

Horticulture

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Cover Photo: *Metrosideros* and *Cordylines* flowering
on Tresco Island. (Page 5).

ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURE (INC)

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EDITORIAL

Close on the heels of the Summer Bulletin here we have the Autumn issue. As is usual for this edition, we have a number of items related to the forthcoming Annual General Meeting and Conference being held in Dunedin. Please look at the Chairman's report, remits and statement of accounts as these all affect you as members. Those intending to attend the conference are asked to complete and return the registration form as soon as possible. This can be found in the centre of the Bulletin.

One feature you will note about this edition is the absence of the Student Section and a note from Nick. Because of the short time for preparation and the quantity of official material it has not been possible to fit this in but be assured that the Student Section will be back in the Winter edition. Another section which has not appeared is a list of new members. This will also appear in the Winter edition along with a full list of 1985 Graduates.

As well as the official part of this Bulletin, we still have some very interesting articles which are well worth reading. Again, I thank all the people who have send in material.

Because of commitments and the fact I have been editing the Bulletin for the last four years, I feel it is time for someone else to take over. It is most important that provision be made for the presenting of new and fresh ideas. You never know, the next step may be colour in the Bulletin. Anyone who may be interested or would like some more details, please drop me or Dave Cameron a line.

Happy reading,

David Shillito
EDITOR.

THE PUKA

Meryta sinclairii

Araliaceae

by W. Dalgleish

Out of all the trees and shrubs belonging to the New Zealand flora, the 'puka' is easily the most tropical in appearance and effect. It belongs to the Aralia family which includes a number of genera which are grown as indoor plants in this country, including *Fatsia*, *Brassaia* - the Queensland Umbrella tree, *Pseudopanax*, *Dizygotheca*. The puka itself can be grown as an indoor plant, its overall form and effect alters in the lower light intensity as the leaves droop downwards compared to their erect radial pattern outdoors.

Excepting a solitary 'tapu' tree growing at Paparaumu a few kilometres southeast of the Bay of Islands, shown to early Europeans by the local Maoris, the 'puka' was discovered on the remote northern Three Kings; Poor Knights; and Hen and Chicken Islands. In that environment it is found hugging sheltered ravines and avoiding exposed ridges. It is possible that in a warmer period of New Zealand's past that the puka was prevalent in coastal areas of the two main islands. The puka is endemic to New Zealand, most other *Merytas* are found in New Caledonia, with a few in the rest of Melanesia, Polynesia, one in Queensland and one on Norfolk Island.

The large glossy, leathery thick leaves turn butter yellow before leaf fall. The berries are black when ripe and popular with berry-eating birds - so therefore should be covered with cloth, and tied if you require them for eating or propagation. The 'pukas' seed germinates readily but only has a short period of viability. Semi-hardwood cuttings may be taken if seed is unavailable.

The plant is regarded as half-hardy, tolerating a little frost, it grows three to eight metres tall, best growth is obtained in sheltered positions though it will withstand considerable amounts of wind, salt-wind included. Deep soil with humus content, mediumly fertile with ample moisture are ingredients for optimum growth. Landscape uses include Patio; tropical garden; lawn specimen; New Zealand native garden; close to buildings in an architectural role; coastal; dominant plant; outdoor container.

AN EXPLANATION AND INVITATION

WHAT IS THE DUNEDIN STUDENT'S MUTUAL?

A group of Dunedin R.N.Z.I.H. students who met regularly last year to help each other overcome the isolation of distance learning.

They came from several different employers and had a varied range of Horticultural experience. Those who hadn't had the advantage of apprentice training especially welcomed the chance to share skills and experience with each other and invited speakers. Students themselves worked out what assistance was needed and where they could find it.

Senior students were very generous with the help they gave. The results recently received proved the whole venture worthwhile.

The first meeting for 1986 has just been held. The group will continue with some changes to meet this year's needs. Probably there will be fewer meetings of the whole group but more of smaller groups doing the same subjects.

THE INVITATION

on Saturday, May 17 at 2 p.m.

at

The Visitor Education Centre
Dunedin Botanic Gardens

as their contribution to Conference

DUNEDIN STUDENTS' MUTUAL

invite you

to a BOTANY WORKSHOP

TOPIC: "WHAT ARE THE FACTORS WHICH MAY CAUSE STRESS IN
PLANTS? HOW CAN THIS STRESS BE AVOIDED OR
OVERCOME?"

(adapted question - Botany III 1986)

TO HELP US WE HAVE INVITED:-

Dr Eric Godley - Vice President R.N.Z.I.H.

Miss Alison Evans - (Botanist, Dunedin Botanic Gardens)

We hope other members attending Conference will choose to join us too.

There will also be:-

A student Common room

A chance to meet some of the Examining Board informally.

Will you accept our Invitation and Come to Conference?

GARDEN HISTORY

- How should the R.N.Z.I.H. Garden History Section operate?
- How can material held by families, companies and local bodies be preserved?
- What research has been done in the past and is being done now into New Zealand Garden History?
- Where can we get information about our New Zealand Garden History?

These questions and many more have been raised as we have been arranging a programme for Sunday 18 May and Monday 19 May of the R.N.Z.I.H. Dunedin Conference.

Through trips, discussions and talks by people already involved in this fascinating subject we hope some of the questions can be answered.

HOW WELL NEW ZEALAND FLOWERS, SHRUBS AND TREES THRIVE IN GREAT BRITAIN

by Daniel Bruhin

(Switzerland)

Many New Zealanders have had the chance to go overseas and observe that the flora, for instance in Europe or England was completely different to New Zealand's own flora. And hopefully once back home, they appreciated more the unique New Zealand flora.

England and Scotland are colder on average than New Zealand and few plants for instance from the North Island of New Zealand will survive outdoors unless well cared for. To just name a few New Zealand plants which have found their way into Great Britain and which are well known there are the Cabbage Trees (*Cordyline* sp.) and Flaxes (*Phormium* sp.) which both do not mind salt laden strong winds on the coast of Cornwall and Devon and elsewhere. I was in Cornwall in the Winter 1983/84 and saw for myself what these well known New Zealand plants had to endure. Cabbage Trees and Flaxes are also seen right on the top of West Scotland coasts. Other well known plants are the Chatham Island Forget's-Me-Not (*Myosotidium hortensia*), Mountain daisies (*Celmisia* sp.); Hebes, Leptospernums and many alpinas. Edinborough Botanical Garden is said to have a very good collection of New Zealand Alpinas. I saw for myself *Celmisia*s, *Myosotidium hortensia* on the West Coast of Scotland. There are probably some more hardy plants I expect, such as *Ranunculus lyalii*, also present on the West Coast of Scotland etc.

But nobody would expect mature plants such as Nikau Palms or Pohutukawas for instance, to be present in England outdoors; but this unique site exists on the Scilly Islands, at around 50° N. Latitude. (The antipodes of Auckland and Antipodes Islands in New Zealand) where many New Zealand tender native plants thrive in the Tresco Abbey Gardens, which are also called "Kew Gardens' Temperate House with the lid off".

The isles of Scilly (not to be confused with the true Channel Islands which are at 49°N. Latitude) consist of 100 islands and islets, 65 km south-west from Land's End, Cornwall, the English mainland's westernmost point. Only five islands are inhabited with a total of 2,000 people (except summer holiday periods). The main Island is St. Mary while the Gardens with the rare plants are at Tresco Island. Until recently, The Tresco Abbey Gardens were one of the least accessible gardens in Britain. Not so now. From the mainland Penzance, one can land by helicopter right at the entrance of the gardens after a 20 minute flight! (£20 single). A few days after I took my flight in Summer 1983, there was a crash and 20 people died. This was the first and hopefully, last accident. The Gardens at Tresco can also be reached by ship from Penzance on a 3½ hour trip (£15 single) Scillonian III (600 passengers). The

boat is flat bottomed because of shallow seas around the Islands. In case of rough seas, which was the case on my third trip, it is not pleasant at all. From St. Mary, there are smaller boats which go for day trips to several islands.

On Tresco Island there are no cars and no crowds. The air is clean, the sea crystal clear and very inviting, though quite cold, even in July. The white sandy beaches are empty, and count for two thirds of the coast. The rest consists of rocky cliffs and moorlands face the Atlantic Ocean. In the centre of the Island lies the great pool, bounded by sheltered middle downs with pine trees, grassy walks, gorse and wild flowers. To the South, there are finally the Tresco Abbey Gardens (seven hectares) and its world famous collection of sub-tropical plants, including palms and rare plants from all over the world. 25,000 people visit the gardens annually and acts of vandalism or thefts are rare.



A general view of the
gardens

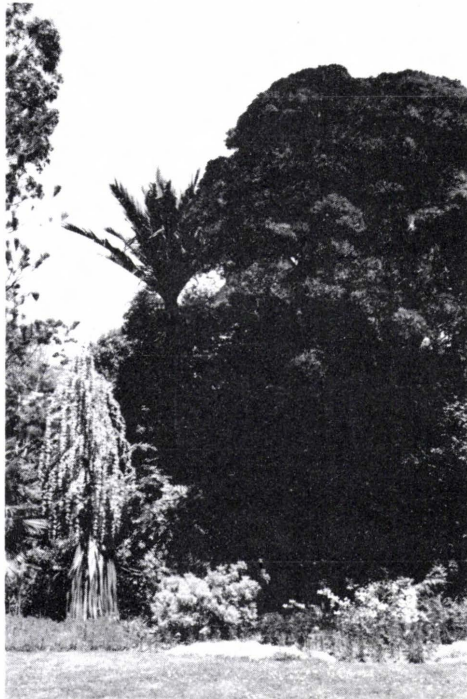
The Isles of Scilly enjoy an equable climate with small variations between day and night temperatures. Scilly has a higher January mean (Winter) with 8° C. than Cannes in the South of France! and the average of the minimum night temperature in January is the same as that in London in late April. It may therefore be claimed that in the Winter, Scilly is as warm as the Mediterranean Riviera and that Winter nights in Scilly are as warm as Spring nights in London. It must be said that the Gulf Stream influences greatly the climate. Air frost and snow are mostly absent. Snow is seen every 15 years or so. Hard Winters were experienced in 1947, 1963 and this last Winter 1985, was exceptionally cold over all of Europe. These hard Winters, although rare, did some damage of course. In 1947 and 1963, the temperature was down to -7° C. and, for instance, the New Zealand Pohutukawas and other *Metrosideros* sp. did not flower for a few years after that Winter. Minus 7 was the lowest temperature recorded at Tresco. In January 1985, the temperature was down -5° C. which is again very rare. I received no serious reports about damage but from what I heard, most New Zealand species resisted, above all because they are mature specimens. Plants such as succulents or pelargoniums did have a lot of damage. In a usual Winter, the minimum night temperature in January is +3° or 4° C. There was no snow cover in 1985.

Salt-laden strong winds are frequent, I have heard of up to 120 km/h. and peaks to 180 km/h. The Scilly Islands have more sunshine during the year than most mainland resorts, May and June being particularly sunny (although I experienced July and August to be too). The islands have claimed to have only two seasons: Spring and Summer! Rainfall is not excessive (80 cm in a year) and much of it in Winter, which sometimes damages the plants more than the occasional frosts. Soil in the Gardens is sandy. In Tresco Abbey Gardens, one can say all temperate or sub-tropical plants will grow except plants which need a lot of water or winter cold.

The Gardens were founded in 1834 by Augustus Smith, then leaseholder (Duchy of Cornwall) and his descendants still manage the Gardens. At the time of his death in 1872, he had produced one of the most remarkable of the Victorian Gardens in Great Britain but more formally planted than today. He introduced succulents and hard-leaved salt resistant plants and bravely grew and flowered most of them for the first time outdoors in the British Isles. Today, most of the plants found at Tresco grow nowhere else outdoors in Great Britain. Since Augustus Smith, four other men of his descendants led the Gardens and since 1973, it is the task of Robert A. Dorrien-Smith, in his '30s. All contributed greatly to the gardens and new introductions.

Shelter consists for the moment mainly of *Pinus radiata* and *Cupressus macrocarpa* (up to 30 m. high and girth of 473 cm at 130 cm. high or 710 cm. at base) from the Monterey Peninsula, U.S.A. Both trees well know to New Zealanders I suppose as they are also widely planted in New Zealand. In the near future as the present shelter-belts of pines and cypresses grow old, one intends to grow Pohutukawas (*Metrosideros excelsa*) and Norfolk Island Pines (*Araucaria excelsa*) as shelter-belt trees as they are also very salt resistant and will last a much longer time.

On my first visit to Tresco Abbey Gardens in early July 1983, I was impressed with the quantity of Ratas (*Metrosideros robusta* and other sp.) in flower. I had never seen so many together outside New Zealand. Unfortunately, one week later, after heavy rain and a big storm, all flowers had faded. But I came back a second time two weeks later and this time all the Pohutukawas were in flower (*Metrosideros excelsa*), a great sight too with the deep red flowers, well known to any New Zealanders at Christmas time. To my astonishment and I still cannot believe it yet, the Pohutukawas there were giants. I measured the largest with a height of 19 metres and most of them had a girth of 600 to 745 cm (at 130 cm. high). They were all planted only 130 years ago. One of the Pohutukawas has large hanging roots falling to the ground and the largest which rooted from the air already a long time ago has now a diameter of 107 cm. at the base (girth 327 cm). From what I have heard, hanging roots are not too common in New Zealand for Pohutukawas, but of course rather more for the Ratas. One of the Pohutukawas at Tresco is said to be one of the largest in the world, including New Zealand, despite its "young" age. For sure it is most probably the largest outside of New Zealand. In New Zealand, only a few Pohutukawas have larger girths or heights.



Metrosideros robusta in
flower and N.Z. Nikau palm
(*Rhopalestylis*) in the
Tresco gardens.

Since most New Zealand specimen grow wild on the seaside, it is easy to understand that the specimens at Tresco grow so well as they are protected by shelter. It must also be said that at St. Mary Island, a few specimens thrive without shelter and I also saw them flowering well and one also had numerous hanging roots. Nevertheless, although the Pohutukawas at Tresco are very large, they still do not surpass in size the giant Ratas in the New Zealand bush. But personally, I found them much larger than any Pohutukawa I came across in New Zealand when I visited Coromandel, Northland coast or Kawhia Harbour.

In the little wood outside of the Gardens are the New Zealand Kauris (*Agathis australis*), about 2-3 specimen. Two are still young but one stands majestically with a height of 20 M. and a girth of 82 cm. It must have been planted around 1910 and it produced cones in 1974. But Kauris have been present in the Gardens since 1856 but I was told that this tree died from a storm. Except for a few other places in Portugal and Italy, there will not be many Kauris in Europe. By the way, I also saw a Kauri growing in South West Scotland. It was 6-7 metres high and was planted in 1976. Of course, when it was planted it must have already been a few years old. Logan is where it grows and the minimum ever registered temperature was -11° C. while in an average Winter it goes down to $-7/-8^{\circ}$ C. Possibly, this *Agathis* has escaped the worst winters but I wonder what happened with it in the Winter of 1985.

Back to Tresco Island, I also saw the beautiful Rimus (*Dacrydium cupressinum*) but they are still small, maybe 7-8 M high and quite slender. They were introduced in 1914 for the first time. Hopefully, one day there will be a fully grown Rimu to be seen as this is one of my favourite of the New Zealand conifers. Other Podocarps include *Podocarpus ferrugineus* (Miro), 7-8 M high, 39 cm girth, Kahikateha (*Dacrycarpus dacrydioides*) with 12 M height and girth 45 cm. This was planted in 1914. Totaras (*Podocarpus totara*) over 12 M high and girth of 247 cm (measured at 60 cm high). And in this little wood were also a few tree-ferns which I will describe later.

The *Metrosideros* family is by the way, represented with 7 New Zealand species and 2 varieties, including *Metrosideros kermadecensis*. The only *Metrosideros* they would like to introduce now, still missing there, is the yellow flowering form of the Southern Rata or the yellow form of a Pohutukawa from Mayor Island. Help is welcome.

The continuation of this article will be printed in the Winter issue of the bulletin.

PIRANDIA GARDEN MELBOURNE

by Robert Scott

University of Otago

During a recent holiday in Victoria I visited "Pirandia", an especially interesting garden located in the Dandenongs east of Melbourne, a short distance from the National Rhododendron Garden at Olinda. Developed as a private garden, it is now managed by the National Parks Service. Although considered one of the great gardens of Victoria and open to the public, I was surprised to find it not widely known by the local people.

The garden, 0.8 hectare (two acres) in area, contains many rare and unusual plants collected by the former owners during overseas travel studying gardens and their design. Exotics such as rhododendron, (species and cultivars) azalea, magnolia and camellia blend harmoniously with indigenous ferns, blackwood trees, *Acacia melanoxylon*, giant mountain ash, *Eucalyptus regnans*, and other varieties of acacia and waratah.

Among many mature trees were magnificent examples of umbrella pine, *Sciadopitys*, West Himalayan spruce, *Picea smithiana* (with its characteristic drooping branches), tulip tree, *Liriodendron tulipifera* and dawn redwood, *Metasequoia*, the latter two being the largest specimens I have seen. Other trees and shrubs of note were: *Salix fergessii*, *Styrax obassia*, *Acer oblongum*, *Betula albo-sinensis* var. *septentrionalis*, *Enkianthus serenus* var. *rubens*, *Lindera* and *Cercidopyllum*. It was pleasing to see New Zealand species represented by two fine beech trees, *Nothofagus truncata* and *Nothofagus solandrii*.

Additional features of the garden included a high standard of maintenance, excellent use of ground cover plants with *Anemone nemerosa*, *Ajuga*, and *Vinca* and very comprehensive plant identification and labelling.

Altogether an outstanding garden, perhaps best summed up by Howard Tanner when he wrote in *Great Gardens of Victoria* that "Pirandia" shows how a successful compromise between natives and exotics can be achieved: "wide botanical interests are not denied and a cohesive garden design is achieved", he stated.

Anyone with an interest in plants and gardens, planning a trip to Melbourne, a visit to "Pirandia" would be very worthwhile.

FROM THE SECRETARY

The 1986 Annual General Meeting and Conference are fast approaching. This Bulletin contains a lot of information concerning the A.G.M. including an official registration form. I would urge as many as possible of our members to come to Dunedin in May; our Otago members have excelled themselves in providing a varied and challenging programme for the weekend. I hope to see many of you there.

EDITORSHIP OF THE "BULLETIN"

I am sure you will all agree that David Shillito has been an excellent editor of this publication over recent years. Regrettably David feels that he would like to withdraw as editor at the end of this year. His last Bulletin will be Spring 1986 (No. 41). I would like to thank David, on behalf of all our members I am sure, for his dedication to the job of producing four excellent Bulletins per year. Under his guidance the Bulletin has flourished and David has succeeded in encouraging many members of the Institute to share their thoughts and experiences with all other members by writing articles for publication. Thank you David.

In 1987 we will need a new general editor for the Bulletin. I would be grateful to hear from anyone who may be interested in taking on the challenge. A small honorarium is available, but really we are asking for a "labour of love". It is not essential for the editor to be based in Christchurch but it would be preferable.

AGRICULTURAL TRAINING COUNCIL

Many members will be sorry to hear that the Agricultural Training Council has been disestablished and as a consequence, the Horticultural Training Committee (H.T.C.) as a subcommittee of the A.T.C. has also ceased to exist.

The R.N.Z.I.H. has had close liaison with the H.T.C. over the years, especially in the area of setting up the Certificate in Horticultural Practice, and it is a matter of some concern that at the moment there is no umbrella organisation to co-ordinate horticultural training throughout the country and across the various branches of the industry. It may be that in time the R.N.Z.I.H. may be able to take an active role in this respect. In the meantime the Institute has expressed its concern to the Vocational Training Council under which the A.T.C. was originally established.

1985 ANNUAL JOURNALS

Copies of the upgraded 1985 Annual Journal are still available on request from my office. \$6.50 if ordered as part of the \$25.00 1986 subscription, otherwise \$8.00 per copy.

DID YOU KNOW?

- * John Taylor, immediate past Chairman of the National Executive and long standing Executive and Examining Board member, recently retired

from his job as a Senior Lecturer in the Department of Horticulture, Landscape and Parks at Lincoln College. We wish him well in retirement, and hope that Lincoln's loss will be the Institute's gain as we will not have to compete with the College for a few hours of his time

* Alan Jolliffe, Chairman of the National Executive has been appointed to the post of Director of Parks and Recreation, Lower Hutt City Council. He succeeds R.N.Z.I.H. "Fellow" Errol Butcher, who in turn has gone to join Neville Weal's team of horticultural tutors at the Technical Correspondence Institute.

Congratulations to both of them; Nelson City Council will never be the same again, and it just proves that "one man's meat is another man's poison", or something like that.

Dave Cameron
NATIONAL SECRETARY.

NATIVE PLANT PRODUCTION

by Ken Phipps

(Nursery Supervisor, Lands & Survey Department,
P.O. Box 437, TAUPO.)

Native plants are produced on a large scale in two nurseries run by the Department of Lands and Survey. Home Creek Nursery, located 2 km from Manapouri township supplies native plant material for the Otago, Southland and Westland regions, while Taupo Nursery supplies native plant material to most North Island districts.

These Lands and Survey facilities differ from commercial nursery operations in several aspects. This article will briefly outline these differences. The requirements and problems of large scale production of native plants for revegetation will also be discussed.

IMPORTANCE OF GENETIC PURITY

Many New Zealand native plants exhibit a wide variation in morphological features throughout their natural range. Additionally local races of a particular species may also have more subtle genetic differences as a result of adaptation to particular habitats. Some examples of these important adaptations include:

- * Frost tolerance - Manuka (*Leptospermum scoparium*), is one example of a species with a wide frost tolerance range depending on seed source.
- * Salt tolerance - Several plant species have local races which have a high tolerance to coastal salt spray, e.g. Karo, (*Pittosporum crassifolium*).
- * Other adaptations - Some species such as Kowhai (*Sophora microphylla*), have flower size and plant form variations. Other plant species have tolerance to wet clay or hot pumice soils.

To help retain the purity of these genetic adaptations, the Lands and Survey Department policy places major constraints on the introduction of plant material into Reserves and National Parks. All plant material must originate from a local source. Consequently, Taupo and Home Creek Nurseries maintain accurate records of the sources of all seeds and vegetative material handled at the nurseries.

To ensure that all plant material is of known origin, each plant lot is assigned a unique index number which is recorded at all stages from propagation to dispatch.

PROPAGATION METHODS

Unlike many retail nurseries, Taupo and Home Creek propagate essentially all material from seeds, not cuttings. This ensures a wide biological diversity of seedlings rather than clones of a few select parents. For this production method, a network of seed collectors and good local knowledge is required.

In practice, many Lands and Survey staff assist with seed collection along with major seed-gathering efforts by nursery staff.

Successful seed germination depends upon correct seed cleaning and seed stratification techniques. A variety of methods are used by the Nurseries. Wind dispersed seeds usually only require timely collection and often will germinate without further treatment. Fleshy fruits are easier to collect, but may need several operations to extract clean undamaged seed. Many species also need a period of moist, cool stratification for satisfactory rates of germination.

PRODUCTION METHODS

Production costs are major concerns to all nurseries. Taupo and Home Creek Nurseries use several techniques to keep costs as low as possible.

1. High Volume Production of Pioneer Species

Although annual nursery production exceeds 500,000 plants, 90 percent of production is limited to genera which naturally colonize selected areas: e.g. *Leptospermum*, *Coprosma*, *Pittosporum*, *Coriaria*, *Hebe*, *Phormium*, *Nothofagus* and *Cortaderia*. These genera have rapid growth rates, provide shade essential for limiting exotic weed infestation, and often produce seed at a young age.

2. High Volume Production of Roottrainers

Successful on-site establishment is a major production consideration. Attractive foliage or flower production to sway casual nursery customers is unimportant. "Root-trainers" are used extensively to encourage rapid development of a compact fibrous root system.

3. Reduced Production Time

Whenever possible, species are dispatched as one-year-old seedlings. This is aided by techniques such as correct seed stratification, pricking out at an early stage to minimize transplant shock, and timely fertilizer applications. Taupo Nursery also has access to geothermal steam which economically maintains warm growing conditions for winter sown seeds.

PRODUCTION PROBLEMS

Forecasting demand is a particularly awkward problem for Taupo and Home Creek. Native species often seed at irregular intervals. Although general production requirements are known two years in advance, good seed years may occur once every five years. Many scenic reserves have survived years of grazing, fire, and infestation with exotic weeds. Collection of suitable quantities of seed often requires many hours of work, searching for scattered survivors. Regardless of nursery techniques, some native species have very slow growth rates from seed. Where possible, small numbers of these species are collected as larger grade wildlings and are grown-on as transplants.

OTHER NURSERY FUNCTIONS

Taupo and Home Creek actively promote correct utilization of native plant material. All production and planting work is co-ordinated with departmental landscape architects. Planting methods, direct seeding and other methods to reduce revegetation costs are constantly reviewed. Nursery visits by school groups and horticulture classes are encouraged. Horticultural students from Massey University and Lincoln College are encouraged to apply for summer employment vacancies.

THE NEW ZEALAND GUARDIAN TRUST COMPANY LIMITED

TEMPLIN TRAVELLING SCHOLARSHIP IN ENGINEERING AND HORTICULTURE

The New Zealand Guardian Trust Company Limited, as Trustee of the John Richard Templin Travelling Scholarship Trust is now calling for applications from Engineering Graduates of the University of Canterbury and Horticulture or Botany Graduates of Lincoln College or Graduates who have obtained a National Diploma of the Royal New Zealand Institute of Horticulture through the Reserves Department of the Christchurch City Council.

There are two scholarships of up to NZ\$25,000 each this year and they are available for study in the United States of America or Canada and are normally tenable for one year.

Application forms are available from The New Zealand Guardian Trust Company Limited, P.O. Box 9, CHRISTCHURCH. Closing date for applications is 31 May 1986.

HOSTAS

by

Jim Rumbal, Duncan & Davies

The Hostas, Funkia or Plantain lilies are a genus of deciduous liliaceous perennial plants with bold, striking foliage - with attractive flowers of lilac, violet or white. They prefer moist well-drained soil with good humus content and partial shade, but will tolerate a wide range of conditions. They form slowly increasing clumps of attractive foliage, excellent as ground cover and useful as foils and contrasts to other plants.

The species vary in size from the large leafed 1.5m wide clumps and 0.9m tall *H. sieboldiana* to the tiny leafed 5cm *H. venusta*. Their nomenclature has been in a confused state for years. Many forms have been named from hybrids of Japanese garden origin and not from wild species. Variegated forms have been introduced and given specific ranking, only to find years later, the true green leafed species, thus causing systematic naming problems. However much work has been done on nomenclature and they are now less confused than previously.

The many garden forms range from glaucous leafed types through the green shades with various yellow and white variegated cultivars, adding colour and distinction to the handsome bold foliage. It was this variety of leaf form, shape and colour that first interested me in this group of plants.

PROPAGATION

1. Tissue Culture has been used with some success in the bulk up of some cultivars. However this is a new method for hostas and I haven't any detailed data.
2. Propagation by division has been the main method of increasing the named forms of hostas. They are easy to divide and replant at almost any time of the year, but early spring is preferable. Young plants can be lifted and pulled apart or cut into several pieces. It is always a pity to disturb large established clumps, but this can be done without much disturbance by cutting out wedge shaped segments with a spade, like cutting out a piece from a round cake. The gap can then be filled with fresh soil and no harm will result.

This method would be rather slow commercially, but a much greater rate of multiplication can be obtained by undertaking the following steps :

- (i) Lift hosta clumps in early spring and cut tops off all main buds, to encourage dormant lateral buds to grow.
- (ii) Cut main crown carefully into chunky pieces, each containing one decapitated main bud.
- (iii) Each piece can now be cut across through the

decapitated bud, (not unlike that of the base of a hyacinth bulb), care taken when cutting right through, to ensure that each piece has at least one of the young new developing buds. Thus from one young clump with three main buds, up to twelve or so divisions may be obtained

- (iv) Trim back all roots to 5cm in length and 'heel in' closely setting each piece into a good quality well draining compost. This may be done in trays then stood out, keeping shaded and moist.
- (v) Lift young plants from trays as soon as they have about 7.5cm of new growth and line out in shaded beds 22 to 30cm apart, depending on type. Most will now grow on for a season to produce a saleable clump, but stronger species or large pieces may be potted into 15cm pots of good compost giving a small grade for sale the same summer.

3. Seed Some of the species can be readily produced from seed and come true to type with little variation. e.g.
H. sieboldiana, *H. ventricosa*.

Many forms are however hybrids of garden origin and rarely have viable pollen or rarely set seed. By growing hostas in full sun or nearly so; the clumps ripen and flower far more readily than if grown in more shaded conditions and occasionally, even some of the reticent forms will produce viable pollen and seed.

Hybridization and the raising of seedlings is always interesting with the chance of seedling variation and this has been a hobby of mine for several years. Some of the results of crossing the various forms are listed below.

H. sieboldiana x *H. ventricosa* - have produced a hybrid with large, slightly glaucous rounded leaves on a strong plant with attractive very tall 1.2m spikes of lilac flowers.

H. ventricosa x *H. fortunei* - yellow forms, have given a generally typical *H. ventricosa* but with lime yellow foliage that deepens to green in summer.

H. albomarginata x *H. fortunei* - yellow forms, have produced a small sulphur yellow oval leafed form with undulating margins.

Seedlings from *H. sieboldiana* Frances Williams have produced several varying yellow leafed forms with the typical *H. sieboldiana* Elegans leaf type.

Some begin a good yellow in early spring and deepen to a light green in summer.

One good one begins a light green but becomes more golden as the summer advances.

Seedlings have produced variable green leafed forms, many of

doubtful merit.

4. Bud Sports These occasionally occur on all sorts of plants and hostas too have their genetic wobbles. Some of the finest forms have arisen in this way. In our garden *H. sieboldiana* Frances Williams has produced a completely yellow leafed sport of good colour and vigour.

Hosta fortunei Albopicta Viridis - the green leafed form has also produced an interesting bud sport.

It emerges in the spring with a light green blade with a deeper green margin. Similar to the summer colouring of *H. fortunei* Albopicta. But as the season progresses the leaf blade turns to a butter yellow with a green margin - just the opposite of *H. fortunei* Albopicta which loses its yellow colour in the summer.

I have found the hosta family an attractive and interesting one and as they are easy to grow and maintain I feel they should be more popular than they are.

In the Winter issue will be printed the second part of this article by Jim Rumbal outlining many of the species and cultivars of Hostas in New Zealand.

SEED EXCHANGE

Any members wishing to exchange seeds of native trees and shrubs with seeds from France may care to write to:-

Mr V. Sonka
Av. du 8 Mai
83400 Hyeres
FRANCE.

who has indicated a wish to exchange seeds.

R.N.Z.I.H. CHAIRMANS REPORT TO ANNUAL GENERAL MEETING MAY 1986

Fellow Members of the R.N.Z.I.H.,

This year has seen a lot of changes for the Institute, many of them in the examinations area. The Examining Board and our Secretary and his staff have spent many hours working on the changes.

Revised prescriptions for NCH/NDH examinations, Certificate in Horticultural Practice, Certificate in Horticultural Management and the Certificate in Parks Practice, as well as the first year of examinations for the Certificate in Horticultural Theory will receive a fuller explanation in the Examining Board's Chairman's report.

There is no doubt that the Institute is a leader in the field of horticultural qualifications.

District Councils continue to provide an essential forum for members to get together on a regular basis. There are plenty of opportunities for expanding members' knowledge by site visits, guest speakers, mystery evenings and outings. Don't forget the social side and let members have fun while learning.

Young people today complain they don't have enough to do. Why not involve them in the District Council's work. Go and ask them and I am sure they will want to participate on a Committee.

The National Executive has again worked well and with plenty of enthusiasm. Much of the Executive's work is unseen but vitally important. This year, the Committees have continued their work

Finance and Administration Committee looking after the day to day activities of the Institute.

Publications Committee again setting new trends with the excellent Annual Journal and continuation of the Bulletin.

Mike Oates, Editor of the Annual Journal has produced an excellent new style journal which will not only grace coffee tables but is a valuable reference work. Typesetting and printing of the Journal has made this a publication to be proud of.

David Shillito and Nick Owers again edited the Bulletin with success. Please write some articles for them.

Public Relations Committee is currently looking at mobile displays to be available for a variety of venues.

Nomenclature and Plant Raisers Committee: This year a milestone was reached with Lawrie Metcalf publishing "The Checklist of Hebe Cultivors". Fourteen years of work has gone into this International authoritative work. It will be printed in the N.Z. Journal of Botany in 1986.

Horticultural Education Committee has kept oversight on the developments in horticultural education throughout New Zealand especially the work of the technical institutes.

The Examining Board has been extremely busy this year and Ron Close - Chairman - will be reporting separately. The National Executive appreciates all the work done by the Examining Board.

Notable and Historic Trees: This Committee is a small group of dedicated people who this year have worked very hard. Ron Flook is the convenor and he will report separately.

This year a detailed submission was made to the Government on the role of Notable Trees and seeking government support. The report was prepared in conjunction with the Commission For The Environment. It was ready in time for presentation to and consideration by those involved in setting up the new Department of Conservation and Ministry for the Environment.

So you can see the affairs of the Institute are in good hands and that everything is progressing. Behind the scenes we are very lucky to have the services of Dave Cameron, our Secretary, Enid Reeves, Examinations Officer, and Vicki Black, typist. Thank you all for the good work you have been doing. We appreciate it.

Last year I finished my report by issuing three challenges and I want to repeat them because they are still relevant:

1. Get involved in the Institute.
2. Get young people involved and holding office at District Council level.
3. Introduce one new member.

Alan Jolliffe
CHAIRMAN, NATIONAL EXECUTIVE.

63rd A.G.M.

As many of you will be aware the 63rd Annual General Meeting and Conference will be hosted by the Otago District Council and will be held at St. Margaret's College, University of Otago, Dunedin from 16 to 19 May 1986.

Full details of the programme are set out elsewhere in this Bulletin along with the official Registration Form. Please assist the Conference organisers by sending in your registration form well before the deadline of 4 May. You can be assured of a worthwhile weekend in Dunedin.

REMITTS TO THE ANNUAL GENERAL MEETING

The following remits will be considered at the A.G.M. on 17 May provided they are approved by the National Executive when it meets on Friday, 16 May.

1. That the criteria for all the R.N.Z.I.H. awards be documented and circulated to District Councils.
2. That a list of past recipients of R.N.Z.I.H. awards be circulated to District Councils.

Both these remits were submitted by the Auckland District Council.

ELECTION OF OFFICERS

The following members of the National Executive are due to retire by rotation at the A.G.M. this year:

Mr I. McDowell
Mr G. Mander
Mr M. Steven
Mr P. Jew.

When nominations for the four vacancies thus created closed on 14 March 1986, the following nominations had been received:

Mr G. Mander - Bay of Plenty District Council
Mr I. McDowell - North Taranaki District Council.

Mr McDowell and Mr Mander are thus re-elected to the Executive unopposed and no postal ballot will be necessary.

Mr Alan Mason has also indicated that he wishes to resign from the National Executive effective from the date of this year's A.G.M. There will therefore be three vacancies on the National Executive. Some or all of these vacancies will be filled by the Executive co-opting members according to Clause 5(a)(v) of the R.N.Z.I.H. Constitution.

The National Executive for 1986/87 will therefore comprise:

Chairman:	Mr Alan Jolliffe	Nelson *
	Mrs Robin Bagley	Dunedin
	Mr Ron Flook	Wellington
	Mr Ian Gear	Hamilton

Mr Graeme Mander	Tauranga
Mr Ian McDowell	New Plymouth
Mr Lawrie Metcalf	Invercargill
Mr Richard Nanson AHRIH	Wellington
Mr John Taylor AHRIH	Christchurch
plus three vacancies.	

Ex Officio: Professor Ken Milne Massey University
 Professor Richard Rowe Lincoln College.

1985 FINANCIAL STATEMENTS

The Financial Statements, duly audited, for the year ending 31 December 1985, are included in this Bulletin.

Again, as in 1984, a modest surplus of income over expenditure was achieved in both the General Account and the Examinations Account. It is essential that the Institute continues to budget for a surplus in order to fund new developments that are necessary if we are to continue to serve our membership and the horticultural industry which gives us so much support in our examinations function.

As can be seen from the accounts, the annual turnover in financial terms has now grown to a figure well in excess of \$100,000, as a result of the increase in membership coupled with the advent of a number of new developments in the examinations area.

The Institute's secretariat, comprising only three people has at times been very hard pressed to cope with the work load generated by our increasing numbers, and consideration will need to be given to increasing staff numbers in the near future.

Members attending the A.G.M. will have the opportunity to ask questions and discuss in detail any aspects of the annual accounts that they wish.

Dave Cameron
NATIONAL SECRETARY.

THE ROYAL NEW ZEALAND
INSTITUTE OF HORTICULTURE (INC.)

FINANCIAL STATEMENTS

FOR THE YEAR ENDED 31 DECEMBER 1985

C O N T E N T S

1. Balance Sheet
2. General Account Statement of Income and Expenditure
3. Examination Account Statement of Income and Expenditure
- 4, 5, 6. Notes to the Financial Statements
7. Auditors' Report

BALANCE SHEET

AS AT 31 DECEMBER 1985

	1985	1984		1985	1984
CURRENT LIABILITIES			CURRENT ASSETS		
270 Bank of New Zealand	-	1,876	Subscriptions in Arrears	714	
5,652 Accounts Payable	10,042	-	Bank of New Zealand	8,690	
1,289 District Council Funds	2,285	3,46	Sundry Debtors	1,444	
		4,033	Books on hand for sale	6,538	
7,211 TOTAL CURRENT LIABILITIES	12,327	35,229	B.N.Z. Term deposit	-	
		21	P.O.S.B. - current account	-	
PUBLICATIONS RESERVE			B.N.Z. Finance - Debenture Stock	28,877	
1,165 Notable & Historic Trees	1,275	41,505			
Committee (Note 4)			TOTAL CURRENT ASSETS	46,263	
3,000 CAREERS IN HORTICULTURE FUND (Note 7)	-				
			DEPOSITS HELD FOR FUNDS (Note 6)		
ACCUMULATED FUNDS			B.N.Z. - Autoaccess Account	2,476	
24,167 Balance 1/1/85	37,013	2,130	P.O.S.B. - special funds	-	
3,869 Examinations Account (Note 2)	1,115	6,800	B.N.Z. Finance Co.	4,300	
8,977 General Account	1,350	250	Christchurch City Council	-	
		400	Christchurch City Council (2)	400	
		289	B.N.Z. Savings Bank - District Councils	-	
		381	- General	-	
37,013 ACCUMULATED FUNDS 31/12/85	39,478	1,165	B.N.Z. Notable and Historic Trees	1,275	
		500	Palmerston North City Council	-	
TRUST ACCOUNT BALANCES			B.N.Z. Term Deposit	6,800	
- Endowment Fund	374	1,750			15,251
- F. Cooper Memorial Fund	594	1,050	TOTAL DEPOSITS HELD		
- J.A. Campbell Memorial	252	500	FIXED ASSETS		
Prize Fund		500	Office equipment (at cost)	6,219	
- Junior Memorial Prize Fund	236	500	Less: Accumulated depreciation	3,104	
- D. Tannock Memorial Prize	311	500			3,115
Fund		500			
- P. Skellerup Prize Fund	469	1,750			
- R. Skellerup Prize Fund	494	1,750			
- D. Mackenzie Memorial Prize	319	500			
Fund		500			
- Sir Victor Davies Award	-	200			
10,080	3,049	8,500			
58,469	11,549				
	\$64,629	\$58,469			
	=====	=====			
	\$64,629	=====			



ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURE (INC.)GENERAL ACCOUNTINCOME AND EXPENDITURE ACCOUNTFOR THE YEAR ENDED 31 DECEMBER 1985

	<u>1985</u>	<u>1984</u>
<u>INCOME</u>		
Subscriptions (note 8)	21,559	33,548
Donations	72	52
Sundry receipts	353	111
Interest	5,696	3,559
Net deficit from Publications Account (Note 5)	(4,319)	(7,995)
<u>TOTAL INCOME</u>	<u>23,361</u>	<u>29,275</u>
<u>LESS EXPENDITURE</u>		
Accident Compensation	161	159
Advertising	299	232
Capitations paid to District Councils (Note 9)	-	3,840
Salary, wages and secretarial services	7,861	7,509
Audit fee	280	310
Depreciation	934	687
Printing and stationery	1,567	1,872
Postages, telegrams, telephone charges	1,043	718
General expenses	122	169
A.G.M. expenses	920	797
Travel expenses	6,235	2,166
Grant - Notable and Historic Trees Committee	750	500
Office rent	1,731	1,176
Typewriter expenses	100	88
Plant Raise Awards	-	75
	<u>22,011</u>	<u>20,298</u>
<u>EXCESS INCOME OVER EXPENDITURE</u>	<u>\$1,350</u> =====	<u>\$8,977</u> =====

The notes on pages 4, 5, and 6 form part of and are to be read in conjunction with these accounts.

J. H. H. H.
10/4/86

ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURE (INC.)EXAMINATIONS ACCOUNTINCOME & EXPENDITUREFOR YEAR ENDED 31 DECEMBER 1985

	<u>1985</u>	<u>1984</u>
<u>INCOME</u>		
C.H.P. Enrolments	7,635	5,925
Registration	4,085	3,852
Examination entry	40,948	23,890
Sundry income	47	507
Government Grant	39,145	36,156
Loder Cup Committee	<u>1,500</u>	<u>1,500</u>
	93,360	71,830
<u>EXPENDITURE</u>		
C.H.P. Expenses	7,337	-
Audit and Accountancy fees	1,120	240
Exam Board expenses	12,320	7,227
Examiners fees and expenses	11,981	13,142
Sundry refunds of fees	-	970
General Expenses	574	148
Loder Cup Committee	1,500	1,500
Hire Examination room	135	68
Postage and telephone	3,710	2,292
Printing and stationery	4,279	5,778
Secretarial and office wages	<u>49,289</u>	<u>33,596</u>
	92,245	64,961
Less Transfer to "Careers in Hort" Fund (note 7)	<u>-</u>	<u>3,000</u>
<u>Excess of Income Over Expenditure</u>	<u>\$1,115</u> =====	<u>\$3,869</u> =====

The notes on pages 4, 5, and 6 form part of and are to be read in conjunction with these accounts.

J. Kelly
10/14/86

ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURE (INC.)

NOTES TO THE FINANCIAL STATEMENTS

Note 1 STATEMENT OF ACCOUNTING POLICIES

The following accounting policies have been adopted:

Inventories

Books on hand are valued at the lower of cost and net realisable value.

Depreciation

Fixed assets are depreciated on a straight line basis which will write off cost over a period of five years.

Interest Received

Interest receivable has been included in the accounts on a cash basis.

Subscriptions

The subscriptions in arrears are accounted for on the basis of those subscriptions expected to be received by the Executive. The subscription policy was changed last year (Refer Note 8).

Note 2 EXAMINATIONS FUND

As from 1979, the Examinations Fund is accounted for by a separate Income and Expenditure Account. All costs relating to the Examinations Account are charged to that account. Some items of expenditure relating to both the General and Examinations Account, namely salaries and audit fees, have been apportioned between the two accounts on a basis determined by the Executive.

Note 3 DISTRICT COUNCIL FUNDS IN SUSPENSE

These are funds received from District Councils which are no longer operating. Interest is compounding and the funds are held separately in the Bank of New Zealand Savings Bank.

Note 4 NOTABLE & HISTORIC TREES COMMITTEE

The Notable and Hisotric Trees Committee is accounted for in these accounts to the extent of funds on hand at the end of the year. The funds represent the unexpended portion of grants, plus interest received.

*J. K. Lewis
10/7/86*

Balance of Account 1 January 1985	1,165
<u>Add:</u> Interest from Investment Account	96
Registration Fees	76
Grant from National Executive	750
Donations	20
Commission For Environment	94
New Plymouth City Council	150
	<hr/>
	2,351
<u>Less:</u> Advertising	229
Stamps and Stationery	210
Telephone and Tolls	61
Office Expenses	107
Wellington Regional Council	39
Sundry Expenses	320
Tree Manuals	110
	<hr/>
	1,076
	<hr/>
	\$1,275

Note 5	<u>PUBLICATIONS ACCOUNT</u>	<u>1985</u>	<u>1984</u>
	<u>Sales</u>	9,195	5,708
	<u>Less:</u>		
	Costs of publication	16,019	16,326
	Adjustments for increase in stock on hand	(2,505)	(2,623)
		<hr/>	<hr/>
		13,514	13,703
		<hr/>	<hr/>
	<u>NET DEFICIT FROM PUBLICATIONS FOR YEAR</u>	\$(4,319) =====	\$(7,995) =====

Costs of printing and distributing four issues of the quarterly bulletin free to members are included in this account.

Note 6 TRUST ACCOUNT BALANCES

The funds in Trust Accounts are represented by investments and bank accounts. The capital portion represents the contributions of the donors and the income portion represents the unexpended portion of accumulated income to date.

	<u>1985</u>	<u>1984</u>
District Council Funds in Suspense	2,285	1,289
Notable & Historic Trees Committee	1,275	1,165
Trust Account Balances	11,549	10,080
	<hr/>	<hr/>
	\$15,109	\$12,534
	=====	=====

Handwritten signature and date: 10/4/86

ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURE (INC.)

NOTES TO THE FINANCIAL STATEMENTS

(Continued)

Note 7 CAREERS IN HORTICULTURE FUND

The \$3,000 has been allocated by the National Executive to the Institute for publication of the "Careers in Horticulture" booklet which was printed and distributed in 1985. The purpose of this publication is the promotion of Horticulture as a worthwhile career.

Note 8 The National Executive introduced a policy during the year ended 31 December 1984 of converting the timing of subscription payments from an 'arrears' situation to an 'advance' situation.

Subscriptions in relation to the period ended 31 December 1986 are levied on members in September 1985 and are taken to income in the year in which they are received.

Note 9 Further to the National Executive policy as per Note 8, capitation fees are now calculated and paid to District Councils six months after billing of subscriptions, and are recorded in the accounts on a cash basis.

*J. Antko
10/4/88*

AUDITORS' REPORT
TO THE MEMBERS OF
ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURE INCORPORATED

We have audited the attached balance sheet and income and expenditure accounts in accordance with accepted standards, and have carried out such procedures as we considered necessary.

Some sources of publications income cannot be verified prior to entry in the records, and our examinations of these has been confined to testing recorded receipts to the bank accounts.

In our opinion, but subject to this limitation, the balance sheet and income and expenditure accounts give a true and fair view of the state of the Institute's affairs as at 31 December 1985, and of its income and expenditure for the year then ended.



TOUCHE ROSS & CO, Chartered Accountants

Christchurch, N.Z.

10 APRIL 1986

NEW BOTANICAL NAME FOR KIWIFRUIT

Chinese and New Zealand cooperation has led to a new botanical name for kiwifruit. It is no longer *Actinidia chinensis*.

It is now - to give it its full title - *Actinidia deliciosa* (A. Chevalier) C.F. Liang et A.R. Ferguson var. *deliciosa*.

The New Zealand Kiwifruit Authority had a part to play in this, too. It sponsored a visit in 1983 by China's leading expert on classifying the different types of kiwifruit, Professor Liang Chou-fen of the Guangxi Institute of Botany, who worked with Dr Ross Ferguson of the D.S.I.R's. Division of Horticulture and Processing in Auckland.

In 1975 Professor Liang recognised that the species *Actinidia chinensis* could be separated into two varieties.

Plants of one variety had soft hairs and bore smooth-skinned fruit, while the plants and fruit of the other variety both had long stiff hairs.

It was this second variety which included the kiwifruit of commerce, which is grown in New Zealand and elsewhere.

A Frenchman first described the hairy variety more than 40 years ago. Since then, research in China and New Zealand has shown that the differences between the two varieties are large enough for them to be classified as distinct species.

Dr Ferguson explained that there is more to it than just the difference between the smooth and hairy fruit.

"There's the nature of the flowers, their size, the shapes of their leaves and of their overwintering buds. And most of all there is a big difference in chromosome number," he said.

The smooth-skinned species now retains the name *Actinidia chinensis*.

But the stiff-haired species - including the kiwifruit as we know it - needs to be given the new name *Actinidia deliciosa*.

EXAMINER'S COMMENTS — ORAL AND PRACTICAL EXAMINATIONS 1985

Oral and Practical Schedule 1, Subject 9 (Junior)

Q. 1 Plot work, planting and sowing seed

and

2. Failing candidates generally were slow, lacked confidence and displayed poor workmanship. Plots were not levelled properly, lines were not put down tight. Most displayed little evidence of having used digging implements or rakes.

Lacking in experience and confidence in the use of simple tools such as spades and rakes.

Many candidates seemed very unsure about the correct use of a rake or spade. In some cases lines were put in without the string touching the ground. Lines must be tight. Some candidates had no idea about the correct spacing of vegetable plants or seed.

Q.3. Seed sowing in trays

Good skill and care usually displayed. Some candidates were not skilled in the even filling and levelling of the seed trays. Seed sometimes unevenly covered.

Q.4. Pricking out into trays

Candidates who had had experience with pricking out were quick, systematic, and their work was neatly done. Uneven levelling of the soil and loose pricking out were the main errors. Pricking out different sized seedlings in the same tray should be avoided. Seedlings should be graded.

Q.5. Plants "in distress", i.e. pot bound, starved, crowded

Candidates who did not know the plants generally did not know what the correct treatment should be. Failing candidates had little or no knowledge or had had no experience with greenhouse plants.

Q.6. Plant identification

Principle errors were: incorrect spelling of botanical names, incorrect writing of botanical names (i.e. small initial letter for species name), or simply not knowing the plant.

Q.7. Plant pests, diseases and disorders

Generally good basic knowledge by those who passed. Failing candidates either did not know the problem or guessed at the answers. Some candidates did not look closely enough to see whether a disease or pest was present. Incorrect identification lead to incorrect control measures.

Q.8. Use and care of horticultural equipment

Failing candidates were unfamiliar with the correct use of respirators and/or knapsack sprayer, or they were unfamiliar with the use, care and maintenance of most of the tools/equipment.

Q.9. Potting and after-care of plants

Question generally well handled. Some candidates not familiar with the plants in question.

Q.10. Propagation by cuttings

Students who failed had no basic propagating skills. Some cuttings too small, some not trimmed correctly, some internodal when they should have been nodal. Students should search for information, visit nurseries where propagation is carried out, and they should practise making and inserting cuttings.

J.O. Taylor
16 January 1986

PLANT CLASSIFICATION - SUBJECT 5

N.D.H. SCHEDULES 1, 4 AND C.H.T.

As part of the transition to the new N.D.H. prescription, this subject will be examined using either Hutchinson's or Engler & Prantls Classification systems in 1986. Students need to have a knowledge of only one of these sytems and the arrangement of flowering plant families within the system.

Candidates will be required to know the general characters of the plant families listed below, to have studied one or two examples of each, and to be able to refer to some of the more important genera and species cultivated in gardens.

(Candidates will also be expected to have a knowledge of Gymnosperms, especially the families, Cuppressaceae, Pinaceae, Podocarpaceae, Ginkgoaceae, Araucariaceae, Taxaceae, Taxodiaceae.)

Engler & Prantl

Graminae
Liliaceae
Cruciferae
Rosaceae
Luguminosae
Myrtaceae
Umbelliferae
Labiatae
Solanaceae
Scrophulariaceae
Compositae
Amaryllidaceae
Iridaceae
Ranunculaceae
Ericaceae
Proteaceae
Malvaceae
Araliaceae
Rutaceae
Araceae
Zingiberaceae

Hutchinson

Poaceae
Liliaceae
Brassicaceae
Rosaceae
Caesalpinaceae, Mimosaceae
Fabaceae
Myrtaceae
Apiaceae
Lamiaceae
Solanaceae
Scrophulariaceae
Asteraceae
Amaryllidaceae
Iridaceae
Ranunculaceae
Ericaceae
Proteaceae
Malvaceae
Araliaceae
Rutaceae
Araceae
Zingiberaceae

N.D.H. SUBJECT NO. 9

ALL STUDENTS SHOULD NOTE THAT UNDER THE NEW PRESCRIPTION SUBJECT NO. 9 IS NO LONGER AN ORAL & PRACTICAL EXAMINATION BUT IS NOW A "WORK RECORD REPORT". DETAILS ARE AS FOLLOWS:

WORK RECORD REPORT

The Work Record Report is to be divided into two sections, namely:

1. A Property Report and
2. A Work Record in the form of a diary.

Objectives. Property Report.

To enable students to develop an analytical approach to the objectives and operation of the property on which they are working.

Work Record

To enable students to learn by recording in diary form a systematic method of record keeping in which observations and job activities are written up.

THE PROPERTY REPORT

This is to be a written assignment consisting of no more than 1,200 words excluding diagrams, maps, photographs or other resource material. It is to be a review of the place of work and its principal activities. Included are to be:

The geographic location, size, topography, buildings, facilities, shelter, soil type, drainage, plants/crops grown, machinery and irrigation methods used or any special features of the property. Also to be included are facts about the organisation structure, staff numbers and lines of communication and authority.

Grading to represent 40%.

THE WORK RECORD

In the form of a diary (A4) the student is to keep a daily record of his/her work activity. Particular importance, where appropriate, is to be placed on a description of the work method or techniques used with comment on effectiveness and values. Between a half to one page of hand-written information daily will normally suffice. Where work activity is repetitive students may supplement their diary with observations outside the scope of their work provided it is of a nature which will add to their horticultural knowledge. In addition to the recorded notes, supplementary information such as trade notes or photographs may be included to add to the value of the diary as a reference record. Students should incorporate a simple index to the important information contained in their diary so that if they wish in the future, it may be referred to without delay.

Both the Work Record and the Property Report are to be submitted to the Secretary, R.N.Z.I.H., P.O. Box 12, Lincoln College, CANTERBURY, by 30 September. The student's work will be marked and returned by 31 December.

ASSOCIATES OF HONOUR

as at November 1985

1981	Amos, Mrs. M.J.	Auckland
1956	Anderson, A.W.	Timaru
1979	Anyon, D.G.	Wellington
1978	Atkinson, Dr. J.D.	Auckland
1978	Bates, Miss P.	Auckland
1974	Benstead, Mrs. D.	Lower Hutt
1974	Burstall, S.W.	Rotorua
1983	Challenger S.	Little River
1970	Clark, H.J.	Auckland
1969	Dingley, Miss J.M.	Auckland
1964	Durrant, Col. T.	Rotorua
1971	Fear, R.T.	Hamilton
1972	Galloway, I.D., M.B.E.	Wellington
1962	Gilpin, H.G.	Christchurch
1963	Glazebrook, J.H.	England
1984	Godley, Dr. E.J.	Christchurch
1961	Goodwin, J.W.	New Plymouth
1958	Greig, A.M.W.	Christchurch
1957	Hammond, H.M.	Hamilton
1980	Hardwick, Mrs. D.A.	Tauranga
1977	Healy, A.J.F.	Christchurch
1976	Henderson, G.G.	Dunedin
1970	Hollard, B.	Kaponga
1973	Holyoake, C.V.	Waikanae
1949	Hudson, Prof. J.P.	England
1968	Hume, J.E.	Palmerston North
1961	Hunter, J.A.	Morrinsville
1983	Jew, P.J.	Auckland
1977	Kennedy, Mrs. M.	Auckland
1965	Knight, F.P.	England
1980	Latimer, E.H.	Auckland
1975	Lemmon, K.J.	Wellington
1982	KcKenzie, Dr. D.W.	Havelock North
1962	MacKenzie, J.G.C.	Hastings
1981	Malcolm, G.B.	Christchurch
1974	Marcussen, K.H.	Christchurch
1967	Martin, Mrs. M.M.	Whangarei
1964	Mattews, Mrs. B.W.	Waikanae
1978	Morrison, Prof. T.M.	Queensland
1980	Nanson, R.J.	Wellington
1966	Petrie, G.A.R., M.B.E.	Invercargill
1975	Poole, H.J., O.B.E.	Lower Hutt
1971	Reynolds, Mrs. K.E.	Whangarei
1968	Salinger J.P.	Palmerston North
1985	Say, J.S.	Waihi Beach
1979	Scott, A.G.	Morrinsville
1983	Shepherd, Mrs. R.W.	Wellington
1977	Skellerup, P.R.J.	Christchurch
1959	Skipworth, M.R.	Wanaka
1967	Steen, Mrs. N.	Auckland
1960	Syme, R., M.B.E.	Hawera
1973	Taylor, J.O., M.B.E.	Christchurch
1984	Toleman, E.E.	Hamilton
1979	Veale, Prof. J.A.	Palmerston North
1984	Ward, G.P.	Christchurch
1976	Williams, H.B.	Gisborne
1956	Yeates, Dr. J.S.	Palmerston North

ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURE (INC.)



CONFERENCE AND
ANNUAL GENERAL MEETING

THEME: HORTICULTURE - OUR HERITAGE AND FUTURE

VENUE: ST MARGARETS COLLEGE
UNIVERSITY OF OTAGO
DUNEDIN

DATE: 16-19 MAY 1986

OFFICIAL OPENING BY
HIS WORSHIP THE MAYOR OF DUNEDIN
MR C. SKEGGS

CONFERENCE SECRETARY: Mr Robert Scott
Works and Services Department
University of Otago
PO Box 56
DUNEDIN

PHONE: DUNEDIN 771-640 EXT. 576



CONFERENCE REGISTRATION FORM

Please detach and return to the Conference Secretary
no later than 4 May 1986

Names of all people in your party attending Conference:-

MR/MRS/MISS SURNAME CHRISTIAN NAMES

.....

.....

ADDRESS:

.....

Conference Fee: \$30.00 - each including Saturday lunch and bus
No. Attending:..... \$.....

Conference Dinner: \$17.00 each No. Attending:..... \$.....

Sunday Tour: \$20.00 each - includes Morning Tea, Lunch and Coach.
No. Attending:..... \$.....

Monday Garden History: No. Attending:.....

Accommodation: A block booking has been made at St Margarets
College. Single or twin rooms available, all are
centrally heated.

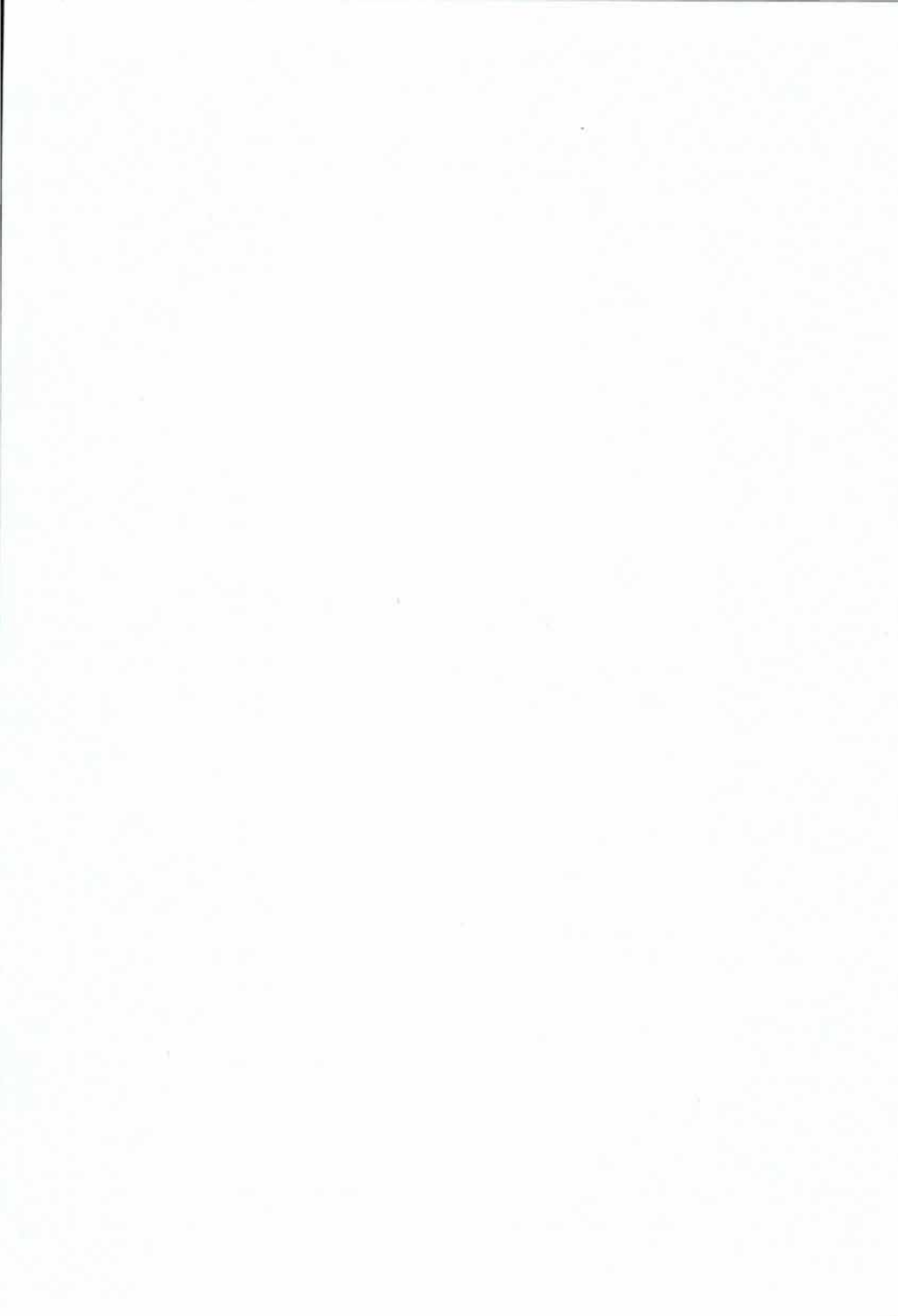
Cost: Bed and Breakfast \$21.00 each *per night*
Friday evening meal \$ 4.00 each

Accommodation required please tick Single \$.....
Twin \$.....
Friday Meal \$.....

Please Advise: Flight number

Approx. arrival time

Transport required



PROGRAMME

FRIDAY 16 MAY

- 10.00 a.m. National Executive Meeting - The Library,
St Margarets College, University of Otago.
- 6.30 p.m. Registration and Social including displays.
Common Room, St Margarets College.
- 8.00 p.m. Official Opening and Welcome.
- 8.15 p.m. Keynote - Address by President, Mr R. Ballinger,
followed by 3 guest speakers.
- 10.00 p.m. Supper.

SATURDAY 17 MAY

- 8.30 a.m. Registration continues.
- 9.00 a.m. AGM Business commences, following brief welcome
by Dr R.O.H. Irvine, Vice-Chancellor,
University of Otago.
- 10.20 a.m. Morning Tea
- 10.45 a.m. AGM resumes.
- 12.30 p.m. Luncheon provided at St Margarets.
- 1.30 p.m. Coaches depart for Visitors Centre Botanic
Gardens.
- 2.00 p.m. Notable and Historic trees discussion

or

Education and Student Discussion

or

Tour of Upper Gardens.

PROGRAMME [continued...]

- 3.30 p.m. Afternoon Tea
- 4.00 p.m. Visit Lower Gardens
Demonstration: Assessing and caring for
an historic tree.
- 5.00 p.m. Free Hour
- 6.15 p.m. Refreshments
- 7.00 p.m. Banks Memorial Lecture -
Dr David Given - Topic:
"BOTANIC GARDENS AND CONSERVATION - THE ROAD
FROM LAS PALMAS"
- Presentation of Awards
- 8.30 p.m. Conference Dinner - St Margarets Dining Room.

SUNDAY 18 MAY

- 9.00 a.m. Coach departs for Otago Peninsula trip.
- 9.30 a.m. Larnach Castle escorted tour of grounds by
Mrs M. Barker, and morning tea (Castle tour
optional extra).
- 11.00 a.m. Glenfalloch Woodland Garden followed by
Lunch.
- 1.00 p.m. Coach departs for airport.
Tour of airport gardens,

or

Garden History Workshop

MONDAY 19 MAY

Garden History Discussion and Workshop

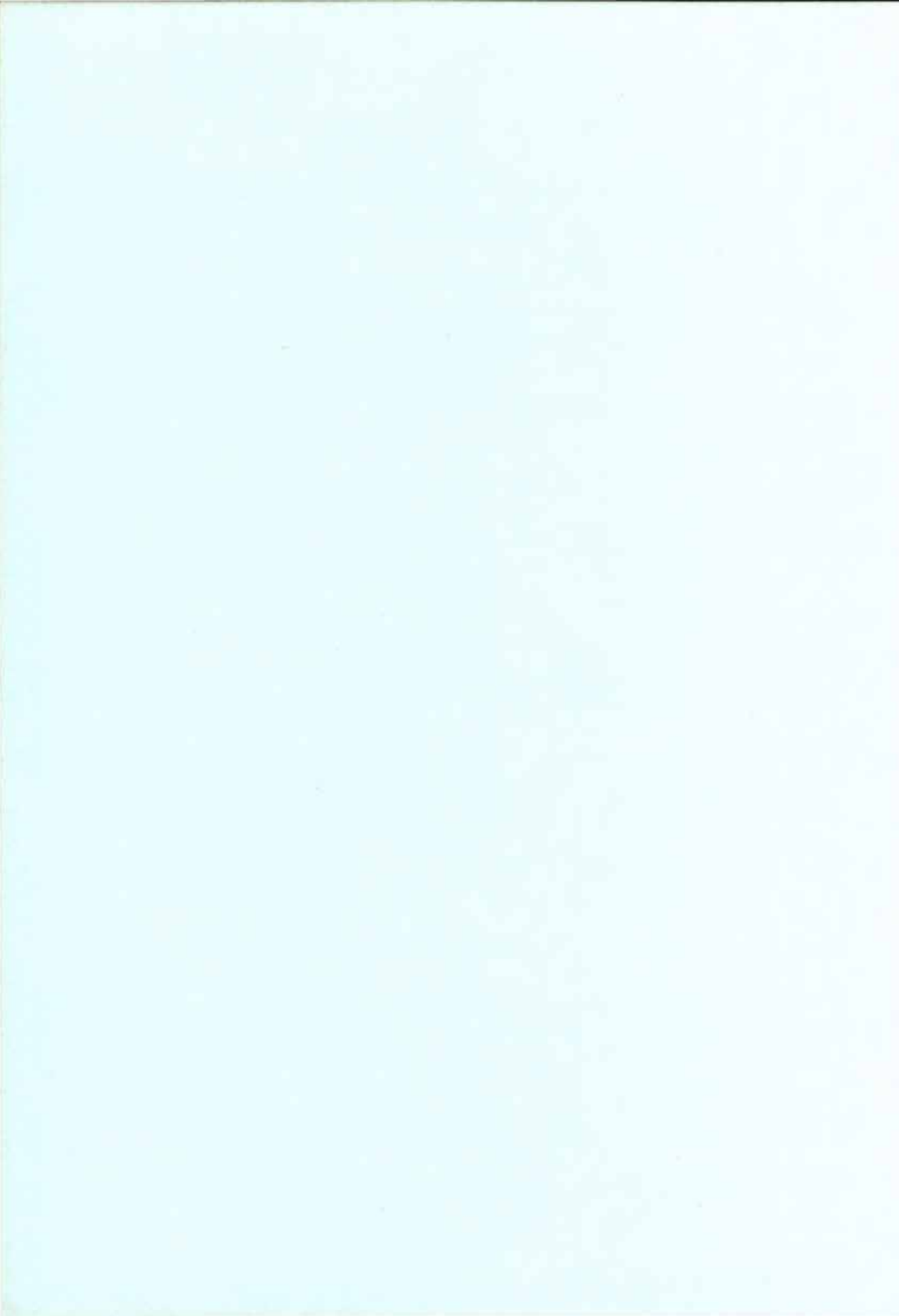
Annual Conference Supplement
Garden History Seminar

SUNDAY 18 MAY

- 2.00 p.m. History and development of Rhododendron Dell
Botanic Gardens.
Rhododendron breeding.
Mr Brent McKenzie.
- 3.30 p.m. Afternoon Tea
- 4.00 p.m. Early Dunedin Nurseries.
Discussion - Lists, Catalogues, Invoices.
- Evening Informal discussion at St Margarets.

MONDAY 19 MAY

- 9.00 a.m. Working session to consider research and
organisational aspects.
Discussion - R.N.Z.I.H., Historic Places Trust,
Archivist.
- 10.30 a.m. Morning Tea
- 11.00 a.m. Vauxhall Gardens, an historic Dunedin Garden.
Mr Dugald McKechnie.
- 12.00 n.n. British Cottage Garden Society.
Mr Antony Wyber.
- 12.30 p.m. Lunch
- 1.30 p.m. A Cottage Garden - Planning and Restoration.
Mr Antony Wyber.
- 3.00 p.m. Visit Hocken Library, McNabb Library,
Early Settlers Museum.



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Mr B Keene,
48 Pokapu Street,
Tititangi, AUCKLAND

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6 Winslow Street,
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NORTH TARANAKI

Mrs L. Skipper,
50 Omata Road,
NEW PLYMOUTH.

OTAGO

Mr R.M. Scott
83 Hawthorne Ave.
DUNEDIN

POVERTY BAY

Poverty Bay Hort. Society,
P.O. Box 1275,
GISBORNE (Liaison Only)

SOUTHLAND

Mr. G.A.R. Petrie, AHRIH,
64B Clifton Street,
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SOUTH TARANAKI

Miss E.A. Free,
23 Egmont Street,
HAWERA

WAIKATO

Mrs A. Mackey
P.O. Box 4185

HAMILTON EAST

WELLINGTON

Mr M. Oates
P.O. Box 11-379,
Manners St. WELLINGTON

WHANGAREI

Mr. K. Young, FRIH
P.O. Box 1530
WHANGAREI

RNZIH Notable & Historic Trees Committee — P.O. Box 11-379, WELLINGTON

RNZIH Regional Horticulture Sub-Committee — P.O. Box 11-379, WELLINGTON

ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURE (INC.)

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