the literature showed that a similar problem had occurred in Oregon, U.S.A., in the early 1940's and that the disease had been named "rough bark of flowering cherry". Further investigations indicated that the rough bark disease was caused by cherry green ring mottle virus which produced a serious disease of sour cherries but was carried without symptoms in sweet cherries.

Our experiments proved that the virus was not present in the trees from which the nurseryman obtained his scion wood so it was evident that infection must have come from his rootstocks and this was confirmed experimentally.

Enquiries revealed that originally the nurseryman had used mazzard seedlings as rootstocks but had found that it was more convenient to raise the stocks from root cuttings. At first the root cuttings had been taken from seedlings and from unworked stock bed plants but with increasing demand for sweet and flowering cherry trees he found it necessary to obtain additional root cuttings. He secured them from sweet and flowering cherry nursery trees as they were being lifted for sale. We found that a very high percentage of our sweet cherry trees carried the green ring mottle virus so it was obvious that the nurseryman had introduced it into his stock bed with root cuttings from the sweet cherry nursery trees. He was advised to revert to mazzard seedlings as root stocks. He did this and completely overcame the problem, the graft take of flowering cherries returning to normal and the rough bark condition disappearing.

But this was not the whole story for there was a problem of sweet cherries of which the nurseryman was quite unaware. Flowering cherries carry, without symptoms, a virus known as little cherry virus and this was introduced into the rootstock bed with root cuttings taken from flowering cherry nursery trees. Unfortunately it does not produce

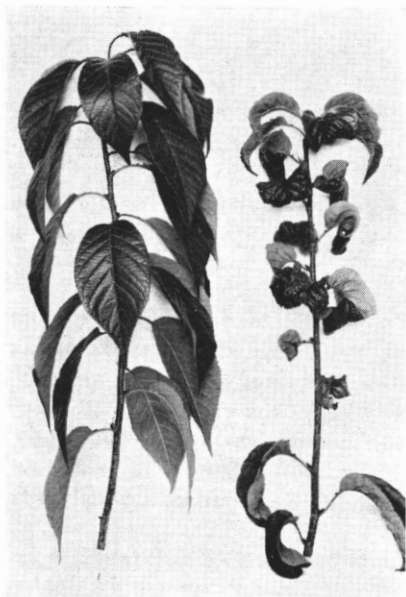


Fig. 1. Cherry green ring mottle virus on flowering cherry var. Kanzan, showing curling of leaves.

Photograph—S. A. Rumsey



Fig. 2. Little cherry on Bedford Prolific cherry showing small size of fruit and delay in ripening. Branch from healthy tree on right.

Photograph—J. W. Endt

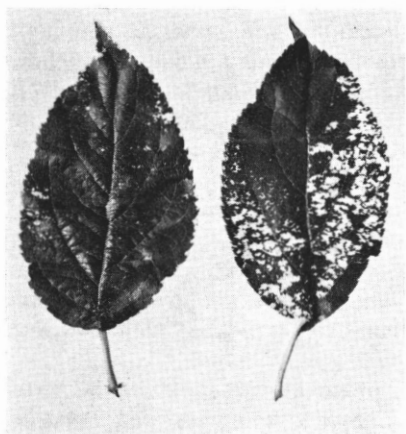


Fig. 3. Creamy white spots on leaves of Golden Delicious apple caused by apple mosaic virus.

Photograph—J. W. Endt

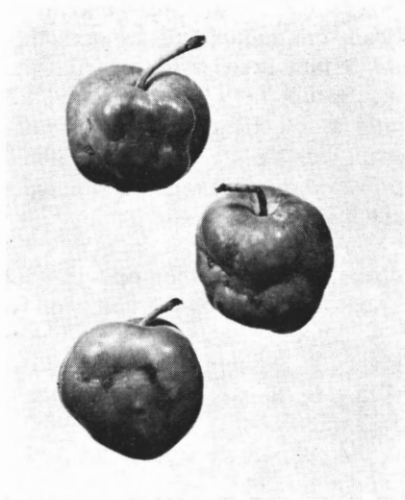


Fig. 4. Distorted fruit of Granny Smith apple infected with apple green crinkle virus.

Photograph—L. H. Wright

symptoms on nursery trees of sweet cherry but causes a serious disease of fruiting trees. It delays maturity and reduces the size of the fruits (Fig. 2). It is a much more important disease than rough bark of flowering cherry as it seriously affects production and quality of sweet cherries. This problem too was overcome by the use of seedling rootstocks.

What I have said about these two cherry diseases will give you some idea of the type of problem we sometimes have to deal with but more importantly it illustrates the manner in which viruses can spread amongst woody perennial plants.

Amongst the fruit trees we have done most work with apples and pears. In New Zealand on apples we have detected thirteen distinct viruses. Seven of these produce symptoms on one or more commercial varieties and the other six are carried without symptoms on all commercial varieties. Fortunately none are known to spread naturally, transmission taking place only by budding or grafting. To give you some idea of the types of diseases caused by these viruses I will briefly describe some of them.

Apple mosaic is characterised by creamy white or yellow spots on the leaves (Fig. 3). It occurs on many strains ranging from mild to severe and symptoms are more pronounced on some varieties than on others. It is widespread and very prevalent and in some varieties we have been unable to find a single mosaic-free tree. The virus causes a reduction in fruit yield and in some varieties infected with a severe strain this reduction may exceed fifty per cent.

Apple green crinkle virus causes malformation of fruit (Fig. 4). It too occurs in different strains. Mild strains may cause distortion of only a few fruits on a tree but severe strains may render the whole crop worthless. The virus affects many but not all varieties. It is prevalent and causes serious losses in Granny Smith, Dunn's Favourite and Lord Wolseley.

Apple ring spot is a problem only on Granny Smith, causing a disfiguring russet blemish. In some fruit orchards it causes substantial losses through down-grading of fruit.

Apple russet ring occurs on many varieties but incidence is seldom high. It forms a russet ring pattern which also down grades the fruit (Fig. 5). It is most troublesome on the varieties Golden Delicious and Ballarat.

Apple small fruit virus, which is probably the same as the virus known as chat fruit virus in England, causes a marked reduction in fruit size and colour. The fruit may be so small as to be worthless. This disease has been found on Dougherty, Delicious and Gala. Fortunately incidence is not high but it has caused serious losses in a few orchards.

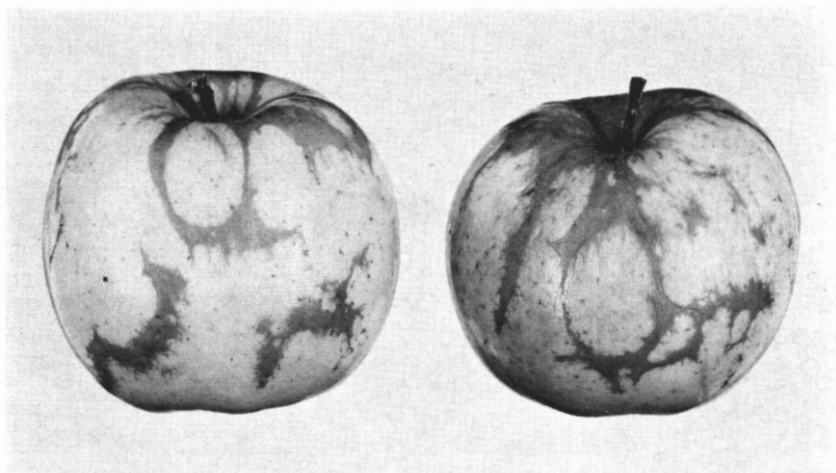


Fig. 5. Russet ring pattern on Ballarat apples caused by apple russet ring virus.

Photograph—J. W. Endt

Apple rubbery wood is widespread occurring in approximately seventy-five per cent of our orchard trees. Fortunately symptoms are expressed in some varieties only, namely Gala, Golden Delicious, Splendour and Red Delicious. On these varieties the virus interferes with the formation of lignin with the result that the wood becomes pliable or rubbery. In young trees of very sensitive varieties such as Lord Lambourne the wood may become so rubbery that they cannot remain erect and they bend over to the ground. (Fig. 6). This disease which also causes stunting of trees is most serious on Gala. On the other varieties symptoms develop only in areas south of the Auckland province and only in some seasons.

Flat limb, although widespread, causes a disease only in Gravenstein and its sports. We have been unable to find a single tree of Gravenstein or its sports, Albany Beauty and Oratia Beauty, free from infection. Flat limb-free Gravenstein trees are rare also in other countries and I was fortunate to find a clean tree near St. Cathrines in Canada in 1959. The virus causes a flattening or distortion of the trunk and limbs (Fig. 7). Symptoms become more severe as trees become old and the distortion interferes with the sap flow so that yield is reduced. The disease shortens the economic life of the trees.

The six viruses carried without symptoms can be detected only by transmission to special indicator varieties, e.g. one of them known as **Spy epinasty and decline** causes pronounced symptoms on the indicator variety Spy 227 (Fig. 8). The remainder cause equally clear cut symptoms on other indicators.

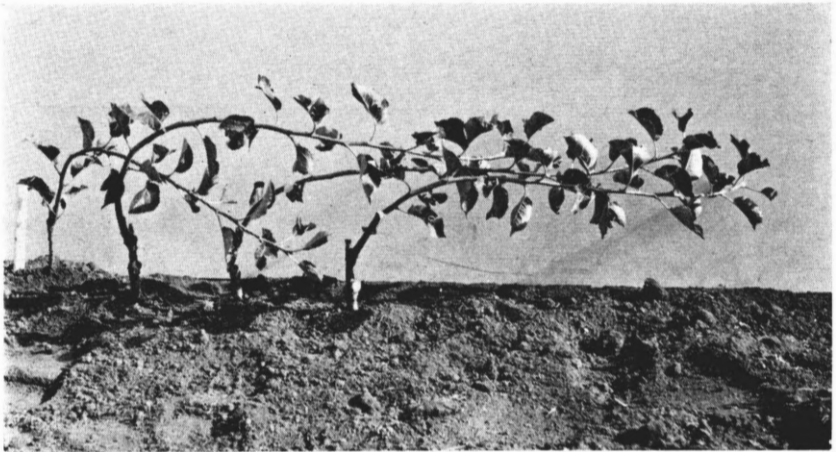


Fig. 6. Apple rubbery wood on Lord Lambourne apple. The wood has become so pliable that the trees are unable to stand erect.

Photograph—S. A. Rumsey

Pears do not become infected with so many viruses as do apples but we have found six distinct viruses on orchard trees. Of these, only two, pear stony pit and apple mosaic regularly produce clear cut symptoms.

On trees infected with **pear stony pit** virus fruits are distorted and have dark pits in the flesh. Symptoms are produced on all varieties except William's Bon Chretien. It is more common on some varieties than others and is particularly troublesome on Packham's Triumph.

Apple mosaic virus produces creamy white or yellow spots on leaves, symptoms similar to those on apple. It is a rare disease on pear having been found on a few trees only.

Ring pattern mosaic and vein yellows viruses of pears are usually carried without symptoms but occasionally produce symptoms on some varieties.

Ring pattern mosaic virus causes light coloured rings on the leaves.

Vein yellows virus produces a yellow flecking along the veins.

Both these viruses are widespread and of high incidence.

The other two viruses detected, **apple rubbery wood** and **quince sooty ring spot** are carried without symptoms. Surveys have shown that the former infects about seventy per cent of our orchard trees. The latter is also common.

The viruses which produce symptoms on apple and pear all cause reduction in yield or quality of fruit and it would be an obvious advantage to grow trees free from them. The effect of viruses which do not



Fig. 7. Flat limb on Gravenstein apple showing distortion of trunk.

Photograph—W. E. Barnard



Fig. 8. Spy epinasty and decline virus on the indicator variety of Spy 227 showing stunting, curling of leaves and leaf fall. Shoot from healthy tree on right.

Photograph—S. A. Rumsey

cause symptoms is less apparent but overseas research has shown that they too can reduce tree vigour and fruit yield.

During the 1962-63 season a programme was initiated at Plant Diseases Division in an attempt to obtain virus-free trees of all important apple and pear varieties. It was, of course, also necessary to have virus-free root stocks on which to grow them. Fortunately we had already obtained from England a number of apple root stock varieties free from infection and pears are mostly grown on seedling root stocks which are virus-free. We were, therefore, able to concentrate our efforts on securing scion varieties free from virus.

Research in England had shown that most, if not all, viruses could be eliminated from apple and pear by a heat treatment/tip culture technique. Young potted trees are grown in a heat chamber at 100°F for fifteen to thirty days or more if the trees will survive. Although trees do not grow readily at this high temperature they do make some new growth. From the new shoots, tips, $\frac{1}{2}$ to $\frac{3}{4}$ inch long, are removed and grafted on young seedlings. If the grafts are successful the shoots make surprisingly rapid growth. Of the many trees produced from shoot tips

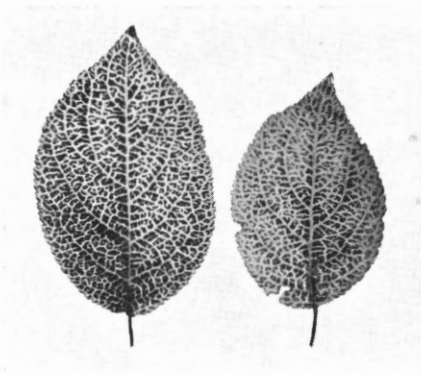


Fig. 9. Vein banding form of plum mosaic on cherry plum.

Photograph—L. H. Wright

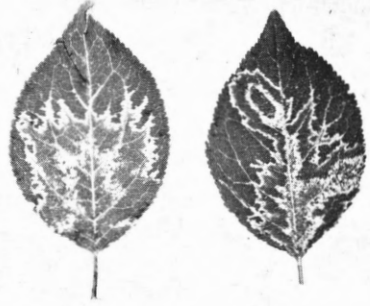


Fig. 10. Line pattern form of plum mosaic on cherry plum.

Photograph—L. H. Wright

only a few are free from all viruses so they all have to be thoroughly tested for infection.

Using this method we have eliminated all known viruses from eight apple and five pear scion varieties and one apple rootstock variety. In addition we have eliminated all but one virus from a further nine apple varieties.

The virus-free trees are released to the industry through the Levin Horticultural Research Station which supplies the virus-free material to nurserymen and the New Zealand Fruitgrowers Federation Nursery which grows virus-free trees for direct sale to orchardists. Some virus-free trees have been already planted in commercial orchards and are becoming available in rapidly increasing numbers. We hope that within five to ten years all apple and pear trees planted in New Zealand orchards will be free from virus.

The situation in stone fruits is much the same as in pip fruits. Twelve different viruses have been detected here. Some are carried without symptoms on most varieties while others cause obvious and serious diseases. You have already seen illustrations showing the effect of little cherry virus on sweet cherry and of cherry green ring mottle virus on flowering cherry. Other common and serious virus diseases of stone fruits are:

Plum mosaic which causes leaf mottling on plum, peach, nectarine, cherry and apricot. Symptoms are variable but there are two main types, vein banding (Fig. 9) and line pattern mosaic (Fig. 10). It reduces vigour and in some varieties causes marked yield reduction. It is widespread and of high incidence in a few varieties, particularly Santa Rosa plum.

Prunus ring spot is the most widespread and prevalent of the stone fruit viruses and infects all species. It sometimes causes shock symptoms when a tree is first infected. Necrotic spots which develop on the leaves fall out giving a tatter leaf effect. Thereafter the virus is carried without symptoms. On its own it does not seriously affect yield.

Prune dwarf also is common in all stone fruit species but is carried without symptoms except in prunes on which it causes distortion and narrowing of leaves and stunting of trees. In New Zealand it is not important on prunes for they are not grown here commercially but in other stone fruits it reduces vigour and yield.

Cherry rasp leaf virus causes severe distortion of leaves and the production of leaf-like out growths on their undersides. Fruit from infected trees is of poor shape and low quality. The disease is widespread but not of high incidence.

Peach rosette is caused by a complex of viruses including **Prunus ring spot** and **prune dwarf**. On infected trees leaves are rosetted, trees stunted and subject to die back of branches. Yield is so much reduced that infected trees are uneconomic. Both peaches and nectarines are affected and the disease is a serious problem on Golden Queen peaches in Hawke's Bay.

The other stone fruit viruses produce mild or no symptoms or are of comparatively rare occurrence.

Stone fruit viruses differ from those of pip fruit in that some of them spread naturally in the field. **Prunus ring spot** and **prune dwarf** viruses are pollen transmitted and seed carried, cherry rasp leaf, overseas and probably here, is transmitted by soil nematodes while **little cherry virus** is leaf hopper transmitted in North America and appears to spread naturally in New Zealand.

Natural spread of some stone fruit viruses creates difficulties in maintaining virus-free trees but steps can be taken to reduce the rate of spread of viruses into blocks of healthy trees. A heat treatment/tip propagation programme to eliminate viruses has already been initiated and although it is still in its early stages four peach, two cherry, and three plum varieties have been freed from virus and a number of other varieties are undergoing heat treatment. Also four apricot varieties free from virus have been obtained by selection.

Amongst grapevines we have found only two major virus diseases, **fanleaf** and **leafroll**. Two other virus diseases, **yellow mosaic** and **enation disease** occur here but are of minor importance.

Fanleaf causes malformation of leaves, excessive lateral shoot growth, flattening of canes and other abnormalities. In Europe it has been reported that on sensitive varieties fanleaf can cause yield reductions of up to fifty per cent but that the disease does not appear to

affect the quality of grapes for wine making. Under New Zealand conditions symptoms are usually difficult to detect. We have not investigated its effect on yield here but it undoubtedly causes some reduction. In other countries fanleaf is spread from vine to vine by one of the soil nematodes but as this particular nematode is not found in New Zealand we are not faced with the problem of natural spread.

Leafroll is a much more serious disease. It reduces vigour of vines, causes premature colouring and rolling of leaves, delays maturity of fruit and reduces its sugar content and, in dark fruited varieties lowers its pigment content. But above all it causes a marked reduction in yield of grapes. In trials overseas it has been shown that in some varieties yield may be reduced by as much as eighty-five per cent. In trials here the yield of one European variety was reduced to one-third, sugar content lowered by thirty per cent and pigment content by fifty per cent. European/American hybrid varieties are somewhat tolerant to the leafroll virus and in our trials with one such variety yield was reduced by forty per cent and sugar content by nine per cent. Natural spread of leafroll is not known to occur.

Both fanleaf and leafroll are very prevalent in New Zealand, most varieties in commercial vineyards being one hundred per cent infected with one or both viruses, mostly both. Circumstantial evidence suggests, however, that in the early days of grape-growing many of our vines were free from virus. A study of early records indicates that the propagation procedures used would have spread infection from diseased to healthy vines and could account for the present high incidence. It was common practice to top work vines of unsatisfactory varieties with scions from better varieties and, because of shortage of rootstocks which were required to overcome the effects of **Phylloxera**, cuttings were commonly taken from rootstocks on which scions had failed. Also, because so little was known about virus diseases when many of our fruiting and rootstock varieties were introduced about the turn of the century it is probable that some vines were infected when they arrived.

If the infected grapevines growing in our vineyards were replaced with healthy vines yield of grapes and production of wine would be greatly increased, probably more than doubled, and because of higher sugar and pigment contents of the fruit wine quality would be much improved.

To make virus-free vines available to the industry the Department of Agriculture has imported from the University of California, Davis, twenty-seven wine, twelve table and six rootstock varieties free from virus. Also at Plant Diseases Division we have been attempting to eliminate viruses from all varieties of importance in New Zealand. The procedure differs from that used for pip and stone fruits in that the

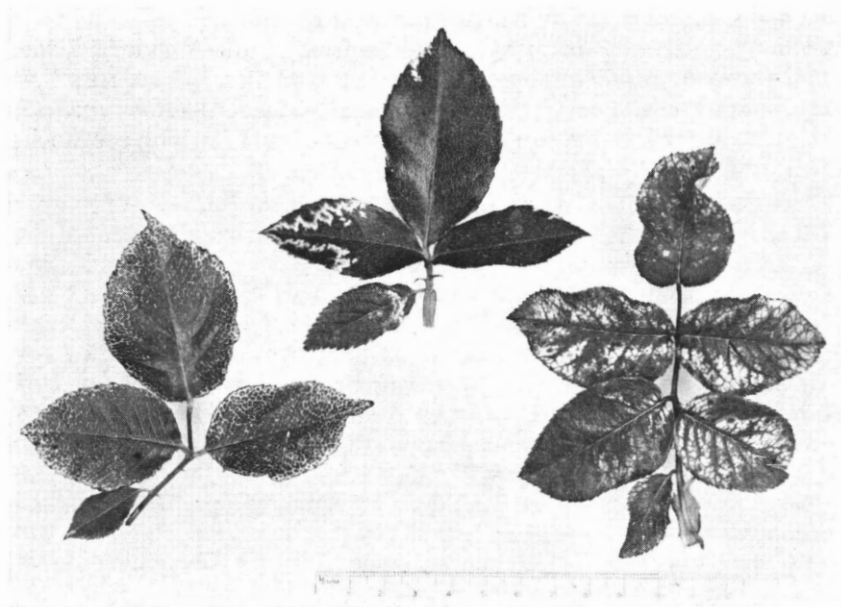


Fig. 11. Rose mosaic on rose showing three common symptom types: Left—veinbanding; Top centre—line pattern; Right—diffuse mottling.

Photograph—J. W. Endt

vines are held at 100°F for a longer period, if possible sixty-eight days or more, and the shoot tips instead of being grafted on seedlings are rooted under mist. The first virus-free variety produced at the Division was released in 1968, six more are being released this year and we expect to release a further eighteen varieties over the next three years.

Virus-free grapevine material is being distributed to growers by the Te Kauwhata Viticultural Research Station and the Horticultural Department of Massey University has undertaken to produce virus-free vines for sale to the industry.

Amongst the ornamentals, roses are commonly infected with several viruses. Unfortunately we do not yet have a clear picture of the important rose wilt virus problem but investigations are under way. However, we do know that several forms of rose mosaic (Fig. 11) are common in our roses and that incidence is increasing. Prunus ringspot-virus, carried without symptoms, is also prevalent. The work of Dr. Fry and Mr Hunter has demonstrated that rosette mosaic reduces vigour of plants and production of flowers.

It is probable that most virus infection is introduced into roses from rootstocks. I was most interested to find during a visit to the famous

McGredy rose nurseries in Northern Ireland in 1954 that infection with mosaic occurred only in roses introduced from North America. I was unable to find mosaic in any European-bred varieties. I am sure that the difference was due to the use of clonal rootstocks (*Rosa manetti*, Dr. Huey and *R. multiflora*), in North America and seedling rootstocks (*R. canina*) in Europe.

Rose breeders and growers in North America are now well aware of their virus problems and during the past few years Dr. Nyland, of the University of California, at Davis, has been working on the production of virus-free rootstock and scion varieties by heat treatment.

In New Zealand it is probable that much of the mosaic infection was introduced with rose varieties introduced from North America and that it has been spread to other varieties through use of infected *R. multiflora* rootstocks. It has been common practice for our nurserymen to secure their *R. multiflora* cuttings from budded plants, a system which is ideal for virus spread. Dr. Hammett of the Division has already produced healthy *R. multiflora* rootstock material from selected seedlings and it is hoped that, within the next few years, the fruit tree virus team may be able to devote some time to the elimination of viruses from our popular scion varieties.

Heat treatment methods which have been extensively used to eliminate viruses from a wide range of economic crop plants can be used also to obtain virus-free plants of such ornamentals as *Malus* and *Prunus* species, roses, camelias, daphne, etc.

But heat treatment is not the only method by which plant viruses can be eliminated. Some plants can be raised on culture media from meristem tissue and such plants are usually virus-free. Meristem culture has become almost a standard procedure for obtaining orchids free from virus and is widely used to secure virus-free carnations. Also, research workers at the Glasshouse Crops Research Institute, Littlehampton, England, are producing virus-free narcissi, tulips and other bulbs by this method.

Over the years many of our favourite perennial ornamental plants have degenerated through virus infection but there now seems to be good prospects that they will be revitalised by heat treatment or meristem culture methods.



NEW PLANT LEGISLATION

Part of an address given by MR A. D. DICK, M.P., Under-Secretary for Agriculture, in officially opening the Dominion Conference, 1971.

As this is the first occasion on which I have had the opportunity and pleasure of meeting your members I do not propose to touch on topics which you will be considering at this Conference but I do feel it an appropriate occasion to outline to you the important aspects of the Plants Act, an Act I was very closely associated with in the last session of Parliament as Chairman of the relevant Committee.

As you know the Horticulture Division, Department of Agriculture, was established towards the end of the last century at the request of fruitgrowers, nurserymen and beekeepers who recognised that legislative authority was essential for the eradication of major pests and diseases of plants and bees. Today agriculturists recognise that similar provisions are necessary in regard to plants wherever they are grown and therefore this new Plants Act is a very comprehensive one covering *all* land and *all* plant material. In fact the definition of land includes any area, field, any farm, garden, orchard, nursery, glasshouse or premises and it even includes roads, harbours and wharves, whilst plant material includes *all* vegetation unless it has been rendered free from all disease and is incapable of carrying any pest or disease.

I believe that your horticultural predecessors are to be congratulated on the steps they took over seventy years ago in this field and their foresight is to be commended but today moving with the times this new Act is an agricultural one and no longer carries the title of "Orchard and Garden Diseases". It is also a very comprehensive one in that it governs the quality, and the plant quarantine aspects, of both imports and exports of plants and gives far greater flexibility to deal with the situations which may arise from time to time and in fact will as we all know. I say this because not only does it enable measures to be taken when a disease has been identified but it also covers infected plant material as well as material not known to be actually diseased but which may have had direct or indirect contact with or may even merely been in the vicinity of any diseased plant material. There is far greater flexibility in this field than before. Further flexibility is also given by restricting by regulation the introduction into New Zealand of plant material which is likely to introduce any disease or which has noxious or undesirable characteristics or which is of weak, inferior or undesirable strain. Regulations can be issued under the Act which will provide for the destruction or re-shipment of any such plant material including its progeny.

Unlike the situation with animal diseases where it is possible to list a limited number in schedules and define precisely any action which

must be taken it was considered just not to be possible to do this with plants particularly when it is realised that Miss Dingley's publication of *Plant Diseases in New Zealand, 1969*, lists 894 diseases on 1070 different host plants. The concept therefore is that diseases including pests be divided into three very broad categories: (1) The less significant ones; those which are widely distributed and normally controlled by hygienic measures or sprays; (2) those requiring constant attention and control; and (3) the serious pests and diseases.

Legally action is only required by the occupier when directed by an inspector. This is clearly set out in Clause 11 which states that the occupier of any land shall do whatever is directed by an inspector. A serious disease or pest is defined as a disease or pest that is not known to be present in New Zealand or if known to be present is one in respect of which measures are already being taken under the Act to eradicate it. If a plant disease emergency arises in the future prompt measures may now be more readily taken under Clauses 12 and 13 than previously.

Simply through the proclamation of a plant disease emergency in such circumstances the Minister may now direct that measures be taken necessary for the purpose of preventing the establishment of a serious disease or pest in New Zealand, and also direct measures for eradicating it from the country. Similarly, if this country's scientists learn of the presence of an important disease in a country or region from which we normally import then under Clause 6 the Director-General of the Department of Agriculture may simply by notice in the Gazette prohibit or restrict the introduction of any plant material concerned. In both these instances the initial action expires after six months after which it may be renewed if necessary or it may be translated into a regulation which would continue for a much longer period of time.

In this context however, I must emphasise that although there is a long list of diseases recorded here this country is still free of certain very serious diseases such as the harmful fruit fly, Argentine ant, Colorado potato beetle or golden eelworm. I believe that the long list of disease recordings is more to the credit of our research scientists than an indication that New Zealand is riddled with plant diseases. In fact as most of you are aware almost all of these diseases arrived in this country before a modern plant quarantine service was established and most of them came in on host plant material from either Europe or North America during of course the early days of colonisation of this country.

This legislation is also flexible in that it may authorise the importation of any normally prohibited material. This may be done if the Director-General of Agriculture thinks it desirable for the purpose of

scientific research or experiment. There is also greater flexibility to alter the quality standards for fruit or other plant material exported from this country without the necessity as previously of amending regulations. It is intended in this case that the new regulations should enable the Director-General of Agriculture to determine these grades or quality standards and thus enable this country to meet changing conditions in Europe, North America or other regions to which we currently export. An additional safeguard in relation to exports is that if disease or pests cannot be eliminated by grading and subsequent inspection the Director-General may direct a grower not to submit for export a crop or portion of a crop. These measures are all designed to bring about greater flexibility regarding quality standards of exports.

Finally, in the Act the rights of John Citizen have not been overlooked because no inspector under this new Act has authority to enter any dwelling house unless authorised by a warrant under the hand of a Magistrate. The Magistrate shall not grant the warrant unless he is satisfied that the inspector has reasonable grounds for requiring entry to the dwelling house. In future also no inspector shall direct re-shipment or destruction of plant material unless he has the concurrence of another permanent inspector. These latter measures further protect the rights of the individual and are a progressive step.

Provision for compensation has been written into the Act also, in Clauses 13 and 14. In the case of a plant disease emergency the Minister may pay to the owner of any plant material destroyed an amount equal to the fair market value and existing regulations such as the Citrus Canker Regulations may be gazetted providing for destruction or for the special treatment of the land, and if the eradication of a disease or pest is involved for the payment of compensation for the destruction or treatment at such rates as may be fixed by the regulations.

I trust that the above review will give members of the Institute a better understanding of what occurred last year with the passing of the Plants Act and I was pleased to learn that this Institute fully supports this legislation. I sincerely hope that all members will do their utmost to discourage ignorant or irresponsible people from smuggling plant material into this country because I can assure you that the aim of our Plant Quarantine Administrators is to provide adequate and reasonable safeguards and in no circumstances to prohibit the introduction of such material unless there is a sound biological reason for doing so. There should be no need to resort to smuggling.

Plant Breeders' Rights:

Government still has under consideration the question of appropriate legislation in regard to Plant Selectors' (or Plant Breeders') Rights and I know the Institute has taken a great deal of interest in this

subject. It would be of considerable assistance to Government if a balanced assessment could be made in regard to the cost of administering such a scheme here. I am fully aware of the merits of such schemes operating in the United Kingdom and the United States of America even though there are certain difficulties in those countries but the financial value of these schemes to the breeder is primarily based on a large purchasing public, where each member in purchasing "Patented Plants" pays a contribution to the original breeder or selector. However, in a country with a small population as in New Zealand, even with a high percentage of enthusiastic home gardeners it appears to be very debatable whether the costs of running such a scheme would provide a reasonable financial reward to the plant breeder or selector. Nevertheless an attempt is being made to draft legislation along the lines I have suggested and I know you understand this is very difficult legislation to draft and I would appreciate your Institute's considered opinion on this important matter.

Horticulture today is expanding rapidly. Its image as an industry in its own right is not now denied, whilst its potential as an earner of overseas funds is considerable. I believe that the new legislation I have outlined to you will assist the industry to expand even further and more quickly.



ACACIA VERTICILLATA 'REWA'

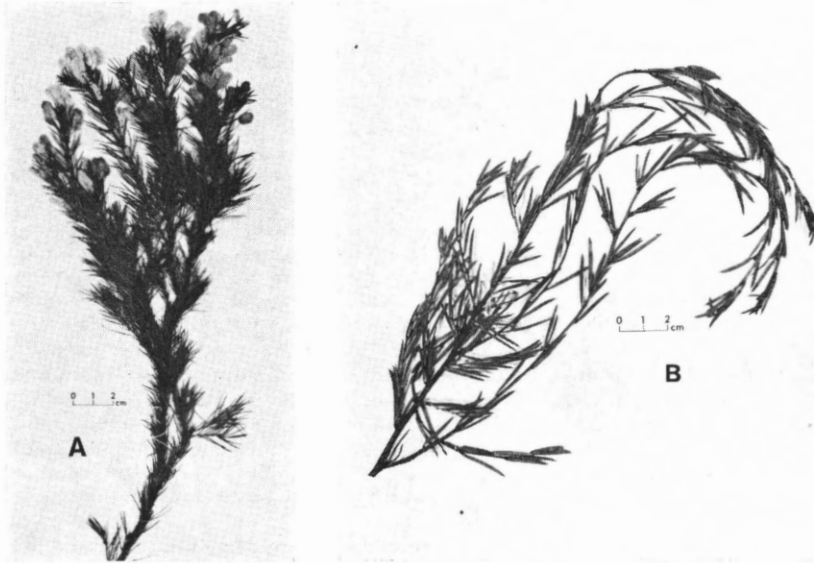
(Prepared for the R.N.Z.I.H. Nomenclature Committee by P. C. Gardner, M.Sc., Levin)

There has for some time been doubt as to whether the shrubby Acacia which has been sold in New Zealand for some years as *Acacia riceana* has been in fact correctly named.

Mr E. Hill of Hamilton imported seed from two different sources in Australia of the true *Acacia riceana* and found that the resultant plants were different from those grown under that name in New Zealand.

In order to clarify the situation Mr Hill brought this matter to the attention of Mr W. R. Sykes of Botany Division, Christchurch, who considered and subsequently confirmed with Dr M. D. Tindale of the Royal Botanic Gardens, Sydney, a specialist in wattles, that the plant being grown in New Zealand as *Acacia riceana* was, in fact, the type variety *Acacia verticillata* var. *verticillata*.

The variety of Acacia which some years ago was grown extensively from seed for farm hedges, but which is less frequently planted now, is known under the common name of "Prickly Moses" or "Prickly acacia".



(a) *Acacia verticillata* 'Rewa'. (b) *Acacia riceana*.
(Dried specimens, Herbarium, Botany Division, D.S.I.R., Lincoln.)

Photographs—D.S.I.R.

This variety is correctly named *Acacia verticillata* var. *latifolia* although it is commonly offered and referred to as simply *Acacia verticillata*.

As the ornamental shrubby form previously incorrectly known as *Acacia riceana* would be likely to be confused with the common hedging variety if it were given its correct botanical name, it became apparent that an acceptable cultivar name would clarify the situation. The use of a cultivar name for the ornamental variety would be most appropriate because it is uniform and generally propagated in New Zealand by cuttings from clonal material.

Mr Hill, who had originally brought the matter to the attention of Mr Sykes, suggested that the cultivar name 'Rewa' be used for this cultivar. At a recent meeting of the New Zealand Nurserymen's Association Plant Nomenclature Committee which was attended by Mr J. Salinger on invitation as Convener of the Royal New Zealand Institute of Horticulture Nomenclature Committee and also by Mr R. E. Harrison on invitation, it was decided that with the concurrence of the Institute's Committee the cultivar name 'Rewa' be the correct cultivar name for the form of *Acacia verticillata* var. *verticillata* previously erroneously known in New Zealand as *Acacia riceana*.

The correct name, therefore, becomes *Acacia verticillata* 'Rewa'. This is preferable to the shortened form *Acacia* 'Rewa'.

BOOK REVIEW

'FLORA OF NEW ZEALAND'—Volume II by Lucy B. Moore and Elizabeth Edgar

T. F. Cheeseman's 'Manual of the New Zealand Flora', ed. 2, published 1925, gave a comprehensive descriptive account of the plants (both dicotyledons and monocotyledons) native to this country. Subsequent taxonomic research on New Zealand plants carried out at Botany Division, Christchurch, was brought to fruition in 1961 when Dr H. H. Allan's monumental work 'Flora of New Zealand', Vol. 1, was published. This book deals only with dicotyledons.

Dr Allan died in 1957 and the work of finalising his work for publication was the responsibility of the co-author of the present work, Dr L. B. Moore, who had worked closely with Dr Allan. Working with Dr Moore on the latest publication has been Dr E. Edgar. Together, this team of author-scientists have studied plants in the field, plants under cultivation, chromosome numbers; researched through old books, examined hundreds of dried herbarium specimens, and so on in order to collate information and thereby finalise taxonomic details relating to the monocotyledonous plants of this country. The result of their ten years meticulous work is seen in 'Flora of New Zealand' Vol. II—a book likely to be the standard reference work for a long time to come. All plant taxonomists will, I am sure applaud the end product of their arduous endeavours.

Of course, the book's technical terms are primarily for the professional botanist, but it is pleasing to note that passages occurring after many of the formal descriptions of the species, pick out the salient points which separate closely allied plants. This enables anyone with a basic understanding of morphological terms to find more quickly the relevant parts of a plant which distinguish it from its relatives. As in volume I, keys are supplied for the families, genera and species named in the book. Of further help is a liberal sprinkling of text figures—25 drawn by Nancy M. Adams and 18 of orchids by J. Bruce Irwin.

Twenty-two families are recognised in the current edition, i.e. all except Graminae; genera total 75, species 339 and botanical varieties 18 (cf. Cheeseman's 'Manual of the N.Z. Flora', ed. 2, 1925, for equivalent figures which are 15 families, 68 genera, 277 species and 66 varieties). Several unfamiliar generic names have come to the fore; *Cordyline* is now included in Agavaceae—not Liliaceae, but perhaps the biggest eye-opener concerns the correct specific name for Mountain Flax which botanically is now *Phormium cookianum*.

The format of volume II follows closely that of its predecessor, though whereas volume I contains 1085 pages, the current issue has only 354. However, all readers of volume I will rejoice that the tendency to turn over six pages instead of one at a time is less likely to occur in volume II due to its thicker pages.

'Flora of New Zealand', Vol. II, is available at the surprisingly and agreeably low price of \$4.50.

R. H. MOLE.

BOOK REVIEWS

Publishing houses may submit horticultural books by New Zealand authors for review and the Institute will endeavour to have such books reviewed by a suitable authority.

The Editor may also accept reviews of suitable books submitted by the reviewer over his own name.

There is no undertaking to review every book submitted.

ALONG THE AVON (continued)

by The Editor.

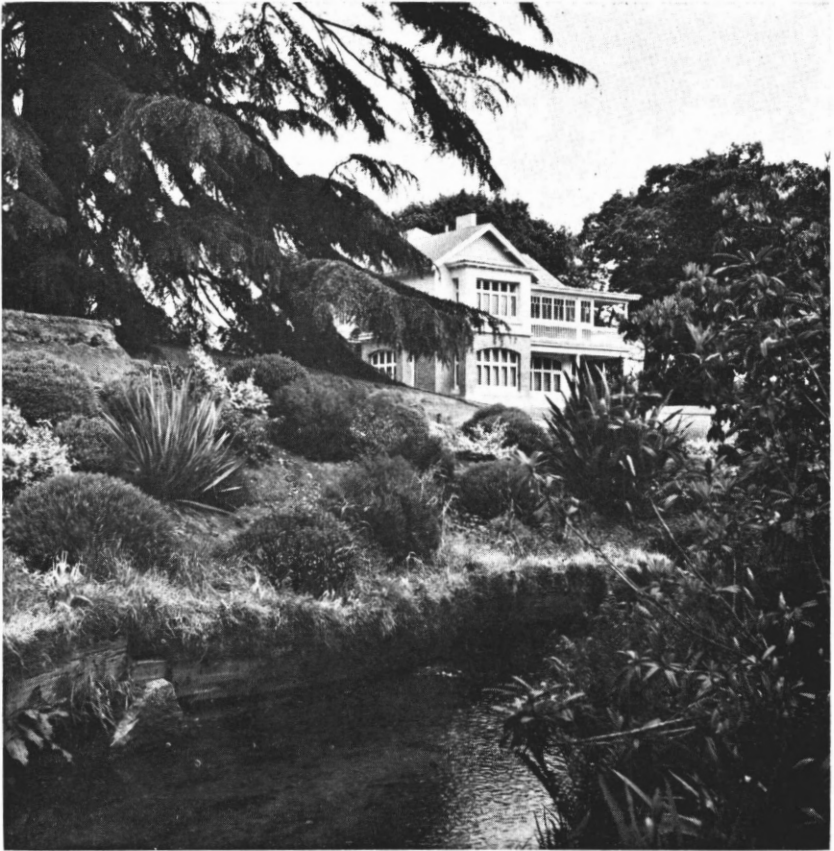
For all that, even if there was not a member of the rhododendron genus on the place, Ilam would still be a beautiful and notable garden, for there are many magnificent plants and plantings there, both exotic and indigenous. Among the former genera we note *Cedrus Sequioa*, *Salix* (willows), *Gunnera*, *Quercus* (oaks), *Acer* (maples), *Ulmus* (elms), *Viburnum*, *Aesculus* (horse chestnut), *Populus* (Poplar), *Phebalium*, and others too numerous to list whilst the indigenous plants include *Pseudopanax*, *Cordyline*, *Dacrydium*, *Hoheria*, *Podocarpus totara*, *Dodoneae*, *Pittosporum*, *Sophora*, *Olearia*, *Nothofugus*, *Fuchsia excorticata*, *Leptospermum*, tree ferns and many others. After Edgar Stead's death in 1949 the property was sold to the University of Canterbury which continues to maintain the garden and grounds as formerly. New plantings noted recently included a group of conifers mainly *Chamaecyparis* spp. and *Cupressus* spp., the native *Podocarpus totara* and also *Dodoneae viscosa purpurea*, *Pittosporum* spp. and a brilliant *Leptospermum* hybrid. The area immediately around the homestead is attractively laid out in lawn terraced and sloping down to the river. Here many magnificent specimen trees are to be found. To the west of the back lawn is an attractive enclosed rose garden intersected by stone paths. This is probably the most formal area of garden in the whole establishment with the exception of the straight rows of the adjoining nursery. The roses were a picture of health early in November, 1970, but seemed to be much later in flowering than in most parts of Christchurch. This is probably caused by the woodland area to the north which would shade the area in the winter whilst at the same time the rose garden is rather exposed to southerly winds.

The nursery not only contains rhododendrons and kindred subjects but many other choice trees, shrubs and other nursery stock for planting elsewhere on the campus.

The Avon and its backwater add the finishing touches particularly the millpond fringed with giant gunneras, the weeping willows, rustic bridges, small fall, weir and waterwheel. The last generated power for the establishment in a bygone era and is evidence of Edgar Stead's engineering training.

Recently the homestead has been renovated and altered for the University Staff Club and surely few clubs in New Zealand or overseas are blessed with headquarters in such beautiful surroundings.

Ilam is not open to the general public but is visited by many interested horticultural groups especially those connected with rhododendrons. There are two open days each year in late October and early November held under the auspices of the Canterbury Horticultural



Ilam Homestead with the Avon in foreground.

Society and interested visitors to the City about then should make enquiry of the Horticultural Society, 151 Cambridge Terrace.

A neighbouring garden of note adjoining Ilam and a stone's throw from the Avon is that of Mrs Ivan Wood known throughout New Zealand and overseas for her rhododendrons, azaleas, camellias and lilies. Mrs Wood, too, is interested in hybridising and is carrying on in the Ilam tradition. Like all true plantsmen her taste in plants is catholic despite specialisation. Many fine trees stand on this property which has its own little stream and dell and an intriguing sight is to see the evergreen, ever-blooming, Australian climbing rose 'Nancy Hayward' flowering among the trees some twenty to thirty feet above the ground.

The Avon flows under Ilam Road by culvert emerging on to the campus proper between the Students' Association building and the old

Okeover homestead which now houses the School of Fine Arts. On the left bank is a through road to Clyde Road which provides access to the many buildings already built and being built on the Ilam campus. Many faculties of the University are still domiciled on the town site and building proceeds apace. Here the banks of the Avon are gently sloping with a sprinkling of trees and shrubs, many newly planted. Many existing specimens have been retained but doubtless those of no great merit will be removed as the new plantings grow. The river banks here are already attractive, promising to be even more so in the years to come. Despite the intense building programme the area is not unattractive from the through road and one cannot but feel that both the University authorities and the Ministry of Works are conscious that they would be failing badly if they did not make this one of the great show places of New Zealand's Garden City.

Departing the University environs our stream passes under the Clyde Road bridge and now follows a short journey through private gardens and under the Puriri Street and Kahu Road bridges to emerge at Deans' Bush. The views from the bridges are not unattractive and the private gardens bordering the Avon derive much from the gently flowing waters. The course of the Avon here is not obvious to the sightseer as owing to the high-sided bridges occupying the full width of the streets it is easy to pass over the river totally unaware of it. Deans' Bush is noteworthy as being one of the few examples of primitive New Zealand bush on the Canterbury Plains and also because this was the birthplace of the Canterbury Province. In 1843 the Deans Brothers settled on the banks of our river here calling it the Avon River and the property Riccarton after names in the Scottish parish whence they came. The late Professor Arnold Wall in "The Botany of Christchurch" says, "This is a typical piece of swamp-forest; it includes five species of noble forest trees; Kahikatea or White Pine, Matai or Black Pine, Totara and the two species of *Elaeocarpus*, the Hinau and the Pokaka. Then there are the smaller trees; the Wineberry or Native Currant, Putaputawheta (*Carpodetus serratus*), Broadleaf, Lacebark, Ribbonwood, Mahoe, Ngaio, Matipo, Milk-tree (*Paratrophus heterophylla*) and Kowhai. A dense undergrowth of shrubs includes at least eight species of *Coprosma*, the two common Myrtles, Fuchsia, the Pepper-tree and others. A round dozen of climbing plants grow here, most remarkable of which are the New Zealand Passion Flower, a very beautiful object when in fruit, and an exceptionally robust Lawyer, a true giant among briars. The common Maori vine (*Muehlenbeckia australis*) also grows here. There are no rare or even uncommon plants, but the community is an intensely interesting one." There have been intrusions of foreign flora, the ubiquitous *Pinus radiata* being hard



The Deans Cottage—Riccarton bush in the background. (Built 1844)

to keep out but perhaps the biggest threat to the forest floor is by other imported intruders.

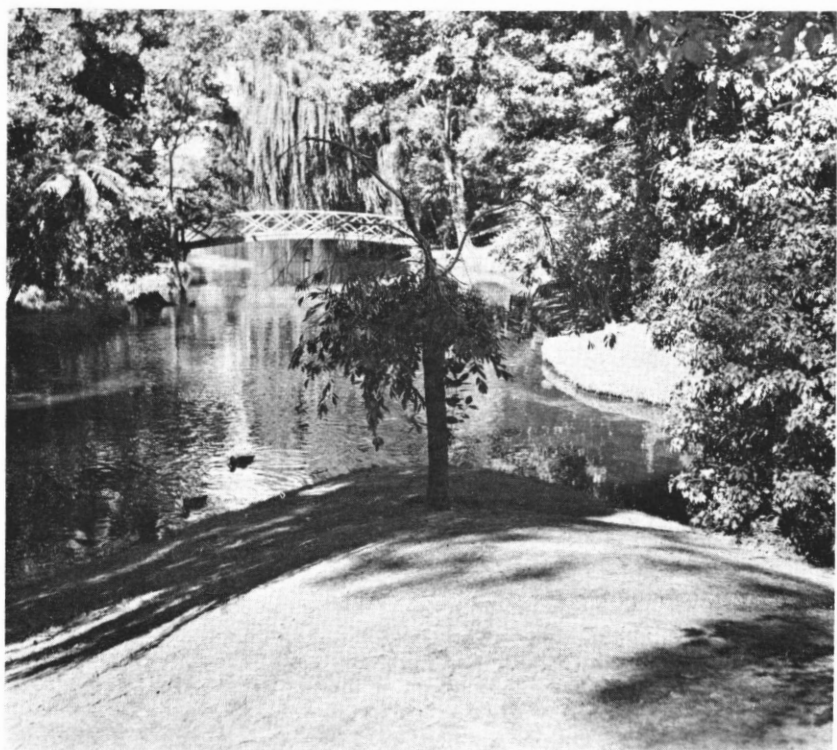
This must have been an eminently desirable site even in the 1840s with the timber and water together on the almost treeless plains and you will find Deans' second cottage preserved there today. This was restored in 1950 but the original site was much nearer Kahu Road. The eastern part of the reserve is mainly open woodland comprised of deciduous Northern Hemisphere trees, oaks being prominent; among the evergreens cedars are prominent.

Now our stream goes under Kahu Road to flow through the Boys' High School grounds behind the main block. This is not the original site of this famous school which shifted here in the mid-twenties. Fine plantings of native and exotic trees enhance the extensive school grounds largely through the foresight and efforts of two masters, Messrs Gourlay and Baverstock. Many have reached maturity and provide a fine setting for the creeper clad red brick walls of the school. Many of New Zealand's most noted horticultural administrators have learnt and played here.

Under Straven Road now and the Avon flows through private residential properties in a veritable tunnel of tree foliage, under Hara-

keke Street to skirt the grounds of Adams House, the Boys' High School Hostel. There is no record of any occupants of the hostel having followed the course of the river to the school but doubtless it has been done. Passing under the Christchurch-Picton railway line we enter Mona Vale and almost immediately come upon the confluence of the Avon and the Wairarapa Stream. Also within the confines of this property is the junction of the Waimairi Stream with the Wairarapa. Mona Vale is an extensive property that has recently been acquired by the Christchurch City Council and the Riccarton Borough Council, within whose boundaries it lies, for the benefit of the citizens of the metropolitan area. It previously belonged to the Mormon Church and when it became available a large sum of money was raised by public subscription at the instigation of the Christchurch Civic Trust.

(To be continued)



The Wairarapa Stream (left) and Avon River (right) merge at Mona Vale near the Homestead.

DOMINION CONFERENCE, 1971

Proceedings of the Forty-Eighth Annual Meeting and Conference of Delegates held in Auckland on 12th February 1971.

Present: Mr J. F. Living, Dominion President, presided over an attendance of 58 members, delegates, representatives of affiliated organizations and visitors. **Apologies** for non-attendance received from several members were announced to the meeting. **Greetings:** Messages of goodwill had been received from several members.

Welcome was extended by the Dominion President to delegates and especially to Dr E. E. Chamberlain (Acting Chairman of the Auckland District Council in the absence of Mr T. N. Flint), Mr W. H. Rice and Mr J. A. McPherson.

In Memoriam: Persons present observed a brief silence in honour of and in respect to the memory of those members who had passed away during the year with special reference to the late Mr M. P. Reitcheson (Lower Hutt), Mr C. A. Teschner (Dunedin) and Mr T. Y. Turner (Dunedin).

Procedure Rules: Procedure Rules as defined and circulated at the Meeting were adopted for the duration of the Conference.

Dominion President's Address: Mr J. F. Living said that recently he had read a copy of the first bulletin issued by the Institute over the signature of the late Dr L. Cockayne, in which he had elaborated on the prime objects and aspirations of the Institute at its inception. During the past year, forty-eight years later, time had been given by the Dominion Council to a study of the present and future Role of the Institute.

The early membership included a large body of the country's leading horticulturists and scientific men of that day. Education in horticulture was foremost in their aims, leading them to aspire unto University Degrees in Horticulture and a basic teaching of the subject in primary and secondary schools. They hoped for opportunities in research; they looked forward to the dissemination of knowledge by means of an official journal and uniformity in botanical nomenclature supervised by a special nomenclature committee. In all, they set out to encourage every branch of horticulture, "so as to make the Institute indispensable to the welfare of New Zealand".

In retrospect, many of their aims have been achieved—we are conducting annual examinations and Diplomas and University Degrees in Horticulture are available; the Institute enjoys international recognition in Horticultural Nomenclature; we have a Journal of quality; research is advancing, but complete fulfilment can never be accomplished by any one generation; we today then, must press on, with the enthusiasm that characterized these early members.

This 48th Conference could promote our determination to continue in ways of making the Institute truly worthy of its "Royal" title.

In response, Mr Syme expressed appreciation to the Dominion President for his address and stated that it was appropriate for members to be reminded of the original aims and objects of the Institute which were laid down so long ago.

Official Opening: Mr A. D. Dick (Parliamentary Under Secretary to the Minister of Agriculture), Dr and Mrs E. E. Chamberlain, Mr W. H. Rice, Mr and Mrs L. Jenkins, were warmly received by Mr and Mrs J. F. Living and welcomed to the Conference for the official opening by Mr Dick. Apology for absence was received from His Worship the Mayor and Mayoress of Auckland.

After expressing his pleasure at being present and affirming his distinct interest in conservation, Mr Dick dealt very largely in his address with the

provisions of the recently introduced Plants Act. He commented on the very complex and diverse nature of horticulture in New Zealand and stated that problems in one phase were not always readily applicable to other phases of horticulture. He also believed that New Zealanders were realizing, probably for the first time in this country, that environment is important and that it is a part of our heritage that must be retained. Plant environmental control had become important and horticulture will play an important part in achieving this. The new Plants Act, Mr Dick explained, is very comprehensive, covering all land and all plant material and governs the quality and plant quarantine aspects of imports and exports of plant material. (It is reported in more detail in an article, "New Plant Legislation".)

On behalf of the assembled delegates Dr J. S. Yeates expressed thanks to Mr Dick for his opening address and for his excellent exposition of the new Act. With regard to plant breeders rights, Dr Yeates considered that it was important that such legislation be introduced if growers were to be encouraged to improve and propagate new strains. Dr Yeates also emphasized the tremendous amenity value of horticulture in every new housing development.

Dr E. E. Chamberlain on behalf of the Auckland District Council, expressed a cordial welcome and hoped that all would enjoy their visit to Auckland. Many endeavours were being made in Auckland to preserve horticultural features and there was a civic pride in the natural beauties of the city.

Forty-eighth Annual Report and Statement of Accounts (for the year ended 30th September, 1970): Resolved that the Annual Report and Statement of Accounts be taken as read having been previously circulated.

In moving the adoption of the Annual Report, Mr J. F. Living referred briefly to many of the matters within the report. With regard to publishing the lists of Historical and Notable Trees, progress was being made and at the present time the Dominion Council is entering into negotiations for this.

There had been further discussions pertaining to the Eastwoodhill property and progress was being made locally with the formation of a trust. The Horticultural Producers Council was functioning well and their meetings were proving to be helpful in their discussions on matters of common concern.

Mr R. T. Fear seconded the adoption of the Annual Report.

Mr J. P. Salinger stated that there had been, quite recently, a joint meeting of the Nomenclature Committee and the New Zealand Nurserymen's Association. There had been joint agreement on proposals regarding the names of new plants, exchanges of information and consultations over the names and availability of plants included in the Award of Garden Excellence annually. Mr Salinger expressed appreciation to all who were assisting in establishing collections of *Leptospermum*, *Hebe*, *Coprosma* and *Phormium*.

Mr A. M. W. Greig expressed disappointment at the absence of nominations last year for the Plant Raisers' Award and drew attention to this activity of the Institute. With reference to the publication of Historic and Notable Trees Mr Greig hoped it would appear in the best form providing easy reading and ease in identification.

Mr R. Syme reported that an increased number of nominations were now being considered by the Loder Cup Committee for this coveted Annual Award. This was very pleasing. He encouraged District Councils and others to continue to submit nominations. Mr Syme also encouraged District Councils to put forward names of suitable persons for nomination for National Parks Boards.

With reference to the Manapouri issue, there had been equal interest in

all views expressed from which it had become apparent that there was a very wide spread anxiety for the preservation of the Lake. He encouraged members to make their own inspections of Lakes Manapouri and Monowai. He emphasized that mistakes affecting these Lakes cannot be patched up and that therefore it was far more important to be certain of doing the right thing before any action is commenced.

Mr Syme also commented on the growing interest in environment and hoped that the Institute would endeavour to be represented at the Conference being held later in the month. It was expected that out of this Conference a co-ordinated body would be established.

At the conclusion of the discussion the motion for the adoption of the Report was put and carried.

Annual Accounts: Mr J. F. Living moved that the Annual Accounts be adopted. The excess of income over expenditure for the year amounted to \$54.24 after transferring \$420.74 to the Publications Reserve Account. Profit of \$359.99 on the sales of the booklet "Flowers for Shows" had also been transferred to the Publications Reserve Account. This Reserve Account therefore, now stood at \$800. Additional publications such as the "Historic and Notable Trees" were envisaged and the building up of such reserve was wise. The Internal Affairs Department had continued to give support to the Publications Account to the extent of \$800. The cost of the Journal to be met out of general memberships subscriptions for the year amounted to \$1984.66. The Department of Agriculture continued to give financial assistance towards the examinations expenses.

There being very little discussion the motion for the adoption of the Annual Accounts was put and carried.

Award of Garden Excellence: Miss J. M. Dingley reported that since the scheme commenced in 1968, 120 plants had now been listed for the Award of Garden Excellence. The time had therefore arrived when a consolidated list might well be published for the benefit of the Horticultural Trade and home gardeners.

During the year there had been reference to an Award of Merit similar to the Award made by the Royal Horticultural Society. However, the A.G.E. Committee considered that the Institute is not yet in a position to commence trial grounds which would be an essential part of such a scheme.

Miss Dingley emphasized that plants sought for nomination were those that would be pleasing in average garden conditions holding their blooms, generally doing well and somewhat disease resistant. It was emphasized that the Award of Garden Excellence must not be confused with an Award of Merit.

Examining Board Report: In the absence of the Chairman of the Examining Board Professor H. D. Gordon, Mr A. M. W. Greig moved that the Report be taken as read seeing that it had been previously circulated.

The results from the 1970 examinations had been gratifying as comparative figures revealed. The assistance rendered to candidates by the New Zealand Technical Correspondence Institute was acknowledged. Much voluntary help was given to the Examining Board by a number of people individually and also by District Councils, especially Manawatu and Canterbury in relation to the Oral and Practical Examinations.

The Parks and Reserves Department at Palmerston North and Christchurch lent considerable assistance to the Institute for the conduct of Oral and Practical Examinations each year. District Councils could render distinct assistance to students taking the Institute's examinations by arranging meetings

and lectures with visits to productive establishments from time to time throughout the year.

Revised syllabuses had now been finally adopted for National Diplomas in Horticulture, Fruit Culture, Vegetable Culture and Nursery Management, following extensive consultations with the various industries concerned to ensure that the revisions would result in something worthwhile, meeting the current needs within those industries. In the past there had been considerable wastage and it was hoped that these new syllabuses with a National Certificate after three years and a full Diploma after five years would meet present needs and attract an increased number of candidates.

District Councils could assist in promoting interest in these new Diploma Courses which provide a very worthwhile qualification for all who could not attend and take a university degree. Mr Greig appealed also to the Fruit Growers Federation, the Vegetable and Produce Growers Federation and the New Zealand Nurserymen's Association to promote these courses within their respective industries. The year 1970 had been a very significant one in horticultural education.

Professor T. M. Morrison seconded the motion for the adoption of the Report.

Mr J. B. Laurenson, himself a holder of the National Diploma in Horticulture, expressed disappointment that the Diploma is not fully recognized in the Public Service. In the United Kingdom the Diploma in Horticulture is accepted as an alternative to a university degree when it comes to horticultural research. It was generally held that the New Zealand Diploma in Horticulture ranks higher than the United Kingdom Diploma in Horticulture. He felt that greater recognition in New Zealand is essential.

Mr A. M. W. Greig agreed that in the past recognition has been inadequate. However, now that the syllabuses had been updated a new approach would be made to the State Services Commission for greater recognition of the Diploma. As the new titles of the Diplomas indicated, there was a degree of specialization provided for in each, with a common basic training in all especially at the lower level subjects.

Mr J. P. Salinger hoped that District Councils would be supplied with copies of the new syllabuses and be kept informed of the registration of candidates in their respective areas. (He also hoped that copies of the Plants Act might be sent to District Councils.) Mr Salinger also supported the desire for greater recognition of the Diplomas and reiterated that in the United Kingdom Diplomas in Horticulture were held in high regard and in advisory services there, holders of the Diploma were admitted at the same level as holders of university degrees. Thereafter, promotion was according to merit.

At the conclusion of the discussion the Report was adopted.

Remits: (1) Dominion Council:

- (a) "That the Dominion Council be recommended to appoint a sub-committee to explore fully the setting up of a 'District Councils Executive Committee' and, if found to be practicable and supported by District Councils, then to implement the election of such 'District Councils Executive Committee' which would devote attention to strengthening and extending District Councils of the Institute and to catering for the horticultural interests of affiliated groups and individual members of the Institute: such Committee to be responsible to the Dominion Council."

- (b) "That the Dominion Council be recommended to appoint a sub-committee to explore fully the setting up of an 'Aesthetic and Environmental Committee' and, if found to be feasible, then to implement the election of such 'Aesthetic and Environmental Committee' which would devote attention to promoting national ornamental horticultural interests including matters of conservation, preservation of the flora indigenous to New Zealand and horticultural contributions to national environment: such Committee to be responsible to the Dominion Council."

Notes in Support of Remit No. 1:

1. The purpose behind the remit is to:
 - (a) frame a procedure which will enable District Councils as a whole to meet and discuss their aims and outlook,
 - (b) encourage and expand membership whilst maintaining the concept that all should support a national organization for the good of horticulture in New Zealand,
 - (c) guide the Institute's publication more towards what the majority of members desire and expect,
 - (d) co-ordinate District Councils' activities and provide for clear presentation of views to Dominion Council, because of the difficulty in District Councils being regularly represented at meetings of the Dominion Council.
2. District Council representatives currently attending regularly at Dominion Council meetings could form the core of the sub-Committee to be appointed under the remit.
3. As lack of finance is the major difficulty for District Councils it is proposed that the Executive for District Councils should meet out of Wellington preferably in rotation such as—

Whangarei/Auckland or Hamilton
New Plymouth/Hawera or Palmerston North
Christchurch or Dunedin

These meetings may be held only once in 3, 4 or 6 months according to the business requiring discussion.

The chairman of this Executive Committee (or his deputy) should attend meetings of the Dominion Council.

4. Because of the breadth and diversity in nature of the business coming before the Dominion Council at its meetings, it is realized that the interests and views of general members and District Councils could be overshadowed; therefore it is felt the adoption of the remit will provide the means for those views to be more adequately expressed and observed.
5. The following extracts are taken from the Minutes of the meeting of the Dominion Council 9/12/70:—

"... a general feeling had emerged from discussions that the appointment of a special committee to foster the strengthening and extending of District Councils and to cater for the horticultural interests of affiliated groups and individual members of the Institute would be very desirable. . . . that it would be desirable for another committee to be appointed to devote attention to promoting national horticultural interests". . . . the underlying purpose of the appointment of these two committees would be to create a 4-pronged structure each with its own particular function reckoned thereby to strengthen the Institute considerably in its work, functions and status within the Dominion. The 4-pronged structure would be—

- i Education and scientific . . . already functional through the Examining Board except that so far little attention has been given by the Institute to the scientific aspect of horticulture,
 - ii Commercial horticulture represented by the existing Horticultural Producers' Council,
 - iii District Councils, general membership and affiliated groups through the the proposed 'District Councils Executive Committee',
 - iv General ornamental horticultural interests, including environment, through the proposed "Aesthetic and Environmental Committee".
- “. . . The Dominion Council of course would be the principal committee functioning over and above these four sub-committees.”

Moved by Mr J. F. Living, seconded by Professor T. M. Morrison, that the above two remits be adopted.

During general discussion delegates confirmed that District Councils have felt to be somewhat out of touch with the Dominion Council. This possibly has come about through their inability to meet the financial cost of sending a delegate to attend quarterly meetings of the Dominion Council. If the remit could bring about a closer liaison between the Dominion Council and District Councils it would achieve some good.

It was necessary to look at it from a Dominion wide viewpoint. In any re-organization it would be important to maintain proper representation on the Dominion Council for the general membership. The greatest financial contribution came from general membership and the contributions from horticultural producers bodies would need to be comparative. It is very desirable that the producer organisations should participate in the deliberations of the Institute.

Reference was made by Mr C. R. Reader to the Auckland Horticultural Council with which there was affiliated approximately 70 local societies. Membership of the Institute had been lost to specialized societies who had become sufficient within themselves. Mr Reader suggested that District Councils be drawn together into regions to facilitate gatherings of District Councils from which one delegate could be sent to Dominion Council meetings. Such Provincial District Councils would report to the meetings of the Dominion Council each quarter.

If only one delegate attended Dominion Council meetings from the proposed District Councils Executive Committee, it is possible that the voting strength of District Councils (and through them general membership) would be considerably weakened unless provision was made for an increased number of votes proportionate to membership. The suggestion of regional councils was not fully endorsed and some spoke against it.

Dr E. E. Chamberlain suggested that others who are not already members of the Dominion Council be considered for appointment to the proposed investigating sub-committee. He also suggested that the Dominion Council should hold one of its meetings at the time and place of the Annual Dominion Conference.

The remit ([a] and [b]) was duly carried there being no dissenting voice.

(2) **Waikato District Council:** "That the expenses of a delegate from each District Council to the Dominion Council meetings at Wellington be totalled and that an average be struck and an equal share be paid by each District Council."

Presented by Miss J. M. Bates who supported the remit with estimated costs

involved establishing that each District Council would contribute \$31 per meeting.

During discussion it was pointed out however, that some of the District Councils were very small in membership and they could not even contribute that amount. Mr R. T. Fear stated that the Waikato District Council levies its membership with \$1 donation per annum additional to membership subscription. This had been agreed upon at a general meeting of members and had worked successfully. In general the remit lacked support. In her reply Miss Bates regretted that it would therefore seem impossible for District Councils to be represented adequately on the Dominion Council through lack of finance. It would therefore seem probable that District Councils could not arrange representation at meetings of the proposed District Councils Executive Committee. She felt therefore that the Dominion Council should examine the possibility of the funds of the Institute being used to assist District Councils in attending meetings of the Dominion Council.

Upon being put to the meeting the remit was lost.

(3) **Waikato District Council:** "That Dominion Council, R.N.Z.I.H. Conferences be held separately from N.Z. Institute of Park Administration."

Introducing the remit, Mr R. T. Fear suggested that approximately 3% of the membership attended the Annual Conference at present. As the general membership contributed the bulk of the Institute's finance and consisted of home gardeners predominantly, it was essential that the interests of general members be catered for at Annual Dominion Conferences.

February was not an attractive month for members to inspect horticultural features. The months of October or November were preferable. According to where the Conferences were held the meetings could be at different times of the year with the formal business of the Annual Meeting being divorced somewhat from the Annual Conference.

Mr I. D. Galloway pointed out that already each year the Dominion Conference decided where and when the succeeding Conference would be held and that therefore the remit seemed to be somewhat out of order.

It was doubtful whether Directors of Parks would be able to have leave granted them to attend two Conferences each year; their own and ours.

The Dominion Conference is not held just for the purpose of inspecting gardens, but the weather in the month of February had proved to be settled in most parts, facilitating those inspections which had been carried out in the past. Spring months produced often unpredictable weather conditions.

The two Conferences being held as at present maintained a unity which might be lost if the Conferences were separated. There was much gain personally by delegates coming together and meeting other personalities. Any change that would diminish this opportunity for members would not be desirable.

Mr H. B. Redgrove suggested that the remit should not be carried but to meet the desire expressed in the remit, a separate gardens tour could be organized annually in a selected area to include social aspects of the Institute's life.

Mr A. M. W. Greig moved an amendment to the remit as follows:—

"That the Dominion Council of the R.N.Z.I.H. continue to determine its own venue for the Annual Conference."

The amendment was seconded by Mr R. Syme.

Mr R. T. Fear stated that on behalf of the Waikato District Council he would withdraw the remit (subject to the consent of the Conference) if the suggestion put forward by Mr Redgrove is seriously considered by the Dominion Council.

Mr J. F. Living assured the meeting that the Dominion Council would give consideration to this. Thereupon the remit was withdrawn.

(4) **Waikato District Council:** "That consideration be given to the establishment of a garden to comprise collections of plants—demonstration areas, varietal trials and educational projects."

With the consent of the Conference this remit was withdrawn.

(5) **Otago District Council:**

(a) "That as the publication of the report on Historic and Notable Trees is considered to be insufficient in itself to ensure preservation of the trees recorded, the Royal N.Z. Institute of Horticulture should endeavour to sponsor some form of labelling for these trees with a suitable national insignia."

(b) "That the Institute should urge Local Authorities to take steps to ensure that the recorded trees are preserved under the Town and Country Planning Act 1953 section 20-2 of the Second Schedule."

In presenting the remit Mr G. G. Henderson also produced specimens of suitable labels costing approximately \$10 each. It was generally agreed that every endeavour must be made to preserve these Historic and Notable Trees and a method of labelling would assist. Such a method would appeal to private owners of such trees. The remit was duly carried.

(6) **Auckland District Council:** "That the Royal New Zealand Institute of Horticulture give consideration to suggesting an amendment to the Fencing Act which would exempt established trees in public reserves and parks from being removed under the provisions of the Fencing Act."

Introducing the remit Mr G. F. Filmore stated that no tree anywhere is completely safe. The Fencing Act gave rights for the removal of trees. It was considered that the time was quickly coming when the rights of an individual should be beneath the rights of a neighbourhood as a whole where trees are a feature of the landscape.

Mostly in sub-divisions, landscape was denuded of all vegetation and if this policy were allowed to continue the stage would be reached when the only place where large trees could grow would be in public reserves. Even so, unless steps are taken now to preserve these trees in public reserves, even they could be removed. The remit was carried.

(7) **Auckland District Council:**

(a) "That the Royal New Zealand Institute of Horticulture bring to the attention of Local Bodies the importance of open space in the community and urge Local Bodies to see that open spaces are reserved whenever possible in sub-divisions."

(b) "Where this is not possible Local Bodies should be asked to ensure that monies collected in lieu of land for the Reserves Contribution be spent on Reserve development within the district in which it was collected."

Mr H. B. Redgrove introduced the remit and emphasized the need to preserve small "breathing spaces" for the community. He believed some local bodies refused to accept any land, trees, creeks, as contributions to their reserves. They only would accept cash contributions. He quoted sums ranging between \$197 and \$360 per section which were added into the cost of sections representing cash contributions into local body reserves. Mr Redgrove considered that it was necessary either for the present legislation to be changed or alternatively to press local bodies into following out the sentiments of the remit.

In seconding the motion Mr A. Farnell gave instances where monies contributed to the local bodies reserves from sub-divisions in one area had

been spent by the local body on projects several miles away from that locality. However, Mr G. G. Henderson pointed out that on occasions some land offered by developers for recreational purposes is often of no value for that purpose and can be used as an escape to dispose of those areas which they cannot develop for sale. Mr Henderson drew the comparison of a city of the United Kingdom where there were fifty developed playgrounds to cater for a population of 2 million compared with 52 such playgrounds in the city of Dunedin. The remit was duly carried.

Associates of Honour: Resolved on the recommendation of the Dominion Council that the distinction of Associate of Honour of the Royal New Zealand Institute of Horticulture be conferred upon the following persons:—

Mrs K. E. Reynolds (Whangarei)

Mr R. T. Fear (Hamilton)

Inscribed certificates were presented to Mrs Reynolds and Mr Fear amidst the warm congratulations of those present.

Mr C. S. Teschner of Dunedin had also been recommended by the Dominion Council to receive the distinction and it was sincerely regretted that Mr Teschner had passed away prior to the Conference. His nomination was endorsed by the Conference and the Certificate would be presented to his widow by the Dominion President on a suitable occasion. Prior to his death Mr Teschner had been informed of the honour to be conferred upon him.

Amendments to Rule:

1. "That Rule 3 clause (d) subclause (iii) be amended to read:
'The number of Associates of Honour shall not exceed fifty-five at any one time'."
(Note: At present the Rule provides for not more than fifty at any one time.)
2. "That Rule 3 clause (d) subclause (iic) be amended to read:
'The recommendation by Dominion Council of not more than three names for consideration of election by Conference'."
(Note: At present the Rule provides for not more than six names.)

Comment: In proposing these amendments the Dominion Council has carefully considered the position wherein, after the 1971 Conference, there will be no vacancies under the existing Rules; furthermore it is considered the number of annual elections should be minimized. The Dominion Council hopes each District Council Executive will undertake its own careful scrutiny of possible nominees and submit not more than one nomination in any year.

The above motions were moved by Mr J. F. Living, seconded by Dr J. S. Yeates and carried.

District Council Reports:

Whangarei: An interesting year, good programme including varied monthly lectures and trips to places of interest. A plants table at meetings, something of a struggle financially. Would welcome double the number of members.

Auckland: Regular monthly meetings during the winter months with the subject of conservation predominant. Assistance given to students through meetings and talks. A course had been conducted on judging at flower shows.

Waikato: A successful year consisting of ten monthly meetings with the best available speakers attended by 100 to 250 members. The success came from sound committee work.

North Taranaki: A slight gain in membership with members showing an active interest in regular meetings and excursions. Members were always invited

to bring and display specimens of rarer plants. A library is maintained and used by members.

South Taranaki: In Hawera itself there is a large horticultural society and a lot of horticultural interest in the district as a whole. The District Council moved out in a circuit around outlying areas very successfully. Donations of native trees had been made to schools in planting schemes. The District Council had been able to maintain representation on the Dominion Council for very many years as well as a close liaison with other horticultural societies in the District.

Manawatu: A small membership which had been able to maintain regular attendance at Dominion Council meetings and rendered considerable assistance with the Junior Oral and Practical Examinations in Palmerston North annually.

Wellington: A strong executive meets regularly. Attendances at ordinary meetings of members are not particularly good. A meeting combined with architects, engineers and landscapers had been very successful demonstrating co-operation between these groups and horticulturists. A meeting had been arranged with a very prominent Japanese Landscape Architect during his visit to Wellington. A plant identification competition was held successfully at members meetings.

Otago: The membership is quite small and endeavours are being made to revive interest in the Institute and in local activities in Dunedin. Combined efforts are being made to foster the preservation and identification of historic and noteworthy trees in the Otago District. The death of Mr T. Y. Turner an Associate of Honour and of Mr C. A. Teschner had removed two stalwart members of the District Council Executive.

Election of Officers: Patron, His Excellency the Governor-General, Sir Arthur Porritt, Bt., G.C.M.G., G.C.V.O., C.B.E.

Vice-Patrons: The Minister of Agriculture, the Hon. D. J. Carter and Mr A. D. Dick, Parliamentary Under Secretary to the Minister of Agriculture.

Dominion President: Mr J. F. Living.

Dominion Council was duly elected in accordance with the rules of the Institute. Reference was made to the pending retirement from his position as Director, Horticulture Division of the Department of Agriculture, of Mr A. M. W. Greig. Mr Greig had represented the Department of Agriculture on the Dominion Council since taking up office and pleasure was expressed at his election to the Dominion Council in his own right thus ensuring the continuation of his valuable association with the Dominion Council. Opportunity was taken to convey to Mr Greig in his official capacity, the appreciation of the Institute for all that he had done officially for the benefit of horticulture.

1972 Conference Venue: The Conference of the Institute of Park Administration will be held in Timaru in 1972. An invitation had been extended to our Institute to have its Conference there coinciding with the Parks Conference. It was possible however, that during the weekend prior to the Conference an excursion to Mount Cook would be arranged by the Institute of Park Administration and an invitation to our members would probably be extended. This excursion would take in a study of the alpine flora of the area. Also it was possible that our Conference would be held on the Monday to be followed by the Parks Conference.

Thought was being given to the possibilities of one theme which would link the two Conferences more closely together. The Conferences would likely be held in the third week of February. Delegates present would be

happy to join with the Parks Institute in a Conference of this type and will appreciate an opportunity to discuss these possibilities further.

International Rose Convention—Hamilton, November 7th to 14th, 1971: Dr J. Parle announced that the Waikato District Council would be participating in this Conference with a display garden showing the use of New Zealand plants. He invited other District Councils to send donations of growing material suitable for the display.

Conference on Environment—February 27th, 1971: The Dominion Council was asked to endeavour to arrange for representation at this Conference. Mr R. Syme or his deputy was invited to attend the Conference to represent the Institute.

Horticultural Hosts: Mr G. F. Filmore enquired about the proposed scheme of horticultural hosts. The scheme had not got fully under way—greater support from District Councils was hoped for.

Address by Dr E. E. Chamberlain: At the close of the afternoon session Dr Chamberlain gave a very interesting illustrated talk on the subject of "Outwitting the Virus". Dr Chamberlain was sincerely thanked for his talk which, although on a very technical subject, had been presented in a very understandable way. This is to be published in the Journal in full.

Banks Lecture: The annual Banks Lecture was delivered in the evening by Dr Robert Cooper of Auckland who chose for his subject "Early Auckland Gardens". A very warm vote of thanks was conveyed to Dr Cooper at the close of the meeting which was very well attended. Supper was kindly served by the Auckland District Council members. (The Banks lecture is published in full in this issue.)

In his closing remarks, the Dominion President expressed very sincere thanks to all who had contributed to the smooth running of what had proved to be a happy Conference enjoyed by all present.



DISTRICT COUNCIL NOTES

SOUTH TARANAKI

Arbor Day activities this season saw the South Taranaki District Council taking part in activities in several areas, plantings being undertaken at schools in Manaia and Awatuna and at the Ngahuru Old People's Home in Hawera. A share was also undertaken in the district's main activity—a planting at Hawera's new swimming pool complex situated in King Edward Park.

The **Manaia** circuit meeting saw some thirty-five members gathered. First, Mr John Lloyd, of Manaia, took as his subject "Small Fruits for the Home Garden", giving hints on the cultivation and care of raspberries, feijoas, Chinese gooseberries, persimmons, tamarillos, grapes, guavas and citrus (including sweet oranges, grapefruit and mandarin)—all of which can be grown in Manaia. Details of his system of pruning each of these fruits was given by Mr Lloyd—and proof of his success was graphically given in the presentation of a basket laden with fruits of his own growing. He also spoke of his success in ensuring early garden vegetables by the use of cloches, and gave details of his own tried methods used in pruning roses to provide a 'show of flowers' rather than providing 'flowers for shows'.

A bench of specimens from members' gardens was named by Mesdames S.

Mills and N. Yarrow and Mr B. Hollard—*Malus* 'Profusion', *Stachyurus*, *Fuchsia splendens*, *Baumarin*, *Rhododendrons*, *Daphne*, early *Azaleas*, *Wisteria* and many others. A highlight of the evening was the presentation of the Intermediate Certificate for the N.O.H. to Mr Peter Richards, Kakaramea. In making the presentation of the framed certificate, Mr Chamberlain congratulated Mr Richards on his success in winning the award and wished him well for the future in his chosen career.

Delightful colour transparencies of caving in the Mahoenui district with beautiful photographs of stalagmites and stalactites formed in weird shapes and delicate colours were presented by Mr Walter Fowlie, of Tokaora. He also showed photographs of mountain climbing in the Mt. Cook and Fox Glacier areas.

In his report to the twenty-second Annual Meeting, held in Hawera, the President (Mr R. Syme) gave a resume of the year's activities of circuit meetings, garden trips, demonstrations and Arbor Day activities. He spoke of the award of Associate of Honour conferred on Mr B. Hollard, of Kaponga, at the Dominion Conference held in Napier; of Fellowships conferred on three members and quoted the membership of 137 as "a figure far too small for a district with so many people interested in horticulture."

Scenes from his own garden were presented by Mr Chamberlain; the rich decorations of the Palace of Versailles, demonstrating the artistry of man with inanimate materials and also his contrasting skill with animate materials as shown by the Japanese Tea Garden in San Francisco's Golden Gate Park were shown by Miss Free; slides of parks and reserves and other scenes in New Zealand and Canada were contributed by Mr Beveridge; Mrs Conway's slides took her viewers up to the crater of Mt. Egmont and safely down again, showing something of the tremendous amount of work undertaken by members of the Mt. Egmont Alpine Club in maintaining the various huts and lodges on the mountain slopes; Mr Snowdon showed scenes from the Dominion Conference activities in Hawke's Bay area and autumn colour in the South Island; Mrs S. Mills, scenes of her garden with special emphasis on roses; and Mrs Upson scenes from her garden and of Auckland.

NOVEMBER.—Some seventy South Taranaki members of the R.N.Z.I.H. spent a day garden visiting. Coming from as far afield as Opunake and Makaka, the party gathered first at the home of Mr and Mrs R. Syme in Hawera to admire a garden aglow with roses in variety set in sloping beds amongst shrubs and trees. Next the art of choosing and growing plants suitable for sandy soils and windy conditions was demonstrated by Mrs Hamilton Symes in her large garden at Manutahi. Here were shrubs and plants—many from Africa and Australia—leucadendrons, leucospermums, banksias and proteas. Lunch time came at the home of Mrs Leslie Hamilton. Here picnic baskets were opened on large lawns under trees, and lunch to the accompaniment of bird-song became a meal to be remembered. *Rhododendrons* and *cinerarias* bloomed under tall trees and the vistas, over the hills towards the centre of the island on the one hand and up the sea coast for miles on the other were specially enjoyed.

At Hurleyville, the party gathered at the home of Mr and Mrs R. Jones to be greeted by an immaculate and extensive garden—even on the roadside of this farm home there were smooth lawns and a bank of established planting in flower. In the garden the colour of conifers strategically placed was shown to advantage among the flowering shrubs and trees. Next the visitors moved to Petch Road, Alton, to the older established garden of Mrs Scown. Here they wandered down numerous shady paths leading to all kinds of treasured plants sheltering and supporting each other—golden laburnum, colourful clematis, roses,

small lily ponds and a few late camellias. At Kakaramea, the final visit of the day took members to the large garden of Mr and Mrs J. L. Milne. Here too rolling country provided a delightful backdrop for a garden of trees, tennis court, flowering shrubs, conifers, roses and a host of smaller plants.

WAIKATO

Plants native to New Zealand, besides being of considerable botanical interest, also include many which make ideal subjects for gardens. At the February meeting Mrs M. Fisher, of Auckland, gave a most interesting talk on 'The Cultivation of New Zealand Native Plants'. Her success with these is well known and the advice she gave will be of great help in furthering the growing of these natives.

At Pukekauri, near Waihi, are the very lovely gardens which have been developed by Mr and Mrs T. Gordon over the past twenty years or so. The main feature, of course, is the very extensive collection of Nymphaeas, including both the hardy and tender types. These were in full bloom when a party of members visited these gardens in March. Apart from the water gardens the extensive and attractively laid out grounds give much pleasure to visitors, and the health and vigour of the trees and plants is remarkable. These gardens are open to the public from October to April inclusive each year.

Weeds are always with us, and in March members heard a talk on their control by the use of herbicides from Mr G. Atkinson of the Ruakura Agricultural Research Centre. He also identified specimens of weeds brought in by members and advised specific control.

In April Mr H. R. Gilgen, who is the horticulturist at the Latter Day Saints College near Hamilton, spoke about 'The Care and Maintenance of Tropical Plants in the Home'. Besides giving very valuable advice on this subject Mr Gilgen delighted his audience with his philosophy of life, and anecdotes of his experiences. He came to New Zealand from Switzerland for a short stay many years ago but like the country so much that he has been here ever since.

At the World Rose Convention in Hamilton during November of this year this District Council intends to stage two exhibits at the Rose Show to be held then. One will be of a garden layout incorporating both native and exotic plants to illustrate the range which can be grown in this area. If members in any district have plants, flowers or foliage which could be of interest in this exhibit and would be prepared to send, or bring, them to Hamilton the Waikato District Council will be most grateful. Our Secretary is Mrs L. M. Nicholson, P.O. Box 145, Hamilton, phone 80-079, who will ensure that any offers are referred to the organisers of the exhibit.

WHANGAREI

FEBRUARY.—Mr S. C. Challenger, of Lincoln College, spoke on "Landscape Architecture and the Environment", to a large audience.

Improvements at the Whangarei Falls Domain drew critical comment from Mr S. Challenger, Reader in Landscape Architecture at Lincoln College, when he addressed a meeting of the Whangarei District Council of the Institute of Horticulture and he cited the Whangarei Falls viewing area as an example of unsympathetic treatment in the use of concrete slabs which failed to contribute anything to the total environment. The natural rock formation of fragmented basalt columns was in no way enhanced by the concrete slab tracks.

The work of landscape architects was slowly being recognised in New Zealand, he said, but he added, New Zealand was about 70 years behind the

times in that the first landscape architects were employed in Britain in 1899. It was not until 1968, Mr Challenger said, that recognition came in New Zealand. The landscape architect should be on every major job from the beginning, not disregarded until the last minute. It was often difficult to get engineers to accept them and until public opinion and pressure convinced local bodies that the total environment should be studied in any project, engineers would continue to ignore them. But the situation was slowly improving, Mr Challenger said.

He was appalled at the result that any sort of motorway would have on Whangarei's character if it went through the Mair Park area. It would be an enormous loss to the total environment to have such a feature destroyed. Engineers could construct major roads without causing the havoc that so frequently followed. It cost more but the benefits were enormous and everlasting. It was necessary however for public opinion to influence local body members so that they in turn could require engineers to take a greater amount of care in the preservation of natural assets.

As an example of interference with the total environment he quoted the impressive rock, Paritutu, New Plymouth, which will be overshadowed by a power station chimney higher than the rock itself. This, together with petrol tanks built on an adjoining ridge, would destroy the beauty of the port area at New Plymouth, he said.

The landscape architect was concerned with an environment and ecology rather than as a gardener. He was sometimes in conflict with engineers, but he was greatly heartened when he attended a recent Engineers' Institute conference which decided it would adopt an addition to its code of ethics, concerned with the total environment.

He was a strong critic of the common practice of razing trees and obliterating natural contours with heavy machinery in preparation for sub-divisions. The total environment needed to be considered as against individual requirements.

His talk was illustrated with coloured slides showing progress made in Europe and the United Kingdom in recent years. He included slides of highway development and landscaping between Wairakei and Taupo in which Mr E. Butcher, now Whangarei City Council Parks Supervisor, played a big part.

PRESENTATION

The meeting provided an occasion for our District Council to congratulate our President, Mrs Katie Reynolds, on the honour bestowed by Dominion Council at Auckland the previous day, the Associate of Honour of the Royal New Zealand Institute of Horticulture.

In presenting a *Camellia reticulata* and bouquet to Mrs Reynolds, Mrs Margaret Martin explained that this was the highest honour given by the Institute and was in recognition of distinguished service to horticulture.

MARCH.—The meeting will long be remembered for the superb photography by Mrs Karwowski in colour of the wild life of Northland, plants, birds and insects.

The commentary by Mrs Reynolds, A.H.R.I.H. (N.Z.), added greatly to our knowledge of the wide range of plants shown, from mosses and liverworts, orchids and ferns, to many outstanding shrubs and trees worthy of cultivation in our gardens.

A plant of great garden merit though not easy to grow, the giant heath—*Dracophyllum latifolium*, Nei-nei or Spiderwood—is handsome and easily recognisable on account of its candelabrum-like growth, with the reddish tufts of

recurring leaves at the tips of the bare branches. A shrub of dry, shady ridges, sometimes found growing on tree fern trunks, it needs very careful transplanting with little root disturbance. It must have shade and good drainage if it is to live. When it does it is a treasure beyond price.

Two climbers, both of garden value and all too seldom grown were shown. The first, and readily available, carmine rata, *Metrosideros carminea*, a very adaptable plant, may be grown on rock or as a shrub producing its brilliant head of flowers when quite young. Its sister, *M. albiflora*, with large white flowers is also garden-worthy. A third climber in its yellow to golden form, rare in nature, was *Parsonsia capsularis*, usually creamy white but sometimes yellow and at Banks Peninsula there is a pink form. Its sister plant, *P. heterophylla* is easily grown and I have seen in a Wellington garden a trellis 10ft by 6ft one sheet of blossom.

Many shrubs or small trees native to our area and showy of flower were shown. Two with especially pleasing scent were the large flowered and handsome fruited *Alseuosmia macrophylla*, a true honeysuckle, and the small tree *Persoonia toru*, with narrow rather bronzy leaves and an occasional red one, and short racemes of golden flowers covered with brown-gold tomentum and having a pleasant perfume. A beautiful specimen graced a garden in Kamo Road for many years, until ruthlessly slaughtered some time ago.

One of our few natives to shed its leaves, the swamp ribbonwood—*Plagianthus betulinus*—is finally of tree size, but blooms when quite young. It is of distinctive shape, with light green leaves and quite large panicles of greenish cream flowers, most attractive in floral work, being often found along stream sides or in wet places, and is a rapid grower and flowerer in moist conditions.

The last specimen of tree-like proportions was the Hinau, *Elaeocarpus dentatus*. It is distinctive in leaf, rather grey-green (like an olive in colour) and handsome in flower, with masses of short racemes decked with creamy lily-of-the-valley like bells, though not in any way related to that popular plant. In Marlborough it grew, and flowered regularly, standing alone on open hillsides.

Among smaller shrubs more familiar to many were Colensoa in fruit, *Fuchsia procumbens* in fruit, Mairehau in flower, *Senecio kirkii* the epiphytic tree daisy, *Coprosma robusta* in fruit and best garden plant of all, our golden Tainui—*Pomaderris elliptica*.

Among the smaller and generally lesser known plants so beautifully illustrated in colour were various ferns and mosses, as well as some of our lesser known orchids. Magnified, we saw in detail their amazing construction and were able to appreciate their beauty both in form and colour. *Tmesipteris tannensis* is a queer little fern found throughout New Zealand generally growing on the trunks of tree ferns. It may pass unnoticed as it is small and less attractive, but is a curiosity botanically. The other unusual fern shown was a *Schizaea*, often found in manuka scrub and looking rather like a little rush, the stems and fronds almost equally straight and narrow, and scarcely a foot high, so that it takes a sharp eye to discover it. On the floor of the Kauri forests there are often large colonies of the giant moss *Dawsonia superba*, from 18 inches to two feet high, and reputed to be the tallest moss in the world.

Then came a selection of our own native orchids, of which we have about seventy species. Enlargement of *Caladenia minor* and *Acientus* gave us an appreciation of their form and colour. *Thelymitra pulchella* is one of our largest flowered species, with up to eight flowers on a rather tall stem about a foot high, flowers quite large and a rich purple blue.

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