New Zealand Garden Journal

Journal of the Royal New Zealand Institute of Horticulture (Inc)

Flower detail of rengarenga, Arthropodium cirratum

A Plantsman's Notebook • New Zealand Alpine Plants - A Challenge for Growers
Profile on Notable Trees • Analysing Change in the New Zealand Home Garden - By Style or Element?

Volume one, number two, June 1996

RNZIH Annual Conference, 1996

Dates: Friday-Sunday, 18-20 October, 1996

Place: Horticulture Department, Unitec, Mt Albert, Auckland (a map will be sent to those registering).

NZAA: The NZAA is meeting at Waipuna Lodge, Mt Wellington. To reduce costs as much as possible, the RNZIH conference is being held separately at Unitec. We will combine for the formal dinner, and will visit the arborists' jamboree on Sunday afternoon.

Accommodation: Eden Park Motor Inn, 697 New North Road, Mt Albert. **Shared** accommodation ($35 per night per person), breakfast extra. This motel is within walking distance of St Lukes Shopping Centre or Western Springs and is on a good bus route into Auckland Central.

Transport: No transport has been organised from the airport for conference participants: we suggest that you take a shuttle service. Transport from the motel to Unitec and to Waipuna Lodge for the formal dinner will be provided. All transport also provided for all tours on Friday, Saturday and Sunday. Parking is available.

Meals: Cut lunches provided on Saturday and Sunday. Friday lunch and dinner and Saturday dinner charged separately. Morning and afternoon teas provided. Breakfast on Sunday supplied before Annual General Meeting.

Post-conference tour: Two day visit to Bay of Islands, Waipoua and other points of horticultural interest north of Auckland. Costs approximately $50 for transport by mini bus **plus** accommodation for Sunday and Monday nights. Returning c. 6 p.m. Tuesday. If interested, please register by 1 August or contact Ron Davison 0-9-524 9535.

Program: A detailed program will be sent to those registering, or if you want more details please send stamped addressed foolscap envelope to M B Petley, 22 Highbury Street, Avondale, Auckland after 19 July. Enquiries 0-9-8280 828 (after hours).

Thursday: National Executive Meeting

Friday: 11.00 a.m., Unitec: registration, lunch, 1.00 pm conference opening and principal speakers including Jack Hobbs on features of ornamental horticulture in Auckland, visit to Auckland Domain, the restored FERNZ Fernery, and Old Government House grounds. University Conference Centre: dinner, presentation of awards and Banks Lecture on the greening of New Zealand horticulture.

Saturday: Forum on plant collections, other discussions, e.g. use of plants in Chinese medicine, field trips to Arataki Visitor Centre, Waitakere Ranges for lectures on notable plants of the region, threatened native plants, native plant revegetation, walk on nature trail.

Sunday: Pahcake breakfast (free), AGM, guided tour of Unitec notable trees, visits to spectacular Auckland gardens, lunch, ending in Cornwall Park for arborist's jamboree. Conference closes at 4 p.m.

Royal New Zealand Institute of Horticulture (Inc)

1996 Annual Conference Registration Form

Surname ..... **Initials/First name** ..... **Title** .....

Postal address .....

Phone number (day) ..... **(night)** ..... **Akld contact phone** .....

		Number reqd	
Registration fee includes tours and lunches on Saturday and Sunday	**$100 per person**	.....	$ .....
Single day registration if not registered for whole conference, please mark day attending Friday..... Saturday..... Sunday	**$60 per person**	.....	$ .....
Student registration (ID must be shown)	**$80 per person**	.....	$ .....
Late fee	**$20** if received after 27/9/1996		$ .....
Friday lunch	**$10 per person**	.....	$ .....
Friday dinner	**$25 per person**	.....	$ .....
Saturday dinner	**$35 per person**	.....	$ .....

Accommodation: shared, $35 per person per night, deposit $10 per person per night required, breakfast extra.

Thursday 17 October	**deposit for**	.....	$ .....
Friday 18 October	**deposit for**	.....	$ .....
Saturday 19 October	**deposit for**	.....	$ .....

Total $ .....

Will you attend the (free) breakfast and AGM, Sunday? Yes/no .....

Do you want more information on the post-conference tour? Yes/no.....

Registration forms are to be returned to M B Petley, 22 Highbury Street, Avondale, Auckland by 27 September, 1996. Cheques (non transferable) to be made out to Auckland Branch, RNZIH. Receipts and further details will be sent to those registering.

Volume one, number two
June 1996

Editorial Address
Box 28 040
WELLINGTON

(04) 475 8763

ISSN 1173 7425

The New Zealand Garden Journal is published by the Royal New Zealand Institute of Horticulture (Inc.)
For membership information please write to RNZIH, Box 12, Lincoln University, Canterbury

NEW ZEALAND GARDEN JOURNAL
Journal of the Royal New Zealand Institute of Horticulture (Inc)

Contents

An Exciting Start

It was encouraging to receive such a positive response to the first issue of the Garden Journal. We received several letters with comments and suggestions about what people liked and how the Journal could be improved. Thankyou for taking the time to write. One letter that caused much hilarity and some consternation came from Roger Springett of Mara Nurseries. The Journal advertised his business as providing a quick and efficient 'male order service' - what can we say? Our apologies Roger. In publishing as in gardening, attention to detail is so important.

This issue contains a range of articles from garden history, to threatened plants and cultural uses of the native rengarenga. A wide range of topics is important and we hope to continue to explore themes that are not covered by other horticultural publications in New Zealand. Articles on contemporary sculpture, sundials, the botany of Banks Peninsula, and the tree collections at Wakehurst Place in England are just some of the topics to be covered in future issues.

In gardening,
Mike Oates
Sarah De Renzy

Cover Picture: Flower detail of rengarenga, *Arthropodium cirratum*
Photo: Rob Lucas

Plant and

Plant and Garden News

New Friends group formed

Throughout New Zealand many public gardens have Friends groups that provide support to the Garden in many ways including fund raising, providing volunteer labour, and giving feedback on new developments. A new group called Friends of the Park was recently formed to support and protect Pukekura Park in New Plymouth.

The group held its first AGM recently and elected Trish Stewart as its inaugural President. The group hopes to work on projects such as water monitoring of the lakes in the Park, tree planting, and provide feedback on future park developments such as the Fernery Redevelopment .

For more information contact the Secretary Heather Allen on 06 758 0310

A new pest in Auckland

There has been concern recently about the possible effects of new insect pests on our primary industries, particularly the effects of fruitfly on fruit exports. Even with the vigilance of border control, pests do sometimes slip through the net. One pest that has recently become established in Auckland is Ash white fly.

Ash white fly is found in mainland Europe and parts of North Africa and Asia and feeds on many plants including ash, apple, magnolia and citrus. A colony was discovered in Devenport in May 1995 and its extremely quick reproduction meant that once found its eradication was not practicable. HortResearch has since been investigating a biological control method using a parasitic wasp *Encarsia inaron.*

Experience in Southern California suggests ash white fly will reproduce continuously in favourable climates and could quickly spread throughout New Zealand. This would affect commercial orchards and home garden fruit trees as well as ornamental plantings of ash, widely used in some areas as a street tree.

Heavy infestations can cause leaf wilt, leaf drop and small fruit. Sooty moulds also develop on the honeydew produced by the adult and nymphal stages.

In May 1996 the pest had spread west into Henderson and probably up into the Waitakeres. HortResearch are shortly to investigate its northern and southern limits in Auckland. We will keep you informed.

NZ International Rose Trial Ground Awards

The results of the 1995 trials at Palmerston North were:

Gold Star of the South Pacific	**Patio Honey** (Pale Apricot Patio Climber)
Silver Star of the City of Palmerston North	**Aorangi** (White HT)
Fragrance Award	**Carolyn** (Medium Pink HT)
Certificates of Merit	**Patio Charm** (Soft Apricot Patio Climber)
	Beauty Star (Vermilion HT)

Plants and the Internet

Traditionally gardeners have accessed information through books and magazines. Now with the aid of computers, much of this information is at their fingertips. In a recent edition of the New Zealand Cactus and Succulent Journal, Steve Glasgow from Palmerston North described his experiences surfing the Internet in search of cacti. The wealth of information is staggering. One home page called Cactus and Succulent Mall provides information on societies around the world, suppliers of plants, seeds and literature and links to other sites including a picture gallery and even cacti discussion groups. For those interested in botanic gardens, many now have on line data of their accessions. Other examples include:

- The Smithsonian Institution in Washington DC which has established a Natural History Web providing users with over 800 references in the Conservation bibliography alone.
- A Reference List for Plant Re-introductions, Recovery Plans, and Restoration Programmes compiled by Peter Atkinson and Mike Maunder (Kew) and Kerry Walter (RBG Edinburgh) .

However, accessing the Internet comes at a price. Its expensive and costs can easily run into hundreds of dollars a year if you become hooked.

For those interested in accessing the Internet you should read Consumer, December 1995 which reviews Internet providers in New Zealand.

Still viable after 1200 years

Researchers at the University of California have germinated a 1288 year old lotus seed from China. The seeds came from a dry lake bed that had once been the site of a lotus lake cultivated

Garden News

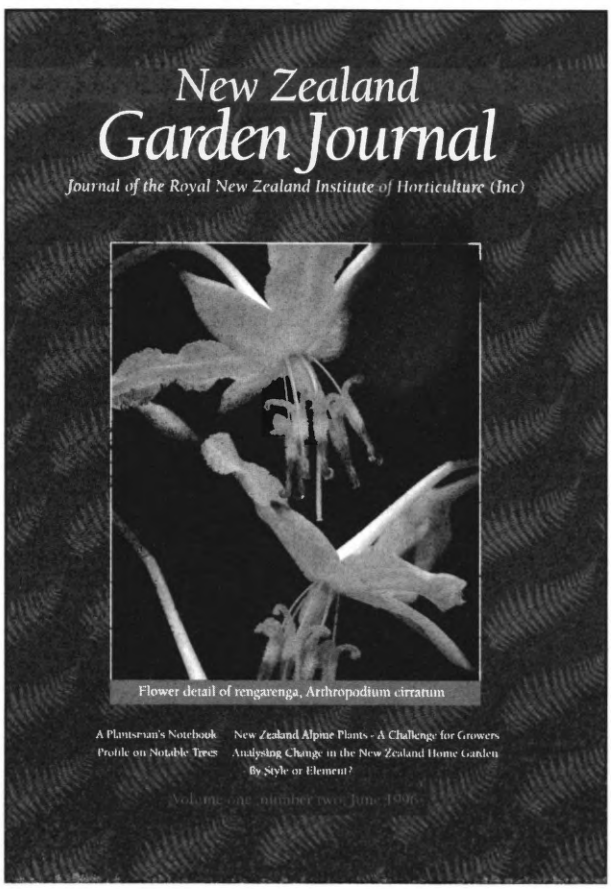
Plant and Garden News

by Buddhists. Dr Shen-Miller obtained the seed from the Beijing Institute of Botany and filed through the hard shell before sowing 4 seeds. Three sprouted and radiocarbon dating showed the oldest to be 1288 years old.

Symposium on palms

A symposium on palms and other monocots from the tropics will be held in Tenerife (Spain) from the 3 to 7 February 1997. The aim is to facilitate information exchange on the biology, production, and use of ornamental palms and tropical monocots such as ginger, aroids, and bromeliads. For more information contact Palm Symposium, ICIA, Apdo 60, La Laguna, 38200 Tenerife, Spain.

Plant Talk - A new conservation magazine



The science and practice of conserving plants has developed fast but there are many people who still believe plants do not get a fair go. It is the photogenic animals that hog the limelight and subsequently get more support. This magazine should help redress the balance by keeping readers up to date with new activities, developments and techniques in plant conservation. The first few issues have discussed things as diverse as the biodiversity convention, reports on new floras and checklists, and case studies of threatened plants world-wide.

Plant Talk is written in an easy, informative style and should appeal to both experts and beginners alike. Subscription is 15 pounds sterling a year. For more information contact *Plant Talk, Box 400, Richmond, Surrey, TW 10 7 XJ, UK.*

Changes to names of well known plants

Old name	**New name**
Acer ginnala	*Acer tataricum* subsp. *Ginnala*
Cedrela sinensis	*Toona sinensis*
Cedrus atlantica	*Cedrus libani* subsp. *atlantica*
Cupressus cashmeriana	*Cupressus himalaica 'Cashmeriana'*
Datura	*Brugsmansia*
Hydrangea petiolaris	*Hydrangea anomola* subsp. *petiolaris*
Magnolia xkewensis	*Magnolia salicifolia 'Kewensis'*
Malus trilobata	*Eriolobus trilobata*
Nothofagus procera	*Nothofagus nervosa*

Legionella -A cautionary tale

The nursery and growing media industries in New Zealand have been keeping tabs on research into what is commonly called legionnaire's disease. This disease affects the respiratory system and is caused by a species of *Legionella* bacteria. Although these bacteria are common in the environment, the risk of infection seems to be limited to a small number of people. However, for susceptible people, infection can be serious, and occasionally fatal. Increasing age , low resistance to infections, and on-going health problems increase the risk of infection.

For some years, *Legionella* bacteria have been associated with air conditioning and ventilation systems, where they thrive and may be circulated into rooms serviced by such systems. There is a small risk of infection by these bacteria in the home garden. It may occur by breathing in tiny water droplets or particles of peat or compost that are carrying the bacteria. Risk of infection is greatest in spring and summer. Fortunately suitable antibiotic treatment is effective in controlling the disease when treated early.

There has been publicity about the risks of disease caused by *Legionella* when handling organic materials in the garden. Many potting mixes now have information on the packs that

Plant and Garden News

will help reduce the risk of infection. The precautions are generally simple:

- Handle only moist peat, compost or potting mix so there is no dust present.
- Make sure you open bags of potting mix or compost so there's no risk of particles being blown into your face. Handle only in well ventilated areas.
- Always wash hands after handling compost or potting mix.

Don Estcourt, RNZIH Wellington Branch

Wellington Network helping threatened species

The Wellington Plant Conservation Network has been established for two years and is becoming a model for how different organisations and individuals can work together to save threatened species.

The network, made up of representatives from the Department of Conservation, The Hutt, Porirua, and Wellington City councils, Wellington Regional Council, Victoria University, Wellington Botanical Society, local nurseries and private individuals has already helped to ensure that several threatened native plant species continue to exist in the wild in this region.

The work is based on the Wellington Conservancy Plant Conservation Strategy prepared by the Department of Conservation. This documents almost 200 plant species of conservation concern in the Wellington Region, their current status and any future action required. This can involve simply monitoring the species, right through to the taking of propagating material and replanting. The network members are allocated annual goals within the strategy depending on their resources. An annual meeting reviews the previous year and set targets for the next 12 months.

One example of this work is the conservation of *Muehlenbeckia astonii*, a nationally threatened coastal shrub. Only 45 plants remain in the North Island. The species has male and female flowers on different plants, and only 2 of the 45 specimens are breeding.

Cuttings were taken from surviving populations around Wellington and the Wairarapa and the resulting plants put on traffic islands and other areas in Hutt City. Each population was given its own island so that its genetic integrity could be maintained. These groups of plants were close enough to breed and set seed. Hundreds of seed were produced as a result of this captive breeding programme.

John Sawyer, Senior Conservation Officer with DoC says the work of the Network is unique because of the degree of co-operation that has been established. For more information contact John Sawyer, DoC Wellington Conservancy, Box 5086, Wellington.

Unique trip to the Subantarctic Islands December 11 - 21 1996

For those of you fascinated by the megaherbs of the Subantarctic Islands now is your chance to see them and learn all about the natural history of these extraordinary islands. Southern Heritage expeditions are running a voyage to the islands accompanied by expert guides including Dr David Given, an acknowledged expert on the unique flora of these southern most islands of New Zealand.

There will be a series of full and half day shore visits as well as lectures on the wildlife and history of the area. There will also be the chance to assist with research on plant ecology and pollination biology for those who wish to increase their knowledge of the islands vegetation.

For more information please contact Southern Heritage Expeditions, Box 20 219, Christchurch.

Project Crimson extends to rata

Project Crimson Trust has now extended its interest to the conservation of tree rata. Four species are involved:

- *Metrosideros bartlettii*, or Bartletts rata was discovered in Te Paki in the Far North in 1985. There are only a few mature trees in existence
- *Metrosideros parkinsonii*, or Parkinson's rata is also a rare tree found on great Barrier Island and north-west Nelson
- *Metrosideros robusta*, or northern rata, occurs throughout the North Island and north of the South Island,
- *Metrosideros umbellata*, or southern rata is the most wide spread occurring from Whangarei in the north to the Auck land Islands in the south.

Like pohutukawa, the tree rata are in decline mainly due to possum browsing. The Trust hopes that local communities will get involved in a range of projects including local surveys, assessments of damage, individual tree protection and so on.

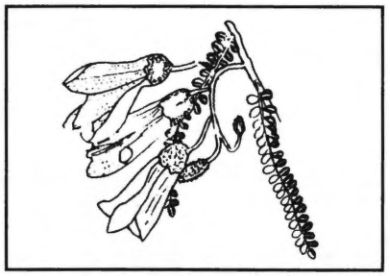
Ex-situ conservation of *Clianthus puniceus*

The Auckland Regional Council has recently signed a Deed of licence with the Department of Conservation in connection with the kowhai ngutu kaka Recovery Plan for the Moturemu Island population of *Clianthus puniceus*. The Auckland Regional Botanic Garden have accessioned 50 plants from seed collected from the only flowering size plant on the Island situated in the Kaipara Harbour.

The plants will be planted out as an ex situ collection and seed will be collected and sown. The resultant seedlings will be used by DoC for planting at new introduction sites in Northland. Once these translocations have succeeded then reintroduction to Moturemu Island may proceed.

A Plantsman's Notebook

by Derrick Rooney



A friendly policeman telephoned my home number in midwinter to say that he had just been to a school in North Canterbury, and in its grounds was a kowhai tree in flower. Was that unusual? Two days later, I spotted a kowhai in flower on the Avon riverbank in Christchurch. Was that unusual?

Well, no. The blossom of the common kowhai is by way of being a national symbol of spring to many New Zealanders, and for a national symbol it's awfully unreliable. September and October are the main flowering months, but kowhai trees up and down the country may be found in flower at any time between May and December.

Geography has no apparent bearing on this. In the Rakaia Gorge, for example, a scattering of kowhai trees is almost always in flower in May, whereas in the Waimakariri, where the temperature is no lower and perhaps is higher, the trees flower in spring.

Kowhai trees vary in size, mature growth habit, and adolescent behaviour up and down the country. Most go through a juvenile phase of tangled growth, during which the young tree looks like a discarded wire fence. No flowers are produced until the branches straighten and adult foliage appears.

The timing of maturity varies. In the far south, kowhai are very slow maturing; a tree raised from seed collected at Herbert was still in the juvenile phase after more than 20 years. Banks Peninsula kowhai commonly produce adult shoots after four or five years, and flower in six or seven. In some North Island areas, and in the Chathams, kowhai bypass the juvenile phase altogether and may flower in three or four years. The North Island kowhai, a different species from the common kowhai, also has no juvenile phase.

Dr Eric Godley, when director of the DSIR Botany Division, was perhaps the first scientist to advance an explanation of this odd behaviour. The common kowhai, he concluded, is not a single entity but a very complex species which has developed from ancient hybrids between its progenitors, the North Island kowhai and the prostrate kowhai.

This explains its variability throughout the country, and also explains some apparent anomalies in its cold tolerance. In my garden in frost-prone Central Canterbury, for example, seedlings from locally-collected seed have proved much more difficult to establish than seedlings of *Sophora microphylla* var. *fulvida*, a shrubby variant which comes from the far north. It has furry young shoots, no juvenile phase, flowers when young, and generally is a good garden plant. Its flowers are paler than those of other forms of *S. microphylla.*

Even paler are the soft lemon-yellow flowers of the rare *S. longicarinata.* Known as a wild plant only from the Takaka area, this dainty small tree also by-passes the juvenile phase and may flower when only a few years old. Once known in gardens as *S. treadwellii*, and later as a variety of *S. microphylla*, it is now regarded by botanists as a species in its own right.

Given its range of variation and status as a national icon, it seems odd that horticulturists have not made greater efforts to select superior cultivars of the kowhai. Off the top of my head, I can think of only about four named varieties, of which one ('Earlygold') is merely the shrubby form peculiar to Stephens Island in Cook Strait, and another ('Goldilocks') is not a New Zealand kowhai at all, but was selected from seedlings raised at Lincoln from a seed collection made in southern Chile by Dr Godley. Another popular cultivar, 'Gnome', grown in the Christchurch Botanic Gardens as a form of *S. tetraptera* for 50 years or so but originally distributed from the Otari Native Botanic Garden, Wellington, is also non-native. Recent taxonomic research has revealed it to be a rare endemic of Lord Howe Island, *S. howinsula.*

One of the lesser known facts about the common kowhai is that it is not unique to New Zealand. It occurs on Chile's southern coast and on some oceanic islands. The compensating thought is that it did originate in New Zealand, and migrated on the ocean currents; kowhai seeds are bullet-hard, effectively waterproof, and long-lived. Seeds 20 or more years old have shown little diminishing of their powers of germination.

There's a trick to germinate them. You have to put a little nick in the coat, so that moisture can get in. Use a handyman's cutter

or an ignition file, and be careful not to damage the eye. Sow the treated seed immediately, it will sprout within a few weeks. Do this when the ground is warm, in spring. Don't waste seed by sowing it in winter. It will rot. And remember that small kowhai seedlings like shade.

The most attractive quality of many winter flowers, and the one that is most often overlooked, is fragrance. Consider that old favourite, the polyanthus. Plant breeders in the last 15 to 20 years have made amazing advances in brightening this plant and its close cousin, the primrose. Both types now come in a much extended colour range, and with much enlarged (some would say overblown) individual florets. They have become, in effect, bedding plants. The reliable perennial strains have disappeared. Commercial sources no longer supply seed of varieties such as the old Tasmanian-raised 'Regal Floriade', which was noted for its longevity (you could get 10 years of flowering out of a packet of seed), and the original Californian 'V&R' strain (from which the 'Pacific Giants' of the 1970s and 1980s were developed).

Modern polyanthus florets don't quite reach saucer size, but I've seen some that might have difficulty squeezing into a coffee mug. And primroses are not far behind. The new hybrids come in a variety of bright colours, some approaching true red, which has not yet been seen in primroses; and two or three flowers of old favourites like the claret-purple 'Wanda' might fit inside one of a new hybrid. But a well-known and well-established principle, in horticulture as well as in politics, is that there is no such thing as a free lunch. So there are hidden costs in these large flowers and bright colours.

Longevity has been sacrificed or ignored: modern polyanthus may continue for a second season, but seldom thrive beyond that. In my garden there is (or was last year) a still-healthy clump of 'Regal Floriade' polyanthus that I raised from Tasmanian seed about 1979. Another polyanthus, the delightful 'Lady Greer' with dainty heads of tiny, greenish-primrose florets, is well over a century old. Primrose 'Wanda' must be approaching a century.

Fragrance is the other currency that has been used to pay for boldness and brassiness. Sometimes fragrance is still there, but nowadays in polyanthus it's regarded as a bonus rather than a basic. This was sharply demonstrated to me recently when I poked my head into my relatively drab-looking tunnel house after looking at a large commercial grower's line of polyanthus. The colours of the thousands of polyanthus in his large tunnel house were stunning. The fragrance was pleasant, but not overpowering. After a while it wasn't even noticeable, and clearly it wasn't being given any priority. So I wasn't prepared for the intoxicating impact when I re-entered home territory.

It's true that my tunnel house is a small one; about one-sixth of the size of the commercial establishment. But there were fewer than a dozen plants in it of a perennial polyanthus, and their fragrance filled the air space. I have grown this plant for 10 years or more. The grower who supplied it is dead, so I can't find out where it came from, or how old it is. The colour is ordinary (medium yellow) but the fragrance is not. The other extraordinary thing about it is that the flowers are hose-in-hose.

The term "hose-in-hose" originated in Elizabethan times, when it was a fashion for the well-dressed young buck to wear two pairs of hose, with the outer one rolled down to about the knees. Hose-in-hose flowers are not true "doubles", in the sense that there is a doubling of the number of petals at the expense of reproductive parts, as occurs in, say, roses. Instead, it is the number of corollas that doubles, so that a hose-in-hose flower type can occur in a number of families but are well known in modern horticulture only in evergreen azaleas. The original hose-in-hose flowers were English primroses, and they almost died out in the 19th century, but in the 1970s there was a revival, sparked in part by the writing of Margery Fish. Hose-in-hose polyanthus are rare; my yellow-flowered plant is the only properly formed one that I have seen, and I always keep my eyes open in other gardens.

Polyanthus 'hose in hose'

Sometimes it sets a crop of seed. I saved and sowed this one year, but while the seedlings all had the smell power of the parent, none was hose-in-hose. All were pale primrose yellow. If I had the time, the space, and the inclination, I would cross the best of these with "coloured" polyanthus, and raise hundreds of seedlings in the likelihood that the hose-in-hose genes would re-emerge in a second or third generation, and in other colours. Instead, I enjoy them as a splash of fragrance in the garden.

Their pale colour gives them a decided advantage. Many gardeners are unaware, or fail to notice, that it's a mistake to choose "heavy" colours, such as red or purple, for mass display. These colours should be used sparingly for accents or contrast. If you want a display that is easy on the eye as well as easy to see from a distance, opt for light colours: creams, blush white, pale yellow. And don't mix colours from opposite ends of the spectrum. Often the best effect is achieved when two close colours are grouped. This basic principle of design is frequently overlooked in both private and public plantings.

There's nothing wrong with being called an expert (as far as I'm concerned, flattery will get you everywhere) until someone proves you wrong. Then it's embarrassing. That's what just happened to me over the big blue gentian.

Its name is *Gentiana acaulis*, and it's a plant with a bad reputation. It has huge, stemless, blue trumpet flowers which are one of the wonderful sights of spring, but a lot of gardeners never see them. The plant likes to sulk. If it doesn't want to flower for you, it won't. It beats me. I tried just about everything, short of burying a cow-horn full of manure and spells underneath the plant by moonlight. Eventually, I got bored, let weeds smother the gentian, and went off to a tunnel house in a sulk to have a triumph with that wonderful South African ground orchid, *Disa uniflora*. But that's another story.

There are people about who got angrier for longer with the blue gentian than I did, and one of them, in Blenheim, sent me her recipe for cracking it. Raised beds? Swiss cow manure? Special soil mixes? Port Hills loess? Forget them all. Here's her answer: pretend that *Gentiana acaulis* is a cabbage. Part of the secret, she says, came from an elderly gardener who grew the trumpet gentian "like clumps of arabis" at the edge of a vegetable garden, and was "forever dividing and replanting new plants in new places". After years of agonising, she put a spade into her vigorous but flowerless gentian, and levered most of it out of the ground. Then she made a new site at a lower level in her terraced garden.

Nothing special went into the new bed: just ordinary garden soil, compost, some sand and grit, and a dash of blood and bone. She made holes with a used ball-point pen, planted single roots of the gentian up to their necks, tamped them in firmly, and mulched them with more grit. "I kept them watered over summer", she writes, and they never looked back. With no modesty at all I swank: I have 17 flowers and more incipient buds. Have I cracked it? Is planting at ground level the secret?

Who knows? I settle for echoing the advice a forester friend (who, as it happens, is a very good scientist) gave at a field day. He spends a good deal of his time looking for better ways to establish trees on unfavourable sites, and his advice to the group of farmers was this: "If it works, do it".

The cabbage technique, incidentally, is standard practice in Southland for cultivating another group of gentians, equally beautiful and in Canterbury equally difficult. These are the Himalayan species and their hybrids that flower in autumn: *Gg. farreri, sino-ornata, veitchiorum* et al. The replanting is done in spring, when the clumps, if lifted, fall apart naturally without being brutalised. When the combination of soil and climate is right, solitary shoots of these elegant plants become fat, flowering clumps by autumn. The problem is that unlike the spring-flowering gentians, which don't seem to mind summer heat at all, the autumn types insist on a cool and humid climate. The only one that ever succeeded in my garden was the incredibly sky-blue 'Caroli', and it lasted only a couple of years.

R.N.Z.I.H. DIRECTORY

RNZIH National Office	P.O. Box 12, Lincoln University, Canterbury, Ph (03) 325-2811 Ext. 8670 Fax (03) 325-3614
Patron	Governor General, Sir Michael Hardie Boys
Vice Patrons	Ralph Ballinger, 19 Brooklyn Drive, Blenheim
	Peter Skellerup 24 Poynder Ave, Christchurch 1
President	John Taylor, 9 Karitane Dr. Christchurch 2 Ph (03) 322 1685
Chairman, Nat. Executive	David Shillito, 16 Dilworth Street, Christchurch 4. Ph (03) 348 5510

National Executive

Frank Buddingh', Box 8032 Dunedin, Ph (03) 474 1202, Fax (03) 479 0363

Ross Ferguson, 7 Ferner Ave. Mt. Albert, Auckland Ph (09) 815 4234 Business, (09) 846 8961 Private

Ron Flook, 539 Rocks Road, Nelson, Ph/Fax (03) 548 6539

Annie Fullerton, "Mill Ridge", Mill Rd, RD1, Ohaupo. Ph/Fax (07) 823 6796

Marion Mackay, Horticulture Dept. Massey University. Ph (06) 356 9099

Graeme Mander, 190 Moffat Rd, Tauranga, Ph (07)576 6829 Fax (07) 576 1105

Richard Nanson, 3 Rawhiti Tce, Kelburn, Wellington, Ph (04) 472 6775

Sue Robinson, 63 Waimauku Station Rd. Waimauku. Ph/Fax (09) 411 7047

Notable Trees Committee Box 28040, Wellington

Profile on Notable Trees

WANTED
MORE TREE REGISTRATION OFFICERS

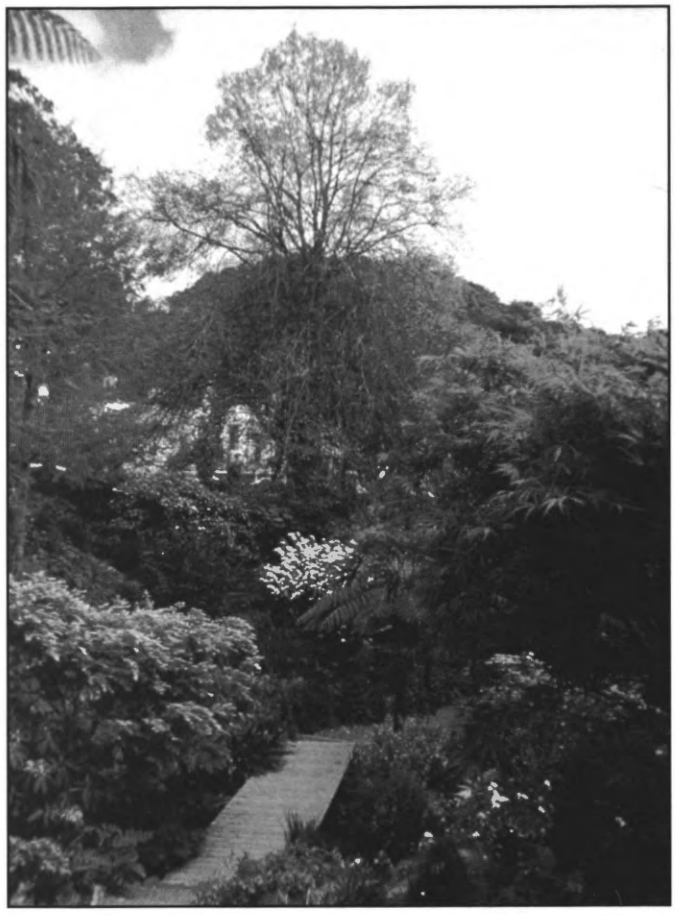
The Notable Trees Committee is keen to take on more Tree Registration Officers (TRO's) to further the work of the scheme. Officers are particularly needed in **Northland, Thames/ Coromandel, Poverty Bay, Wairarapa, Taranaki, Marlborough, Westland, North Canterbury,** and **South Canterbury.**

The work of TRO's is varied and includes

- Identifying and assessing likely trees for registration
- Discussing the registration of trees with owners
- Carrying out the necessary work for registration, including taking photographs and tree measurements
- Being the Regional 'eyes and ears' of the National Committee
- Carrying out other work as required by national commitee, for instance rechecking registered trees.

TRO's should have an interest in trees and some tree knowledge. You will be paid out of pocket expenses.

For more information please write to Richard Nanson, Tree Registrar, Notable Trees Scheme, Box 28 040, Wellington or ring 04 472 6775 (evenings)



This Tilia europaea, or Lime is registered tree number 237 and is growing in the Wellington Botanic Garden. It was planted in 1870 by William Bramley, the first gardener employed in the Botanic Garden soon after its establishment in 1869. The tree has become known locally as Bramley's Lime.

Committee changes

There have been several changes to the Wellington based committee over the past twelve months. The current committee comprises **Chris Ferkins (Chair), Mike Oates, Clare Craig, and Richard Nanson.**

Wilf Watson, Tree Registrar for many years officially retired and was replaced by Richard Nanson. Wilf was the backbone of the committee carrying out the vital work of keeping the records up to date, corresponding with Tree Registration Officers, and generally ensuring we had all the information required on tree registrations. As a thank you to Wilf he was presented with a copy of Notable Trees of New Zealand by Burstall and Sale.

Winsome Shepherd, AHRIH a special advisor to the committee has resigned. Winsome has been a part of the scheme since its inception in 1977 and her experience will be missed. It was her drive and enthusiasm that kept the scheme going and enabled so many valuable trees to be listed.

Donal Duthie, another long serving committee member who was responsible for assessing applications for notable tree status has resigned. Donal put in many hours of work looking at trees and assessing written applications against the national criteria. Donal's involvement will not totally be lost, however, as he is still Tree Registration Officer for the Wellington Region.

Mike Oates, FRIH, former chairman of the Institute, joins the committee and brings with him interest and expertise in plant conservation and management of tree collections. Mike is currently Curator of the Botanic Gardens of Wellington.

Richard Nanson, AHRIH and a current member of National Executive has taken over as Tree Registrar from Wilf Watson. A former Director of Parks of Wellington City, Richard is currently a horticultural lecturer for Hutt Valley Polytechnic and horticultural consultant.

Clare Craig, a project manager with Unisys takes over as secretary. Claire has a great interest in trees and offered her services to the committee at the display put on at the Gardenz Show last November.

MAJOR SURVEY OF TREES IN THE FAR NORTH

A major survey of trees was completed late last year by the Far North District Council based in Kaitaia. The survey was carried out as part of the preparation of the District Plan and identified 27 trees as possible additions to the Notable Trees register. These have been forwarded to the National Committee and are currently being processed.

This survey is of major importance in identifying and protecting some of the earliest plantings of exotic trees in New Zealand, for instance the two *Araucaria excelsa* planted in 1830 on the beach front reserve at Tapeka near Russell.

Currently only 5 trees from the whole of Northland are listed as Notable Trees, with none from the far north. This is a tremendous boost to our national register. Full marks to the Far North District Council.

New Zealand Alpine Plants

A Challenge for Growers

by Raymond Mole

1. *North Island Edelweiss (Leucogenes leontopodium). Compact silvery white leaves surmounted with whorls of white, woolly petals make spectacular viewing in alpine regions from November to March. This species tended to lose its compact habit and was reluctant to flower at Otari.*

With increasing altitude, New Zealand mountain ranges present us with an interesting cross section of vegetation types. Lowland/ montane forests of silver or mountain beech give way abruptly to a wide range of shrubs, snow tussocks, small or prostrate woody plants and low growing herbs. Mark and Adams (1995) state that between the tree line and snow line there is a greater range of alpine vegetation in New Zealand than in most other parts of the world. About 93% of NZ's alpine flora is endemic.

Alpine plants are strongly adapted to the extreme climates found at high altitude. They often grow in infertile soil or shattered rock, with great changes in temperature from searing heat to extreme cold. They are often lashed by gale force winds. The low-growing, creeping, mat forming and cushion habit has obvious advantage in terms of wind resistance and repetitive snow falls are unlikely to damage such plants. Another feature of many alpine plants is a deep root system that provides a strong anchorage. Water and available nutrients often lie far below the surface in mountain habitats. Plants with deep root systems are better able to exploit available food resources.

It may seem ironic to talk about mountain plants suffering from water stress. Yet despite high rainfall and water from snow melt many alpines are adapted to minimise water loss. This is because most alpine soils are very free draining, winds are frequent, and very high temperatures can occur during the summer months. New Zealand alpines have adapted to these conditions in many ways:

For example, distinctive and unusual leaf characteristics are seen in many species of *Aciphylla*. Commonly called speargrass or wild Spaniard, these herbaceous plants with distinct whorls of narrow, spine tipped leaves and equally spiny flower stems present a xerophytic countenance.

A few species of *Carmichaelia* or native broom, inhabit alpine areas. Such species are leafless and consist of short flattened branchlets. I recall the difficulty of transplanting a specimen of *Carmichaelia monroi* because of its very long tap root.

Hairy leaves are another way of limiting water loss on arid mountain sites such as screes. The hairs catch water droplets from fogs and low cloud. NZ's woolly vegetable sheep such as *Raoulia eximia* show this type of adaptation. Not only do the exterior leaves inhibit water loss, but within the cushion are the remains of old leaves which rot down to form a peaty, water-holding sponge.

Growers attempting to grow this species in lowland areas need to take measures to prevent moisture clinging to the leaves, especially in humid conditions. Failure to do this can cause softening of leaf tissue leading to infection.

The adaptations above are not exclusive to alpine plants but are found in other plants growing in harsh environments subject to a lack of water.

2. *Ranunculus lyallii has a pristine beauty. It is found in many low alpine to subalpine areas of the South Island. It is the largest New Zealand buttercup and one of the most attractive in the world. Not an easy plant to cultivate, but I did manage to get it to flower.*

True alpines have a comparatively short growing season. They need to grow, flower and produce seed between snow melt and fresh autumn/ winter snowfall. In Norway, *Ranunculus nivalis* has been recorded in flower five days after snowmelt and produced ripe fruit seventeen days later.

The alpine flora in many countries is highly coloured for instance Himalayan irises and primulas. New Zealand alpines are far less colourful with flowers often white or yellow. Never the less they are still attractive particularly with their range of growth habits and foliage.

The 60 or so species of *Celmisia* cover most New Zealand mountain ranges. They are particularly eye catching when seen flowering en masse. As individuals, white flowering daisies do not enthral me. It is their foliage in which I find appeal. Many form rosettes of sword shaped leaves, ranging in colour from grey/green to silvery grey to silver itself. Perhaps none is more attractive in this regard than *Celmisia semi-cordata* with its conspicuous rosettes up to 1 metre in diameter.

Some of the most distinctive alpines are the vegetable sheep. My favourite is the hummocked form of *Haastia pulvinaris* with its tightly rolled, compact, hairy leaves on terminal shoots, truly at a distance looking like vegetable sheep.

Other noteworthy plants of the alpine zone include North Island edelweiss, forget-me-nots, buttercups, harebells (*Wahlenbergia* spp.), plus plentiful displays of the graceful snow tussocks which tend to dominate the low alpine areas.

Cultivation

How do these plants from high mountains react to being grown in lowland gardens. Their performance will be related to:

- The growing site
- Preparation of the growing medium

At the Otari Native Botanic Garden the site chosen for growing alpines had a southern aspect. On the north side nearby trees 10-15 metres high formed the periphery of the bush. Dry northerly winds are thus cooled and moistened as they pass through. The trees also provide shade from the afternoon sun.

Drainage material such as small rocks and gravel was placed in a layer 15-20cm thick at a depth of 45cm. A 5cm layer of coarse sand overlays the lower course. On top of this was the rooting medium containing a mixture of:

- 2 parts loam
- 1 part peat
- 2 parts 2mm stone chips
- 1 part river sand (agricultural pumice could be substituted)

Once the medium had been added and shaped, rocks were placed.

I grew alpines in this garden for over 20 years and many performed well especially some celmisias such as *Celmisia spectabilis* and *C.incana*. The only trouble with *C.incana* was that in spite of heavy flowering annually, the resultant seeds were not viable. Some of the gems of the flora I found difficult to maintain . Gentians proved almost impossible to keep going

3. *Vegetable sheep (Haastia pulvinaris). Tightly packed clusters of rolled furry leaves make up the irregular hummocks of this scree lover on the mountains of Marlborough and Nelson. Unfortunately, almost impossible to maintain for long at lowland levels in the North Island.*

for more than two years. Some woody plants lived but failed to flower, for instance *Dracophyllum recurvum.*

The turn over in the alpine section was much greater than in

4. *View of the alpine rock gardens at Otari Native Botanic Garden, Wilton, Wellington*

Small plants grown in containers in a shade house often performed better than their counterpart growing in the alpine beds. The main cause of death was damping off.

Conditions that were thought to promote ill health and short life spans included:

- long spells of humid warm weather
- presence of soil pathogens
- Warm wet winters. Many alpines would usually be covered in a blan ket of snow for several months

My final assessment is that cultivation of alpines in lowland parts of the North Island will always be a challenge with some species always performing better than others. It is a matter of trying a range of sites and soil conditions to see which perform best for you.

other Otari collections. The main exceptions were tussock grasses, *Pentachondra pumila*, *Ranunculus insignis*, hebes, some celmisias including those mentioned, and certain helichrysums, especially *H.selago*. *Raoulia hookeri* was particularly easy and is an example of a species with a wide distribution from coastal to alpine areas. It seems that species with a wide altitudinal range are easier to grow in a temperate garden.

Reference

Mark,A.F.;Adams,N.M. 1995: New Zealand Alpine Plants. Godwit Publishing, Auckland.

Foot note The late Ray Mole, AHRIH, was Curator of Otari Native Botanic Garden from 1963 until his retirement in 1991. He died in 1995.

Analysing Change in the New Zealand Home Garden - by Style or Element?

by Helen M. Leach
Department of Anthropology, University of Otago

If we are to come to terms with the past, present and future of home gardening in New Zealand towns and cities, we need to step back from the detail in order to take in the long view. Matching one's perspective to the task in hand is important for all comprehensive studies of change. Climatic change, for example, can be studied in segments of tens and hundreds of thousands of years, as when the glacial advances and retreats of the Pleistocene period are analysed (Trenberth 1977). In contrast, secular climatic trends show up by comparison of decade means over a century or so, while other variations are examined within shorter intervals, such as the 11 year sunspot cycles. Similarly clothing, architecture, and furniture display cycles of change varying in the periodicity, as well as longer term trends that are visible on different time scales.

European and colonial garden history is a relatively young study area; so it is not really surprising that the full range of temporal phenomena have not been identified. Most analyses have been of intersecting regional and chronological *styles* whose rise and decline are measured in decades. In my 1984 book, *1,000 Years of Gardening in New Zealand,* I employed a much longer-lasting unit, the *tradition*. Over the one millennium of human occupation of this country, gardeners have introduced the plants and concepts of two major horticultural traditions: the first was the Oceanic with an antiquity of over three thousand years in Polynesia and even longer, perhaps seven thousand years, in Melanesia. Its origins may lie in the islands stretching from New Guinea north to the Philippines.

The second tradition to reach New Zealand was the European. By two thousand years ago it had amalgamated the gardening styles of the Romans with the indigenous plant lore of local tribes in Western Europe. By 1300 AD it had accommodated ideas and new plants from the Islamic world, and it then went on to assimilate a whole raft of new plants (but not concepts) from the Americas and the Far East in the last few hundred years before the tradition was transplanted to New Zealand. As a temporal and cultural unit, the tradition is most suited to discussing changes in garden history that are compared over hundreds of years, and involve contact and interaction between diverse cultures.

To my knowledge, the concept of the tradition has not been invoked in any systematic way in analyses of garden history in European countries, despite the fact that their time depth of human occupation is greater than that of New Zealand. Instead, named styles have been the dominant unit of analysis in the literature. Readers of English garden history should be familiar with the following simplified sequence (Table 1). Although these styles have come to 'represent' English garden history, they are in fact highly restricted in their application. Firstly they refer to the ornamental/pleasure garden or park, not to the kitchen garden or domestic orchard. Secondly they relate to the ornamental gardens created for or by wealthy landowners. Essentially these are 'designer garden' styles, although the growth of the middle classes saw attempts to disarticulate them into forms and elements suitable for smaller suburban villa and town gardens. Such a trickle-down effect is widely recognised in all human activities subject to the fashion phenomenon. But the copying of what was originally conceived of as a stylistic unity for a particular landscape, with its own philosophical connotations, dilutes the original meaning of the design to a mere collection of elements without symbolic coherence. Thus much of the original meaning of the style is lost, though as I will argue later, the elements can be very long lasting and may outlive their style.

Further problems with analysis according to style were pointed out by Kenneth Woodbridge in 1979:

"The history of garden design is bedevilled by problems of nomenclature even more than that of other arts. The reason is partly semantic, in that words lose their precise meaning and become used in a general sense to the extent of being meaningless...(p.19)

When styles are examined closely, one of two things tends to happen: there is either a closer definition leading to the necessity of proposing other categories to harbor what has been excluded; or there is a widening of the concept...(p.20)

Of course, styles are constantly evolving, and do not really fall into the neat categories that this kind of nomenclature suggests...(p.22)

Period	Style	Dates	Key Figures
Medieval		800 - 1485	
Renaissance		1485 - 1642	
	1. Early Tudor	1485 - 1558	
	2. Elizabethan	1558 - 1603	T. Hill, F. Bacon, J. Gerard
	3. Jacobean	1603 - 1625	S. de Caus, I. de Caus
	4. Caroline	1625 - 1642	A. Mollet
	5. Commonwealth	1642 - 1660	
	6. Late Stuart	1660 - 1714	H. Wise, G. London, J. Evelyn
18th Century	'The English Style'	1714 - 1804	
	a. Transitional	1714 - 1730	C. Bridgeman, A. Pope, S. Switzer, B. Langley
	b. Kent's Pastoral Scenes	1730 - 1748	W. Kent
	c. English Rococo	1740 - 1770	T. Robins, S. Miller, T. Wright
	d. Capability Brown's Landscapes	1741 - 1783	L. Brown
	e. Transitional Picturesque	1788 - 1804	H. Repton, Uvedale Price, R. Payne Knight, W. Gilpin
19th Century	Regency Picturesque	1804 - 1832	W.S. Gilpin, H. Phillips
	Gardenesque & Victorian Picturesque	1832 - ?	J. Loudon, Mrs. J. Loudon, C. McIntosh
	Victorian Revivalist	1840 - 1870	C. Barry, W. Nesfield
late 19th and 20th Century	Surrey School/Bloomsbury Style	1870 - present	W. Robinson, G. Jekyll, L. Johnston, N. & C. Lloyd, V. Sackville-West
	Edwardian Formalist	1892 - ?1930	R. Blomfield, H. Peto, T. Mawson
	Modernist/New Traditionalist?	1950 - ?	G. Jellicoe, S. Crowe

Table 1. Chronological table of English garden history analysed by style. (Drawn from Jellicoe et al 1986)

But the trouble with labels is that they provide a ready-made description that may mislead and thus come between us and a direct response to a work of art. Should we not, where possible, avoid them and...look at each garden in a period as an effort in its own right, created in a given situation?" (Woodbridge 1983 : 12)

Styles from the last three centuries before the 20th century are invariably associated with key individuals (writers, philosophers, designers, practitioners and talented amateurs) and often with specific gardens and characteristic elements (such as the ha-ha in the early phase of the English Style). In combination, these elements are often treated as the signature of the style. As can be seen from Table 1, earlier styles are more often referred to by reference to the reigning royal house, and appear to have lasted longer. Is this shortening of the duration of a style through history a factor of increasing rates of change stimulated by a growing population and more communication, or is it an artefact of document survival? The leading historian of medieval English gardening, John Harvey, believes that stylistic changes occurred within that period, but we are too far away in time to see anything but the overall pattern and the long view (Harvey 1986). Conversely, we are probably too close to the changes of the 20th century to recognise clearly the styles that have prevailed since the First World War. Can any of us answer the following questions? Are our New Zealand home gardens gardenesque in style, formal revivalist, or naturalistic, or all three? Is an informal garden of natives a direct descendant of the picturesque style garden, or representative of William Robinson's naturalistic, or the forerunner of the new ecological style?

A more fundamental question would be to ask whether any garden that has not been designed as a unity, conforming to a particular philosophy of gardening or landscaping, can be said to have a style. Of course if the answer is no, that would rule out all the home gardens that have been subject to piecemeal and progressive alterations. I believe that the great majority of New Zealand home (and public) gardens consist of *elements*, derived and selected from the whole range of previous and extant styles. It is significant in this respect that the small but growing literature on New Zealand garden history has found it very difficult to apply English style names appropriately or consistently.

In Rupert Tipples' thorough study of Alfred Buxton as a garden designer, he noted in one of his plans "the characteristic serpentine curves of the 'picturesque' landscape style of John Claudius Loudon" (Tipples 1989 : 58). Loudon is rather better known for his promotion of the gardenesque style, while the serpentine curve is an important element from the onset of the 18th century English Style. Tipples also draws attention to the acknowledgement by Buxton's Landscape Manager, Edgar Taylor, that he had been influenced by C.E. Mallows, an architect "of the Arts and Crafts school, who was able to design in a number of different styles" (Tipples 1989 : 68). Among Mallows' most distinctive garden elements are masonry-pillared pergolas and other structures much used in the Formalist Edwardian style (Tipples 1989 : 136). It appears that Buxton and Taylor's 'designs' are largely derivative and represent collections of elements, perhaps singled out for inclusion by their clients, rather than unified and innovative designs.

Rod Barnett's book *Garden Style in New Zealand* (1993) featured a Buxton/Taylor pergola on its dust jacket, and followed Tipples in identifying picturesque and Edwardian architectural aspects in their designs. Overall Barnett sees a profusion of styles in New Zealand at each period of its garden history. For example, New Zealand country garden style of the early 20th Century is described as "initially modelled on the English landscape park, but heavily influenced by gardenesque

eclecticism and the Robinsonian woodland garden, and merged with an Arts and Crafts approach to structure, layout and materials" (Barnett 1993 : 68). Barnett is acutely aware of questions of meaning, arguing that if "our gardens are meaningful, then they need no further legitimation" Barnett 1993 : 151), and that the borrowing of foreign garden styles reduces them "to a mere shadow of their prior meaning and greatness" (Barnett 1993 : 143). Yet much of the book is devoted to advice on choosing and adapting such styles as Bloomsbury (e.g. Sissinghurst), Modernist, Sunset (Californian), and Subtropical, for New Zealand use. His inclusion of Courtyard, Terrace, and Country Garden as actual *styles* highlights the difficulty that modern designers have in reconciling historical styles with current garden *types*.

Rather than struggling with styles as a framework for New Zealand garden history, we could usefully adopt an *element*-based approach which will not only reflect the gardeners' own selection processes, but will reveal the rise and fall in popularity of each component without tying it to a particular style. Elements of the garden include both plants and structural features. A good start has been made documenting the history of the introduction of particular species and garden varieties to New Zealand, and recording the progress made by local breeders and selectors (e.g. Challenger 1986/7; Nobbs 1988; Shepherd 1990; Rooney 1993). However the history of garden structural features has scarcely been touched. It has to be extracted from dated descriptions of gardens, catalogues and advertisements, and from gardening books and pamphlets written in New Zealand. Preliminary studies that I have made in this area suggest that it will be valuable to compare the period of popularity of each selected feature with that observed in Britain, the country which has most influenced New Zealand home and public gardens.

Some elements, like lakes, chains of ponds, rustic bridges, bush walks, avenue driveways, and ha-has, belong to larger gardens of the type made for country homesteads or urban parks. Others which I will review below were of a more flexible scale and could be adapted for smaller town and suburban home gardens.

The Shrubbery

As a named element, the shrubbery was recognised from the middle of the 18th centry right through to the late 1930s, a duration which exceeds that of the styles which utilised it. Gilbert White (1975 : xxi) made a 'shrubery' at Selborne in the 1750s or 1760s. It appears to have been created for the display of flowering shrubs, many of which had been introduced to England from North America only within the preceding century (Harvey 1988). For William Cobbett in 1829, shrubberies and flower gardens were the two main components of ornamental gardens (Cobbett 1980 : 224). His more inclusive term for the part of the garden featuring lawns, 'walks' (paths) and shrub-beds was 'pleasure-ground' (Cobbett 1980 : 224 - 6). Early Victorian writers like Charles McIntosh (1853 : 657, 698) provided planting instructions for gardenesque shrubberies where the plants had to be spaced to allow their individual form to be appreciated, and for picturesque shrubberies where the trees, shrubs and undergrowth were encouraged to mingle.

From the 1840s shrubberies were an integral part of New Zealand gardens. Felton Mathew's property in Auckland had a lawn with inset flower beds, sloping down to a shrubbery consisting of mixed natives and exotics (Cooper 1972 : 28). Felix Wakefield's advice in 1870 to avoid eucalypts in shrubberies gives some indication of the size of what could be included in a Victorian shrubbery (Wakefield 1870). Matthews' catalogue of New Zealand flora of c.1893 recommended certain native species like Drimys (Pseudowintera) and Melicytus "for the ornamental shrubbery'. The popular New Zealand garden writer Michael Murphy (1907 : 237, 246) provided lists of trees and shrubs for the shrubberies of small gardens and noted that ornamental grasses could be included. The one-eighth acre garden plan provided by A.E. Lowe (1915 : 21 - 2) in 1915 shows shrubs on one side of the small front lawn. In the spirit of the new era David Tannock (c.1914 : 144) criticised the former choice of shrubs, specifically targetting laurels, laurestinus, ponticum rhododendrons, variegated hollies and "solemn looking cupressus". He argued that flowering and ornamental foliage shrubs were ideal for banks and terraces, and broke up the garden interior so that the garden actually looked bigger, an equally important consideration to the Victorians before him (Tannock c.1914 : 23). A shrubbery also provided excellent screening so that the front door could not be seen from the front gate (Tannock C.1914 : 24), again a Victorian preoccupation, but this time with privacy rather than with the size of one's property.

After the First World War, the shrubbery began to lose its separate identity in both New Zealand and English gardens. Young and Hay (1919 : 33) wrote that while shrubs used to be massed together into shrubberies which contained too many commonplace plants like laurels, the new trend was towards shrub-beds and shrub-borders. There was increasing interest in selecting shrubs for all year colour (*Home & Building* 1938 3(1) : 45), and in combining shrubs with perennials in a mixed shrubbery border (*Building Today* 1937 1(2) : 41).

After the Second World War the outdoor room analogy became popular in New Zealand garden writing, and mixed borders of flowers and shrubs were seen as providing the essential background furnishings to the outdoor living room (Elliott 1947 : 540 - 1; Salinger *et al.* 1962 :87). Although massed plantings of rhododendrons, or Australian or South African shrubs became relatively common in larger gardens, they were no longer described as shrubberies. In fact the term seems to have dropped from common use in the 1940s. Overall, the shrubbery laster nearly two hundred years (1750 - 1950) as a significant, named garden element.

The Outdoor Fernery

The Victorian period witnessed an episode of pteridomania which peaked in the 1850s (Allen 1969 : x, 72). Horticulturally it took three forms : miniature ferneries in Wardian cases, fern houses (greenhouses dedicated to fern cultivation) and outdoor ferneries. One of the first British examples of the use of the term fernery was by Newman in 1840. He was referring to an outdoor rockery specially designed to hold ferns (Allen 1969 : 70). Charles McIntosh (1853 : 667) gave a combined entry to 'The Fernery and Muscarium' in 1853, noting that "many ladies now bestow great attention on ferns" to the extent that a specialist nursery trade was developing. At the height of the craze, many conservatories were furnished with rock mounds covered in ferns. Just such a display, with a fountain at the summit, was mounted at the Floral and Horticultural Show in Auckland in 1857 (Cooper 1972 : 35). It is thus clear that New Zealand gardeners were not slow to adopt the fashion.

Fig 1. Rock fernery at Danesbury.

Outdoor ferneries survived longer in Britain than their indoor counterparts, being made from the 1840s into the early 20th century, in the form of glens or rockeries. The reason for their survival may be their association after 1870 with the natural or wild garden concepts promoted by William Robinson. Robinson believed that it was more natural to mix ferns with flowers, but figured a rock fernery of the 'pure' type (Fig. 1) in his book *The English Flower Garden* (Robinson 1893 : 131). The doyen of the formal architectural school, Thomas Mawson, dismissed the fernery in one line as a "specialised branch of wild gardening" (Mawson 1912 : 212).

The wealth of fern species in New Zealand undoubtedly contributed to the success of ferneries here. Thelma Strongman (1984 : 89, 131 - 2) referred to an outdoor fernery in Christchurch in the 1870s-80s and at Mt. Peel by 1887. By public request Michael Murphy enlarged his section on fern growing in the second edition of his best-selling book *Handbook of New Zealand Gardening*, c. 1888. He wrote

> *"The fernery, whether under cover or out of doors, is usually the favourite spot in the flower garden or pleasure grounds.*
>
> *....the fernery should occupy some quiet and shady, and, if possible, romantic retreat. When the ground presents none of these features they may to some extent be created by mounds of earth and excavations, with roots of trees, rocks, and old bricks and slags tastefully arranged."* (Murphy 4th ed. 1907 : 228).

D. Tannock described a more naturalistic outdoor fernery in 1914

> *"A sheltered hollow makes a fine fernery; if there is running water so much the better... If there is no natural gully one should be formed by throwing up banks of soil on either side and the whole area enclosed with scrub fences and shrubberies. The sides of the ravine can be faced with rocks and broadleaf logs; they seldom rot and form a fine host for polypodiums and the delicate filmy ferns. The path up the bottom of the ravine should wind round precipitous bluffs, and the heights can be intensified by planting tree ferns on the top..."* (Tannock c.1914:139)

While Tannock's and later Cockayne's ideal fernery took the form of an open-air and naturalistic setting for ferns, there is evidence of popular interest in the fernery as an actual construction. Tipples (1989 : 101 - 4, 106) described and illustrated elaborate rock and metal-framed ferneries designed and built for wealthy clients by Buxton in 1914 and 1930-4. The poor man's equivalent was outlined by Young and Hay in 1919 :

> *"A cheap and effective fernery can be constructed with walls of closely-packed manuka scrub, secured to a wooden framework, with a roof of similar material, sufficiently open to admit a moderate amount of light. The rock-work should be arranged to suit the space available and the kinds of ferns desired. Mossy stones are the best, if obtainable, as they give a more natural appearance to the fernery."* (Young and Hay 1919 : 101 - 2)

Cockayne (1923 : 104) considered such artificial structures to be ugly, preferring to grow ferns in the shade of trees. Whether the extraordinary Buxton ferneries of the 1930s fit Allen's term 'hypertrophy' and 'over-extension' and other trends to the 'extreme abnormal' which he believes mark the close of a fashion (Allen 1969 : 57), there is little evidence that there was any further demand for the fernery as a distinct garden element in New Zealand after the Second World War. I have found only one post-war reference, and this, not surprisingly, was in Muriel Fisher's book on *Gardening with New Zealand Plants, Shrubs and Trees* (1970 : 209).

The decline of the fernery does not imply that ferns will be neglected in the gardens of the future. Today there are signs that ferns are being integrated with other native plants in groupings based on ecological associations. The ecological garden of the 21st century should see a strengthening of this trend.

The Pergola

As a garden structure, the pergola is much younger than the fernery. It provides a good example of the speed with which a fashionable element was adopted in Britain and soon after, in New Zealand. Although early Victorian gardens had rose arches and trellised coverings to paths, which served to screen walkers from undesirable views (e.g. McIntosh 1853 : 685), the pillared pergola appeared in Britain only towards the end of the 19th century. William Robinson recommended the adoption of both simple wooden pergolas using oak supporting posts, and the more stately examples with stone columns, both of which he had observed in Italy. A brick-pillared pergola (probably designed by Lutyens) was a feature of Gertrude Jekyll's garden at Munstead Wood (Fig. 2), and it was figured in Robinson's 1893 edition of *The English Flower Garden* (Robinson 1893 : 152). Architectural pergolas became frequent components of Mawson's designs and his work influenced Buxton and Taylor in New Zealand. Tipples commented

> "*By about the time of the First World War Buxton had taken up the English pergola style of Lutyens and Mawson, and by the 1930s some of his pergolas were Italianate.*" (Tipples 1989 : 135)

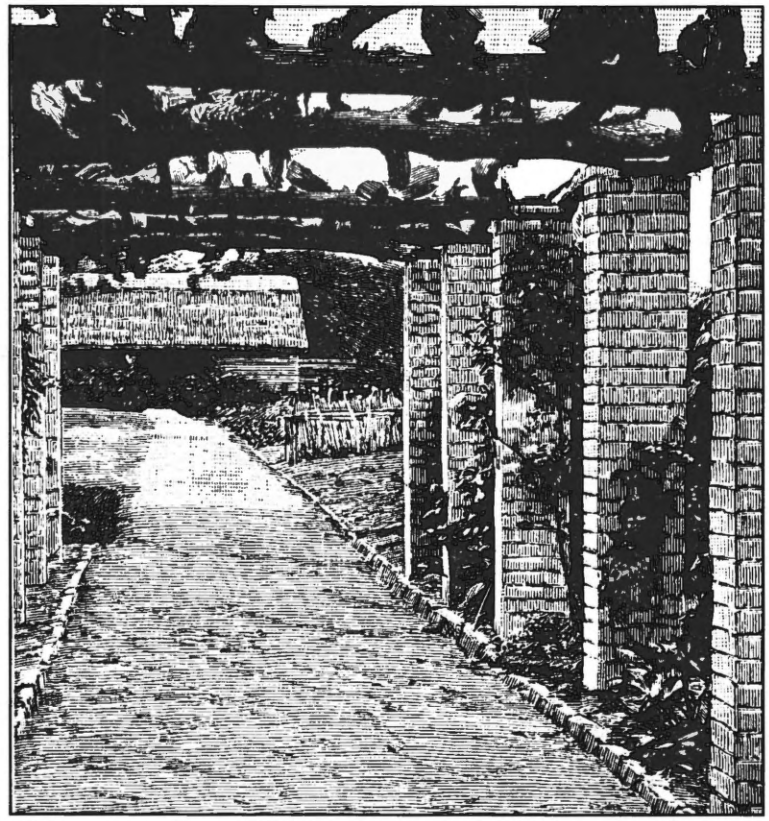


Fig 2. Gertrude Jekyll's pergola at Munstead Wood. Figured by William Robinson in 1893 it was one of the first examples in England. The Fashion had reached New Zealand by 1914.

This feature was not confined to the wealthy, however. Home-made pergolas were easy to construct, with the ubiquitous manuka pole providing a suitably rustic appearance. About 1914, David Tannock was of the opinion that

> "*Pergolas and rustic fences are justly popular, and it may fairly be claimed that the great improvement in the rambler roses is responsible for their popularity.*" (Tannock 1914 : 52)

Pergolas have continued in use in New Zealand right through to the 1990s. Three factors have aided their survival as a garden element. In the 1970s, the desire for indoor-outdoor living saw the explosion of decks and renewed interest in pergolas (Barnett 1993 : 6). In the 1990s the trend to small formal courtyard gardens of Mediterranean flavour has also increased the demand for the pergola's shade-giving properties and the opportunities it provides for vertical planting in a small space. Thirdly, the development of timber preservatives has dramatically increased their garden life span. In short the pergola is likely to endure well into the 21st century as a garden element well adapted to modern life-styles and garden use.

Crazy Paving

So far I have dealt with quite complex elements which can persist in garden designs for over a century. Of course there are cetain simpler features which have a much shorter popularity span. Crazy paving is one that appears to have started in Britain with the work of Lutyens and Jekyll who explored many different path surface finishes in their designs. Why crazy paving emerged as the popular favourite is unclear. David Tannock described it as in vogue in 1924 (Tannock 1924 : 36), and it was frequently associated with sunken gardens and pools in the 1930s (e.g. *Building Today* 1936 1(1) : 11). Tannock's 1934 book *Practical Gardening in New Zealand* stated

> "*During recent years crazy paving has become fashionable, and certainly it is in keeping with formal design.*" (Tannock 1934 : 6)

The spaces between the stones or slabs he considered ideal for dwarf spreading and alpine plants (*idem*). By 1932, however, English canons of taste prescribed its use with formal architecture. The influential *Studio Garden Annual* stated that for country houses

> "*if the building be regular and at all pretentious, the flags should be rectangular, laid down as in conventinal paving. But in the case of a small country house or cottage of rustic aspect it woud be quite in order, and, indeed, more appropriate that the paths and approach to the porch should consist of well-laid crazy pavement.*" (Izzard 1932 : 5)

In neither Britain nor New Zealand did crazy paving remain fashionable after the war, possibly because it was labour-intensive to weed, and could not be laid as quickly as other path surfaces. The craze seems to have developed and waned in the space of three or four decades at the most.

The Rock garden

The concept of gardening within the earth-filled pockets of a group of 'introduced' rocks appears to have 19th century origins in Britain, although rock structures as landscape features to display the rocks themselves can be traced to the 18th century (Hunt 1986 : 11). Rocks had been used extensively for grottoes and cascades in the 18th century English Rococo Garden (Symes 1991). In the Regency and early Victorian periods extraordinary heaps of assorted stones, vitrified bricks, glass debris, shells or old tree roots became popular (Stuarty 1988 :186). These seem to have been more in the spirit of the 18th century rock creations than as a setting for plants. Where plants were described, they were generally ferns chosen for their picturesque and romantic associations. Increasing upper class interest in travel in the European Alps eventually created a demand for alpine plants rather than ferns, and the recreation of Alpine rather than Highland scenery.

The popular garden writers railed against the lack of taste of most rockeries (e.g. McIntosh 1853 : 701) while praising rockeries that seem equally incongruous today, such as Lady Broughton's 34 foot high reconstruction of the Alps at Chamonix which rose out of her garden lawn near Chester. It was built from limestone, quartz and spar, with broken white marble chips to simulate snow, and alpine plants inserted into the lower portions (McIntosh 1853 : 702). To McIntosh and the other Victorian garden writers, rockeries served as useful screens, gave an illusion of space in town gardens, covered barren banks (Victorians were troubled by unclothed surfaces), and imitated desirable natural features (McIntosh 1853 : 704).

Despite the continued British interest in this element, which gained more impetus from Robinson's backing in the 1880s, there is little evidence that the rockery was an important component of New Zealand gardens until the end of the 19th century. The Matthews' catalogue of New Zealand flora of c.1893 refers to particular natives as suitable for rockeries, yet the newspaper description of their Hawthorn Hill 'show' garden in 1878 (*Otago Witness* 16/2/1878 p.21) fails to mention any such feature. They were however, a prominent item in this garden by 1922 (*Otago Witness* 25/4/1922 p.7,33). I suspect they were created by John McIntyre in the 1890s to house the growing collection of alpines that he and Henry Matthews had gathered from the wild.

By 1914, it seems that rock gardens were becoming very popular. David Tannock wrote

> "*There is no section of gardening that has made greater strides during recent years than rock gardening...*
> *....in fact rock gardening might be said to be the height of fashion in horticulture.*" (Tannock c.1914 : 65)

Although Tannock was referring to both Britain and New Zealand, there is no real evidence that this fashion was being led from Britain, for rock gardening advice seems to have been more prevalent in New Zealand-authored books of the post-war period than in the contemporary British literature. For example, the New Zealand writers Young and Hay (1919 : 97) wrote that

> "*Great interest is taken nowadays in the formation and cultivation of rock gardens. The main reason for this is doubtless the fact that many new plants suitable for such locations have been recently introduced.*"

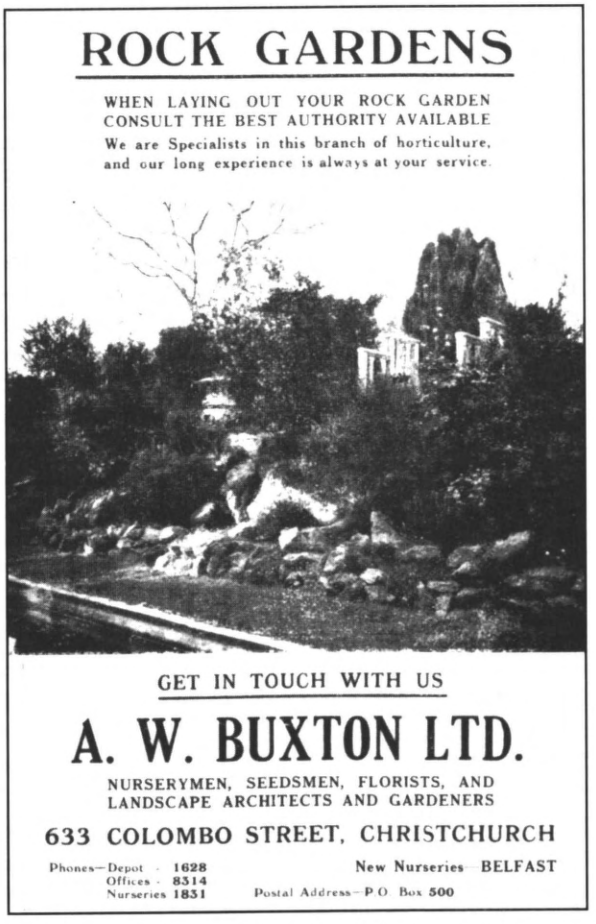


Fig 3. *David Tannock's handbook Rock Gardening in New Zealand (c.1924) featured this Buxton advertisement which included a Japanese Lantern*

Cockayne (1923 : 24) stressed the value of rockeries as sites for growing and displaying native alpines, while a year later Tannock devoted a whole book to *Rock Gardening in New Zealand* (c.1924). It featured an advertisement by Alfred Buxton (Fig. 3) offering the firm's services for the design and construction of rock gardens. Buxton's rock gardens fall mainly in the period 1919-1937 (Tipples 1989 : 68,70).

Though the enthusiasm for rock gardening may have waned in the 1930s (perhaps as the rockeries of the 1915-25 period became progressively over-run with weeds such as oxalis and couch grass), they continued in use well after the Second World War. As with the mixed border, however, there was a tendency to increase the variety of plant types in them from the late 1930s. Dwarf conifers and other small shrubs were added to existing rockeries to provide contrast and height (*Building Today* 1937 1 (2) :45; *New Zealand Gardener* 1946 3(10) : 549). By the 1970s whole rockeries were dedicated to conifers and the work of caring for dwarf alpines had been eliminated, along with the alpines, by mats of plastic and increasingly replaced by bark since the 1980s. It is not surprising that new rockeries of the traditional type have been a rare phenomenon since the 1980s. Rock settings for a wider variety of ecological planting will probably be the form in which rockeries make the transition into the 21st century.

There are many other structural elements of gardens that deserve analysis, elements like sunken gardens, herb gardens, herbaceous borders, lily ponds, rustic garden furniture, formal roseries, gazebos, sundials, fountains, birdbaths, and patios. Popularity has also waxed and waned for the other main category of garden element, the plants themselves. For example, the late 19th century saw a fashion for dressing the fronts of houses with climbers and creepers, while at the same period statuesque sub-tropical plants provided centrepieces for flower beds cut out of the lawns. Like certain structural elements some plant *genera* such as roses have had an appeal which spans centuries, though particular named *varieties* of roses have had popularity spans of less than a decade. In this case the cultivation of the rose genus could be treated as a marker of the European tradition. The currently fashionable ground-cover roses should probably be interpreted as a short-term element similar to crazy paving. Although the nursery trade strongly influences through its advertising the initial phase of popularisation of particular varieties, the duration of the fashion is much less subject to trade control. It may depend on such shifting public sentiments as nostalgia, boredom, anxiety, or excitement. Functional considerations are also relevant, such as the labour costs of maintenance, or changes in garden size.

My preliminary study has confirmed that like the plants, the structural elements of gardens show great variation in their time span of utilisation and popularity. They appear to have an existence which though influenced by the designer styles is nevertheless quite separate. They frequently outlive the styles with which they were first associated, and often become elements of successive styles. This phenomenon also applies to indoor decorative elements such as furniture and furnishings. It is probably only explicable by looking at the meaning that the element held for each user in the light of the popular literature of the time, the tastes for art, rules of etiquette, feelings about social class and race, and even nationalism (c.f. Leach 1994). For the future, analysis of the meaning of garden elements offers us the opportunity to look at the history of gardening in its widest social context, rather than confining ourselves to the arbitrary and artificial framework imposed by styles.

Bibliography

Allen, D.E. 1969 *The Victorian Fern Craze : A History of Pteridomania.* Hutchinson, London.

Barnett, R. 1993 *Garden Style in New Zealand.* Random House NZ Ltd, Auckland.

Blook, A. 1974 *Conifers for your Garden.* Floraprint, Calverton, Nottingham.

Challenger, S. 1986/7 Commercial Availability of Conifers in N.Z. 1851 - 1873. *Royal New Zealand Institute of Horticulture Annual Journal* 14 : 76 - 85.

Cobbett, W. 1829 *The English Gardener.* [Oxford University Press ed. 1980 intro. by A. Huxley].

Cockayne, L. 1923 *The Cultivation of New Zealand Plants.* Whitcombe and Tombs Ltd, Christchurch.

Cooper, R.C. 1972 Early Auckland Gardens. *Garden History* 1(2) : 26-40.

Elliott, D. 1947 Planning the Small Town Garden for Use, Convenience and Enjoyment. *New Zealand Gardener* 3(10) : 537 - 541.

Fisher, M.E., E. Satchell and J.M. Watkins 1970 *Gardening with New Zealand Plants Shrubs and Trees.* Collins, Auckland.

Harvey, J. 1986 England. Medieval Gardens. pp 163 - 4 In G. Jellicoe *et al. q.v.*

Harvey, J. 1988 *Restoring Period Gardens from the Middle Ages to Georgian Times.* Shire Garden History No.1. Haverfordwest.

Hunt, P.E. 1986 Alpine, scree, and rock garden. pp 11 - 13 In G. Jellicoe *et al. q.v.*

Izzard, P.W.D. 1932 The Country Garden. pp3- 34 In F.A. Mercer (ed.) *Gardens and Gardening The Studio Garden Annual.* The Studio Ltd, London.

Jellicoe, G., S. Jellicoe, P. Goode and M. Lancaster (eds) 1986 *The Oxford Companion to Gardens.* Oxford University Press.

Leach, H.M. 1984 *1,000 Years of Gardening in N.Z.* Reed, Wellington

Leach, H.M. 1994 Native Plants and National Identity in N..Z. Gardening : an Historical Review, *Horticulture in N.Z. 5(1) : 28-33.*

Lowe, A.E. ('Aotea') 1915 *The Sun Gardening Book.* Canterbury Publishing Co., Christchurch.

McIntosh, C. 1853 *The book of the Garden. Vol.1 - Structural.* William Blackwood and Sons, Edinburgh.

Matthews Descriptive and priced Catalogue : Ferns, Seeds, Plants and Shrubs, Trees of New Zealand Flora. c.1893. [Otago Settlers Museum Archives]

Mawson, T.H. 1912 *The Art and Craft of Garden Making.* 4th ed. Batsford, London.

Murphy, M. 1907 *Gardening in New Zealand.* 4th ed. Whitcombe and Tombs, Christchurch.

Nobbs, K.J. 1988 Where did our first Exotic Plants come from? *Royal New Zealand Institute of Horticulture Annual Journal* 15 : 104 - 106.

Robinson, W. 1893 *The English Flower Garden...*3rd ed. John Murray, London.

Rooney, D. 1993 Stem and Branch : Patterns of Tree-Planting in Central Canterbury since 1852. Part 1. The Banks Peninsula Area. *Horticulture in N.Z.* 4(1) : 4 - 6. Part 2. The Plains. 4(2) " 20- 22.

Salinger, J.P., J.S. Say and K.H. Marcussen 1962 *Flower Gardening with the Journal of Agriculture.* Whitcombe and Tombs, N.Z.

Salinger, J.P. 1971 *The New Zealander's Guide to Pebble Gardens.* Collins, Auckland.

Shepherd, R.W. 1990 Early importations of *Pinus radiata* to New Zealand and distribution in Canterbury to 1885 : implications for the genetic makeup of *Pinus radiata* stocks. Part 1. *Horticulture in New Zealand* 1(1) : 33 - 38. Part II 1(2) : 28 - 35.

Strongman, T. 1984 *The Gardens of Canterbury : A History.* Reed, Wellington.

Stuart, D. 1988 *The Garden Triumphant : A Victorian Legacy.* Viking, London.

Symes, M. 1991 *The English Rococo Garden.* Shire Garden History No. 5. Havorfordwest.

Tannock, D. c.1914 *Manual of Gardening in N.Z.* Whitcombe and Tombs, Christchurch.

Tannock, D. c.1924 *Rock Gardening in New Zealand.* Whitcombe and Tombs, Christchurch.

Tannock, D. c.1934 *Practical Gardening in New Zealand.* Whitcombe and Tombs, Christchurch.

Tipples, R. 1989 *Colonial Landscape Gardener Alfred Buxton of Christchurch, New Zealand 1872 - 1950.* Department of Horticulture and Landscape, Lincoln College, Canterbury, N.Z.

Trenberth, K.E. 1977 *Climate and Climatic Change : A New Zealand Perspective.* N.Z. Meteorological Service Miscellaneous Publication 161.

Wakefield, F. 1870 *The Gardener's Chronicle for New Zealand.* Thomas McKenzie, Wellington.

White, G. 1975 *Garden Kalendar 1751 - 1771.* Scolar Press, London.

Woodbridge, K. 1983 The Nomenclature of Style in Garden History. *Eighteenth Century* 8 n.s. (2) : 19 - 25.

Young, J. and D.A. Hay 1919 *Flower Gardening in N.Z.* Whitcombe and Tombs, Christchurch.

Acknowledgements

I wish to express my sincere thanks to the Wellington Branch of the Royal New Zealand Institute of Horticulture for their invitation to give the 1995 Ian Galloway Memorial Lecture.

The significance of rengarenga *Arthropodium cirratum* to Maori.

Graham Harris.
School of Natural Resources.
Te Kura Matauranga Rawa Whenua.
The Open Polytechnic of New Zealand.

Fig 1. *Flowers of Arthropodium cirratum*

The paper discusses the importance of rengarenga to Maori and evidence outlining the use of the plant as a food source and for medicinal, spiritual and other cultural purposes including its representation in kowhaiwhai patterns is presented based on historical and recent documents, and oral history.

Introduction:

Rengarenga *Arthropodium cirratum* is a lily which colonises rocky coastal areas from the North Cape to a southern limit from Kaikoura to Greymouth. It is often referred to as the New Zealand rock lily.

An alternative Maori name for the plant, maikaika, is shared with two native orchids (*Orthocerus strictum* and *Thelymitra pulchella*) that have similar starchy, edible rootlike tubers. (Crowe 1995)

Rengarenga is not common in the wild in some regions of its habitat and is classified by the Department of Conservation as being vulnerable in the Wellington conservancy. The plant forms extensive colonies and in summer bears panicles of six petalled white flowers on 30 cm stalks. The flowers have purple and yellow stamens which are curled at the ends and give rise to the specific name cirratum (curled).

Significance to Maori:

Information about the importance of rengarenga as a food source for Maori and its cultural and spiritual significance was recorded by William Colenso who, along with Elsdon Best, published much of the early ethnobotanical[1] information in New Zealand. Colenso also recorded information about the medicinal properties of the plant and how it was utilised by Maori for that purpose.

Spiritual:

Rengarenga is recorded by Tregear (1926:496) as being one of the five sacred mauri or talismans, those things possessed of the soul of the Maori people. It is referred to in the *whakatauaaki* or proverb *"Me ai ki te hua o te rengarenga me whakapakari ki te hua o te kawariki"*.-May you be nourished by the fruit of the rengarenga and of the kawariki[2] (Williams 1992:251)

Kerr 1995 (pers. comm.) stated that this proverb relates to the Maori land wars of the 1860's in the Waikato when the Waikato Maori were being forced back into the King Country and were threatened with the loss of their land. The proverb means *-even though we may be dispossessed, we will survive on what we can gather from the fruits of the land.*

Fig 2. *Distribution*

Fig 4.

Riley (1994:116) noted in *Maori Healing and Herbal- New Zealand Ethnobotanical Sourcebook,* that an inner meaning indicates that men as fodder for the controller of war, Tu, will be plentiful for that purpose. It is claimed that the spirits of such warriors, when killed in war, travelled to Cape Reinga in great style, carrying weapons, dancing and talking and making much noise. The spirits of those dying of natural causes. on the other hand, travelled to Cape Reinga silently waving branches of rengarenga as they moved. Riley also noted that rengarenga once lay in a place of honour on the tuahu (sacred place) at Whangara (north of Gisborne)

Kowhaiwhai patterns:

The rafters of Maori wharenui (meeting houses) are often decorated with elaborate scroll-like patterns known as kowhaiwhai. These usually are painted in red, white and black, although the pattern shown in Figure 5. is grey, brown and white. The motif of the patterns in general, represent natural objects (Hamilton 1896:118).

Neich 1993:34 noted that some, have mythological associations and that the chief connotation of kowhaiwhai seems to relate to ideas of genealogy and descent. The rengarenga flower is represented in several kowhaiwhai patterns underlining the significance of the plant to Maori.

Colenso 1891:460 in describing kowhaiwhai patterns wrote:

*"One in particular, I may mention and explain: this pattern was called rengarenga, from being an imitation of, or an ideal association with the curved anthers of the flowers of that plant, the New Zealand lily (**Arthropodium cirratum**). Here we have another curious and pleasing instance of coincidence of ideas in natural close observation and naming between two widely opposite peoples, the ancient New Zealander and the highly civilised European -the German botanist Forster who accompanied Cook on his second voyage to New Zealand and who gave the appropriate specific name of **cirratum** to this plant from its peculiar closely-curved and revolute anthers"* (see fig 3).

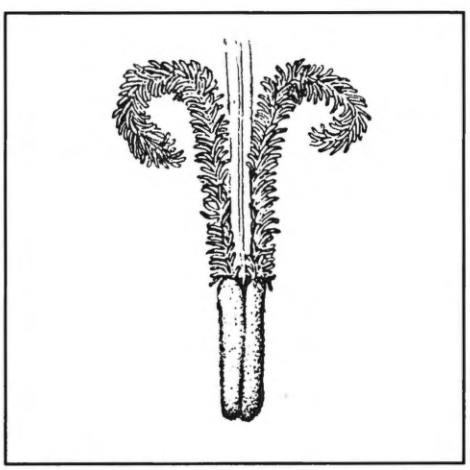


Fig 3. *Male parts of the flower of Arthropodium cirratum showing the curved anther tails*

Despite an extensive search, the kowhaiwhai pattern described by Colenso could not be located nor could any other patterns incorporating rengarenga anther patterns.

Simmons 1995 (pers. comm.) noted that the flowers of the rengarenga plant were sometimes incorporated into other kowhaiwhai patterns[3] such as that shown in Fig 4. This was in the house *Te Poho o Haraina* which stood at Patutahi near Gisborne and was the house of *Wi Pere* of the *Rongowhakaata iwi.* It was opened in 1885 and burnt down in 1947. The basic pattern is similar to that identified by Hamilton 1896:127, as *Ngutukura* (the whale) but this version incorporates stylised rengarenga flowers. Simmons indicated that these four petalled flowers (rengarenga actually has six petals) were known as ***popoa rengarenga*** and refer to the gods, whereas flowers with more than four petals refer to men.

The pattern shown in Fig 5, is reported by Simmons to be from a house in the Bay of Plenty-East Coast area and was painted on narrow flat rafters. Simmons noted that the stalks and unopened flowers of rengarenga were rendered quite realistically.

Food:

Colenso (1880:30) recorded that rengarenga was one of the few native plants cultivated by Maori for food. He wrote:

*"The thick fleshy roots of the New Zealand lily **Arthropodium cirratum**, were also formerly eaten, cooked in the earth oven. This plant grows to a very large size in suitable soil, and when cultivated in gardens. From this circumstance, and from not unfrequently noticed it about old deserted residences and cultivations, I am inclined to believe that it was also cultivated."*

The author observed that wild plants growing in their natural habitat tend to produce small tightly congested rhizomes and often grow on rock faces almost like epiphytes, whereas the same plants grown in cultivated soil, produce much larger rhizomes.

Riley 1994:416 noted that rengarenga rhizomes when roasted or cooked in a steam oven (umu) have a flavour not unlike potato. This was confirmed by the author who reported that after steaming rhizomes for 60 minutes, the younger sections nearest the growing points, were soft and tender, while the older more mature sections were very fibrous and not as palatable.

The rhizomes of a related plant, vanilla lily *Arthropodium*

Fig 5.

milleflorum are eaten by Australian Aborigines. (Sainty1989:46)

Medicinal:

Maori were highly skilled in using herbs in conjunction with spiritual healing (Riley 1994:9)

Riley noted that boils and abscesses were one of the main surgical complaints that afflicted Maori in pre-European times and into the early 20th century and referred to the report of the Colonial Hospital Wellington, for the year 1848 which listed abscesses as fourth equal with lung inflammation as cause of death among Maori patients.

Riley also noted in *Maori Healing and Herbal* that *"no less one-fifth of the some 200 plants in this book are used to treat boils and abscesses"*

Rengarenga was one of the plants used for the treatment of boils and abscesses and Colenso 1868:267 recorded that the roots of the rengarenga were roasted and beaten to a pulp and applied warm to unbroken tumours or abscesses. White (1883) recorded that the bottom or lower end of the leaves is beaten into a pulp as a poultice to cure ulcers or longstanding sores and to allay swelling of joints or limbs. He also noted that the root of the plant was eaten in its raw state to cure the itch, although he did not specify the exact nature of this complaint.

Fig 6. *Rengarenga rhizomes which provided a food source for Maori. This plant was growing on a rocky outcrop at Matakitaki-a-Kupe (Cape Palliser) and has smaller rhizomes than those of plants grown in cultivated soil.* (photo: Rob Lucas)

More recent publications on medicinal uses of native plants including Riley 1994, and Brooker *et al* 1981:63, refer to the above two publications (White and Colenso) for medicinal uses of *Arthropodium cirratum*.

Enquiries made by the author indicate that rengarenga does not appear to be used for medicinal purposes today.

Notes:

1. Parsons 1992:73, defined ethnobotany as *"the scientific study of people and plants and the interaction between them"*
2. *Ranunculus macrocarpus* and *R. rivularis*
3. Figs 4 and 5 were drawn by the author from photos, sketches and descriptions provided by D.R. Simmons, former curator of Ethnology at Auckland Museum.

Acknowledgments:

The following individuals provided assistance and advice in the preparation of this study:

- Hoturoa Kerr. (Waikato University)
- Rob Lucas. (The Open Polytechnic of New Zealand)
- Dave Simmons. (former Curator of Ethnology, Auckland Museum)
- Haami Te Whaiti. (Ngati Hinewaka me ona karangaranga)

References:

Brooker, S.G., R.C. Cambie and R.C. Cooper. 1981. *New Zealand Medicinal Plants*. Auckland: Heinemann Publishers.

Colenso, W. 1868. Geographic and Economic Botany of the North Island of New Zealand. *Transactions and Proceedings of the New Zealand Institute*. 1:232-83.

Colenso, W, 1880. On the Vegetable Food of the Ancient New Zealanders. *Transactions of the Royal Society of New Zealand*. 13:3-38.

Colenso, W. 1891. Reminiscence of the Ancient Maoris. *Transactions and Proceedings of the New Zealand Institute*. 24:460.

Crowe, A. 1995. *Which Coastal Plant?* Auckland: Viking New Zealand.

Department of Conservation Wellington Conservancy Draft Conservation Management Strategy 1994-2003. 1994 Volume 1. Appendix 1. PO Box 5086, Wellington.

Hamilton, A. 1896. *The Art Workmanship of the Maori Race in New Zealand*. Dunedin: Fergusson and Mitchell. University of Otago.

Kerr, Hoturoa. 1995. personal communication.

Neich, R. 1993. *Painted Histories*. Auckland: Auckland University Press

Parsons, M. J. 1992. Ethnobotany - A Maori Perspective. *Proceedings of the Royal New Zealand Institute of Horticulture Annual Conference 1992.*

Riley, M. 1994. *Maori Healing and Herbal. New Zealand Ethnobotanical Sourcebook*. Paraparaumu, New Zealand: Viking Sevenseas.

Sainty, G.R. 1989. *Wildthings, plants and animals commonly seen around Sydney*. Sydney, Australia: Sainty and Associates.

Simmons, D.R. 1995. personal communication.

Tregear, E. 1904. *The Maori Race*. Whanganui: A.D.Willis·.

White, J. 1883. *Maori Pharmocopia*. MS Papers 75 B35/11 Alexander Turnbull Library, Wellington.

Williams, H.W. 1992. *Dictionary of the Maori Language*. 7th edition. Government Print Publications Ltd.

The original plant of Dendroseris litoralis growing in the Timaru Botanic Gardens

Insert

A mature specimen of Dendroseris litoralis from Morro Vinillo growing in a garden on Masatierra.

PLANT PROFILE - *Dendroseris litoralis* Skottsb.

Peter Thomson, Timaru Botanic Gardens

Threatened with extinction and classified as endangered by the IUCN, *Dendroseris litoralis* is found growing in the Timaru Botanic Gardens.

Endemic to the Juan Fernandez Islands, 600km west of Chile, *D.litoralis* is found on Morro Vinillo, a rock off the south coast of Masatierra, the coastal cliffs of Santa Clara, and the islet of Morro del Spartan. It is not found on the two main islands of Masatierra and Masafuera. These islands have a temperate oceanic climate with average temperatures of 15C and low humidity.

A member of the daisy family, Asteraceae, *D.litoralis* has a rosette tree form characteristic of the flora of the Juan Fernandez Islands. The plant has been described as having leaves of a cabbage, flowers of a giant dandelion, and the thick branching stems of *Cordyline banksii*. It is thought to have evolved in Antarctica and spread to the Pacific Islands before Antarctica became covered in ice and snow.

Goats, sheep, horses and rabbits were introduced to the Juan Fernandez Islands as a food source for sailors. In doing so they devastated the native vegetation and are still a threat. On Santa Clara goats have now been removed but introduced plants still complete with the remaining native flora.

Cultivation in the Timaru Botanic Gardens

Dendroseris litoralis has been grown in the gardens for at least 25 years. It makes an excellent ornamental subject when grown against a building or under evergreen trees. They can tolerate a small amount of frost but will lose their leaves and die back. The plant will then resprout lower down the stem.

The original plant and seedlings grew against the north side of the brickhouse with a large cabbage tree, *Cordyline australis* above. The soil is always on the dry side and the site virtually frost free. The original plant has since died of some sort of wilt disease. The seedlings left were spread out in its place and are growing well.

In 1989 plants were planted at the back of the dahlia border under a canopy of evergreen trees. Many died but the remaining plants flowered and set viable seed in 1993 and 1994. We find it best to collect seed annually to guard against total loss.

The plant grows easily from seed requiring no special treatment. Glasshouse cultivation can be difficult as the plant is prone to whitefly attack and is susceptible to powdery mildew.

References

IUCN, Gland, Switzerland, and World Monitoring Centre Cambridge, UK Plants in danger, what do we know?

Skottsberg, C.J.F. (Ed) : The Natural History of the Juan Fernandez and Easter Island. 3 volumes Almquist and Wiksell, Uppsala

Kunkel, G. 1968: Robinson Crusoe's Islands. *Pacific Discovery* 21: 1-8

Sanders, R.W., Stuessy, T.F., and Marticovena, C. 1982: Recent changes in the flora of the Juan Fernandez Islands, Chile. *Taxon* 31 (2): 284-289.

Rare and threatened plants of the Galapagos and Juan Fernandez Islands, Threatened Plants Unit, February 1983. Botanic Gardens Conservation International, Descanso House, 199 Kew Rd, Richmond, Surrey TW 9 3 BW, UK.

Horticultural Tourism for the Elderly

and People with Disabilities

by Beth Watson

1. *Sissinghurst Garden. The main walkway from the carpark to the Garden showing a hazard for people with sticks*

Things to do

- Clearly signpost those paths which are unsuitable for elderly people or people with disabilities, and if possible indicate an alternative route.
- If a path becomes progressively difficult provide resting/ waiting areas
- Incorporate 'cutbacks' where possible for those visitors who find they have been over ambitious
- Handrails should be provided on both sides of ramps or steps to accommodate people limited to the use of one arm. The alternative is one central rail.
- Avoid plantings that climb or trial handrails. Roses are particularly uncomfortable to grasp.
- Consider a policy for all replacement garden furniture to be of an appropriate design for elderly and disabled users.

2. *Wakehurst Place. Keeping people informed*

My study in horticultural tourism was aimed at identifying problems of access for the elderly and people with disabilities. The research study involved identifying common problems and finding appropriate modifications or solutions in public and private gardens.

A study tour was undertaken in 1995 to the United Kingdom and France. Over 50 gardens were visited and managers, gardeners and owners interviewed. Most agreed that garden access was a major issue and one that will increase as the population ages.

Facilities that are open to the public need to account for the whole range of potential uses rather than catering for select groups as many still do. Facilities should provide interest for as broad a range of people as possible without providing barriers for those with special needs.

The term disability encompasses a whole range of complex individual conditions, within the broad categories of physical disability and mental handicap. The requirements imposed by different disabilities can at times conflict. It is effectively impossible to allow for all needs in a single design. Nevertheless there are certain basic requirements which should be considered and which would benefit the majority of people including the able bodied.

The fondness for garden visiting is firmly established in New Zealand, and with the New Zealand Open Garden Scheme still in its early stages, it is important that the specific needs of these people are taken into account.

The result of the study is a handbook containing a summary of the existing standards and new suggestions to add to the safety and pleasure of the elderly and disabled garden lover. The suggestions in the handbook will not all apply to one garden. However, if a new garden is being designed or an existing garden altered, the handbook will become a guide to providing a safer, more accessible environment.

Beth Watson was a joint recipient of the DD Baker Award in 1995 and was awarded $2000 towards the cost of the study tour.

Book News and Reviews

This section will provide details of new horticultural books as well as more in-depth reviews. This has been made possible with the support of Touchwood Books, specialist horticultural booksellers from Hawkes Bay.

The Conservation of Historic Gardens in Europe

Edited by Elisabeth Whittle
Price 12.50 pounds sterling

In April 1994 the Garden History Society and the University of York's Centre for the Conservation of Historic Parks and Gardens were joint sponsors of an international conference in York with the above title. The proceedings are now available,

The conference tackled four themes:

- Principles of protection
- The role of official and voluntary agencies
- Financing conservation
- Education and training for the conservation of historic parks and gardens

The proceedings also include summaries of the discussions that took place. They bring together the views and experiences of some of Europe's leading figures in the field of garden conservation.

Horticultural Flora of south-eastern Australia

The identification of garden and cultivated plants
Volume 1: Ferns, Conifers and their allies
edited by Roger Spence
RRP Aus t$79.95

This is the first in a four-volume series from the University of New South Wales Press which will cover all the native and exotic plants cultivated in Victoria, Tasmania, NSW, South Australia, and southern Queensland. It parallels the European Garden Flora.

Produced in conjunction with the Royal Botanic Gardens Melbourne, the book will appeal to all those interested in the cultivation of plants in Australia, and with the many similarities of climate will also have use this side of the Tasman. The Flora has

- Easy to use identification keys
- detailed descriptions of families, genera, species and cultivars
- Notes on propagation, uses, ecology, cultivation, origins, distribution, and conservation
- Indicates where prominent specimens can be seen with details of public gardens and collections

This major work raises the question of what we are doing in New Zealand to document our cultivated plant resource. The work of the RNZIH Plant Collections Scheme has started the documentation of cultivated plants but much remains to be done. Perhaps it is time for several groups and institutions to start working together on such a project as this.

RHS Dictionary Index of Garden Plants

By Mark Griffiths
Macmillan 1995

This is the largest ever checklist of garden plants in Europe, North America, Australia, New Zealand, and South Africa. It contains 60000 plant names and descriptions including 22000 botanical names no longer officially in use and 10000 popular names. An illustrated botanical glossary explains the terms used and lists the most commonly encountered Latin names and their definitions.

This dictionary is a must for all serious gardeners and should be in the library of every major garden. Touchwood Books have a few copies at a special price of $69.95 (RRP $150).

Adventures of a Gardener

By Peter Smithers
Harvill Press with the Royal Horticultural Society
Price $89.95

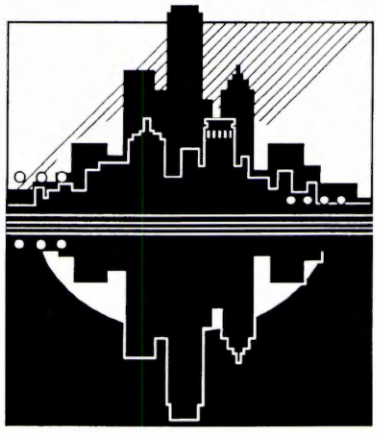
This autobiography was written at the prompting of the RHS and covers Sir Peter Smithers career (He once worked in MI6 with Peter Fleming) , and the 5 gardens he created. Now aged 83, Smithers has established a famous garden at Villa Mocote in Switzerland where he specialises in magnolias, tree peonies, camellias, rhododendrons and nerines. In all, he is growing more than 10000 species and cultivars gathered from all over the world.

He has been supplied with plants by the Jury's of new Plymouth, Peter Cave of Hamilton, and Os Blumhardt of Whangarei. All are mentioned in the book.

There are 60 pages of colour photos, all taken by the author who has received eight gold medals from the RHS for his plant photography.

NEW ZEALAND ARBORICULTURAL ASSOCIATION

1996 ANNUAL CONFERENCE & CLIMBING JAMBOREE
17 - 20 OCTOBER 1996



PLANTS IN THE URBAN LANDSCAPE: ENVIRONMENTAL LANDSCAPE MANAGEMENT

Guiding Us Towards Successful City Plants Beyond 2000

Waipuna International Hotel
and Conference Centre
Mt Wellington
AUCKLAND
New Zealand

Between Thursday 17 - Saturday 19 inclusive specialists from education and industry sectors within the arboriculture and landscape professions will explore the theme of PLANTS IN THE URBAN LANDSCAPE.

NZAA's 1996 Annual Conference offers you a unique opportunity to hear ten dynamic speakers - educators, innovators, leaders - discussing essential aspects of urban tree care, selection, establishment and design.

Three Australian, two American and five New Zealand speakers will collaborate in presenting a comprehensive view on the biological, functional and aesthetic criteria which can guide you to making successful tree management decisions.

Sunday 20 will be a change of venue, to historic Cornwall Park near One Tree Hill, for a full-scale Climbing Jamboree run in accordance with international rules with events for skilled arborists that will test the best. Plus entertainment, exhibitors, field displays ... and your chance to network with professionals from every sector of the industry.

Registration details will be available soon. For advance information contact:

Bryan Gould **307 7609 or 025 961 854**
Mark Bowater **815 2771 or 025 924 265**