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Summer 1980

Horticulture

in New Zealand

Bulletin of the Royal New Zealand Institute of Horticulture (Inc.)



HORTICULTURE

IN NEW ZEALAND

BULLETIN OF THE ROYAL NZ INSTITUTE OF HORTICULTURE
NUMBER 14, SUMMER 1980

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Cover by Janet Hart, Teaching Aids Unit, Lincoln College.	

 ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURE (INC).

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1979 Annual Journal Editor : Mr Richard Stevens.

The Editors welcome articles, letters and news items for consideration for publication. Contributions should be addressed to the Bulletin Editor, or the Annual Journal Editor, P.O.Box 12, Lincoln College.

Views expressed are not necessarily those of RNZIH.

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~ Editorial ~

The months of November and December are VERY busy here in the RNZIH office. The NDH (plus HSC and NDA) examinations are quite an undertaking - this year we had 270 candidates sitting 792 written papers in thirty different centres.

This involves very careful packing of the right paper for the right candidate at the right centre - always done under pressure, as the time available to do this is minimal. We have first to allow the examiners and moderators to do their work on all the papers, before we can get on with the printing and dispatch, hopefully allowing enough time for the Post Office to effect delivery before the starting date! (one hold-up this year - an envelope of papers from the moderators took a fortnight to reach us from Wellington!)

There are always last minute comings and goings (students moving from one centre to another in the week we are trying to finalise things), plus the steady stream of requests for past examination papers (why DO they leave it so late?) On top of this, capitation payments have to be assessed and made to District Council Secretaries, and Oral and Practical examinations cause unforeseen complications, and umpteen toll calls. And there are Meetings - which involve us in Minute writing and typing, printing and dispatch. Minutes seem to take longer than the actual Meetings, and Ashley Foubister is struggling with the latest issue while I type this.

However, we now breathe a sigh of relief that all the written, and by far the largest proportion of Oral and Practical, examinations are out of the way for 1979. The number of unopened examination envelopes returned from centres, indicating absentees, is large this year, and disappointing after the effort expended. This is especially so when we have set up a small centre, say for two students sitting examinations in six sessions, and then have one of the students not bother to show up.

Papers are presently being marked by the examiners, and if marks are in before the Examining Board meeting on 17th December, we should be able to advise students immediately after that. Results may even reach you before this Bulletin, if the printer is busy.

- Barbara McCartney,
Editor

A letter has been received from Mr Jack Taylor, of Raumati South, following the letters on the introduction of the Weeping Willow to New Zealand. Mr Taylor is of the opinion that the source of the willow was St Helena, and this is based on the information found in Guthrie Smith's book "Tutira". The account is to be found on page 263, 1969 edition, and seems, in the absence of other information, to be to Mr Taylor a reasonable explanation of at least one source of supply of Weeping Willow to NZ.

Letters to the Editor

Being at present a resident of Riccarton, your article on Riccarton Bush was most interesting. I have, however, strong doubts about the present practice of planting trees and shrubs in the area.

(i) Although species planted are present, or were formerly present, in the forest, unless seed is taken from the bush itself, new genetic characters will be introduced. The isolated nature of the bush (from similar populations) will mean that species within the bush will have a genetic character distinct from that of the same species elsewhere. Even if, (as I believe is the case) propagules are taken directly from the bush itself, our choice of material (especially cuttings) will change the population distribution of genetic characters. Further to this, where artificial means are used to raise seedlings, part of the influence of natural selection - that on seed germination and seedling survival - is removed. These factors will combine to redirect artificially the genetic drift of the population.

(ii) Is sufficient known of what the spatial/soil/micro-environment distribution of these planted species would have been were the forest undisturbed? Are these trees being planted where they might have grown naturally and at the correct densities? Unless this (albeit impossible) requirement is fulfilled, any value remaining as an example of an association worthy of ecological study will be removed.

(iii) Even drainage and irrigation schemes might be harmful. Already the bush will have begun to adjust to changes in water levels which have occurred as a result of European presence. Will the sudden reversal of these changes do more harm than good?

Are we trying to recreate an extinct ecological curiosity or to allow the forest to re-establish itself as a relatively stable, self-supporting ecological unit? A forest, unlike an historic building, cannot (and should not) be slavishly recreated 'as original'. There was no original but an ecological and genetic continuum gradually changing in response to environment and genetic drift.

To be constructive (at last!) - the survival of this forest might be ensured without the pressure of artificial vectors by :

1. Eliminating 'adventive plants',
2. Eliminating or excluding as far as possible damaging animals such as man, opossums, domestic pets,
3. Any adjustments to the water table should be made gradually and with care to the consequences,
4. Continuing the practice of leaving all forest litter to rot.

Some of these recommendations break my own (above) rules on allowing the natural development of the forest. They should however enable the forest to survive. I accept that it does need some help. The present plans may result in a forest quite different from anything that the forest would be or has been while unmolested.

- John Gillespie, Christchurch

This letter was referred to Dr B.P.J. Molloy, of Botany Division, DSIR, Lincoln, whose reply follows :

"Mr Gillespie raises several points in his letter and I am not sure that I can answer them all satisfactorily in a modest written reply. If not, then he is welcome to visit the Bush and discuss these questions further with the ranger or myself, or some other members of the Trust. We welcome this kind of communication and derive much help from it. Let me assure Mr Gillespie, indeed all your readers, that the Trustees openly seek advice on the wise management of this important reserve.

Planting in Riccarton Bush is aimed at encouraging natural regeneration in nearly all open spaces within or on the margin of the Bush. Plants used for this purpose are raised exclusively from seed collected from the Bush, and the species are sited as far as possible according to their habitat preference. The object here is to provide a "nurse" cover of typical understorey trees and shrubs into which the resident native plants can spread in their own time. Some small openings are starting to fill up naturally with native plants since mowing has been eliminated and the number of tracks reduced, but the larger clearings need manipulation to overcome the initial barrier of grass and other growth that prevents regeneration.

An additional aim is to enrich species now present in very low numbers in the Bush, and to re-introduce others that were formerly present. In the first case we can propagate from the plants in the Bush, or if the species is dioecious and only one sex is present, then we will draw material from the nearest local source; either way it seems best to plant only a few seedlings around existing plants and not spread them widely. In the second case we are forced to use material from the nearest source and will restrict these plantings to the teaching and arboretum areas of the Bush. In both cases we seek advice on each species, its genetic variability and so forth.

At present the Bush is well served by a natural underground aquifer which prevents drying out in summer. A minor problem is to move excess water through the Bush following heavy rainfalls. Most of this water enters the Bush from adjacent urban catchments, and the problem has been compounded by too many compacted tracks producing an unnatural border dyke network. Irrigation is used mainly to help establish planted seedlings, especially during dry spells.

Mr Gillespie can be assured on several other points : we have a continuing programme to eliminate undesirable adventive plants; opossums have been reduced significantly and public use is now much better controlled. But at present we can find no easy solution to the problem of domestic pets. All debris, apart from the larger fallen trunks, is now left in the Bush to rot, and this practice has already resulted in a rapid buildup of the litter layers over the last three years.

Riccarton Bush is a relatively young floodplain forest which is continually changing, though slowly, in response to past and present uses, and as its soils and vegetation mature. It is our task to encourage these natural processes as far as possible, using the best available advice.

Over the past few years, since new management techniques have been applied, the Bush has demonstrated a remarkable capacity to reclaim its former territory and to improve the quality of its understorey and ground layers. But, equally clearly, it does need our help; not so much in the core of near-natural forest, but in the disturbed clearings and peripheral areas. Any information that will lead to better management techniques is most welcome and Mr Gillespie's comments will be considered.

- Dr B.P.J. Molloy

Whirinaki ~

He iti ra, he iti mapihi pounamu - I may be small, but I am an ornament of greenstone.

The RNZIH Notable and Historic Trees Committee wrote to the Conservator of Forests, Rotorua, on 10 August 1979, about the proposals to log Whirinaki Forest. Extracts from this letter are:

"The Royal NZ Institute of Horticulture's Notable and Historic Trees Committee has the following submissions to make on the Whirinaki Management Plan :

1. The Committee is strongly opposed to the proposal that this forest be selectively logged; selective milling will remove many of the huge podocarps which are unrivalled for size and beauty in New Zealand.

The Forest Service proposal to remove trees which are liable to die in the next five to ten years would appear to be just a rationale to remove the best timber producing trees (which may be large but not necessarily senescent).

The Committee is doubtful whether Forest Service claims, that Podocarps will regenerate with selective milling, are valid. It is felt that broadleaves, especially tawa, will mainly regenerate, thus creating eventually a broadleaved forest. It is felt that Forest Service plans to plant podocarps are ineffectual.

2. It is felt that native wildlife, especially Kaka and Kakariki, will suffer through further milling of the area and the Committee endorses the Wildlife Service's warnings on this point.
3. Regarding claims that cessation of milling in Whirinaki Forest will cause many people working in Minginui to lose their jobs, the Committee feels that these workers' jobs could be preserved if exotic timber were to be introduced to the mill.
4. Finally, the Committee would like to endorse many organisations (notably ECO, Royal Forest and Bird Protection Society and the Native Forest Action Council) and people in their suggestion that Whirinaki Forest be incorporated within the boundaries of the nearby Urewera National Park so that this remaining fragment of mixed podocarp forest is properly managed and preserved for the people of New Zealand.

Your careful consideration of the above submissions would be greatly appreciated.

- D.D. Rowe, Hon. Secretary,
RNZIH Notable & Historic Trees C'ee.

The September 27, 1979, edition of the Auckland Herald includes a report on "DSIR Attack on Forest Plan" - the DSIR has lambasted the Whirinaki State Forest Management Plan and set itself firmly in the ranks of the conservationists. It labels the plan as superficial and inadequate compared with other forest management plans.

The detailed, 11 page submission to the Forest Service, includes the following comments :

WHIRINAKI CONT :

"The unique nature of Whirinaki, with its virgin tawa and kahikatea, is not acknowledged in the management plan. It is suggested that the forest is actually older than its assumed 800 years, and that much would have survived the Taupo eruption 1800 years ago.

"If the forest is logged, the opportunity to glean a better knowledge of its plant and animal life will be lost.

"Proper investigations into supplying logs to the Minginui mill had not been done and the plan simply assumed the mill could be supplied only by logging native forest."

THE FIRST RNZIH JOURNAL -

A copy of the first RNZIH Journal, Vol.1 no.1, landed on my desk from Rarotonga! Dave McCallum, former Blenheim MAF horticultural adviser is spending two years in Rarotonga, and in clearing the archives he noticed this copy on its way to the incinerator. It is a most interesting Journal - printed in June 1929, it is amazing how enlightened were the horticultural enthusiasts of that day, writing on subjects which they knew to be important but which have taken nearly 50 years to be accepted.

The first editorial boldly states that "It may be said without fear of contradiction that there are in New Zealand more persons interested in horticulture in either a professional or amateur way than any other occupation, for almost every dwelling has its garden plot."

The first article, by W.H.Rice, was on the Chinese Gooseberry! Yes, in 1929 Kiwifruit was on the menu, but who would have believed then that an acre of plants today would sell for a king's ransom?

A short article records that Dr Leonard Cockayne, a past President of the Institute, had had conferred on him by the King, the honour of Companion of the Most Distinguished Order of St. Michael and St. George.

There follows an intriguing Banks Lecture by Wm.C.Davies, then Curator of the Cawthron Institute, Nelson, on Photography as an aid to the study of plants and plant problems - another subject well ahead of its time, and features an aerial photograph of the Nelson area showing the stunted growth of plants in the "mineral belt".

W.C.Hyde contributed an excellent article on Spring activities in the garden and G.A.Green records the state of the citrus industry in 1929. It was announced that the Executive Council has set up a sub-committee to enquire into the question of plant registration and bring down proposals which will assist to protect the growers of new varieties of plants - prophetic words which have taken 50 years to be inscribed on the legislation books.

Altogether a most interesting journal and an inspiration to carry on these high standards today.

- Ralph Ballinger, Blenheim.

NOTE : we occasionally receive enquiries about past journals and bulletins, in the office at Lincoln College. We do have copies of old issues (although none to spare of the one mentioned above), but these are stored in boxes in an archives room. We just do not have time to go through them looking for the specific copies requested to complete members' sets. If you would like to have old issues, you would be welcome to borrow the key to the archives room from us, and spend as long you want to fossicking.

KIKUYU GRASS IN TARANAKI

At the Annual General Meeting in Tauranga concern about the increasing spread of Kikuyu Grass in the Taranaki area was expressed by Mr G.H. Huthnance, FRIH. This concern was shared by other delegates, and as a result a letter was sent to the Ministry of Agriculture and Fisheries in New Plymouth, seeking information on the extent of the problem and measures for its control. As members will be interested in the outcome of this, we quote the text of the reply received from Mr B.J. Hockings, MAF Farm Advisory Officer in New Plymouth :

"Kikuyu grass is now well spread throughout Taranaki particularly in the coastal areas where it exists more or less continuously all the way from Urenui to Opunake. There are also isolated infestations further inland and I personally have seen several areas in Central Taranaki in the Whangamomona area. However at this stage although the infestations are undoubtedly increasing, there is considerable doubt as to just how serious a weed the grass is.

At present it is confined mainly to roadsides and waste areas. In my opinion it would be much more a weed of Horticulture or Arable farming rather than pastoral farming which is predominant in Taranaki. Under conditions of intensive grazing and high fertility the grass does not compete particularly well in my experience with a vigorous pasture and thus its ingress into good farming land at this stage is very slight. This is not to say of course that it is not a problem on farmland but where this problem does exist the farmer should be able to control spread with judicious pasture management and chemical control. This is at present the current philosophy.

Recently the Taranaki District Noxious Plants Authority gave consideration to having Kikuyu grass declared a B class noxious weed. However no further action was taken on this as it was pointed out that the costs of control would be astronomically high and further more many lawns, bowling greens, etc. in New Plymouth and other district towns are vigorous in Kikuyu grass and control measures here would obviously be impossible. Further more there is little doubt that in some coastal areas Kikuyu is in fact beneficial by controlling sand dune erosion.

In conclusion then, the local authorities are well aware of the problem and are monitoring the spread. Control measures however come back to the individual land owner to take remedial action in his own interest, and I would suspect that is where the situation will stay. I hope this answers your query.

Yours sincerely,

B.J. HOCKINGS,
Farm Advisory Officer,
MAF, NEW PLYMOUTH.



Pennisetum clandestinum

REPORT ON LANDSCAPE CONTRACTORS' COURSE :

Sixty-five people participated in the 1979 Landscape Contractors' Short Course, organised August 6-8th by Massey University and the Landscape Contractors' group of the NZ Nurserymen's Association. In his introductory speech, Mr I Baumgart, Commissioner for the Environment stressed the importance of the landscape in the New Zealand environment and the need to work with nature rather than against it. In the second paper Mr A. Morgan, Chairman of the Landscape Contractors' group, stated that the Landscape industry was still buoyant due to the diversity of work, and the wealth generated in new industries.

Other speakers on the programme were :

Mr Alan Titchener	Landscape Design Process
Mrs Lesley Maughan	Design Problems in Landscape Contracting
Mr Hal Wagstaff	Recent Developments in Concrete Technology
Mr Bob Keene	Machinery for the Contractor
Mr Keith Ellis	25 years of Landscape Contracting
Dr John Salinger	Looking at Plants
Mr Ian Crossman	Arboriculture Techniques
Mr Bruce Haycock	Turfgrass Seeding
Mr Graeme Nind	Contracting vs In-house Operations
Mr Bill Maughan	Financial Information useful to Landscape Contractors
Mr David Muir	Recommended standards in Landscape Construction - Report on the joint NZILA/LCG Committee's progress
Mr Peter Oppenheim	Worker Motivation and participation
Mr Ken Tremaine	Practical Application of the District Scheme's requirements.

Two discussion slots were available on the following topics :

"Is your business going to survive?"

"Training for Landscape Contracting"

Poster displays were also available on guying and staking of landscape trees, arboretum development at Otoko, Herbs in the Landscape, Residential landscape design, pesticide safety, weedkillers in landscape gardening, turf industry, monetary assessment of trees in the landscape, and critical pathway analysis. Participants also observed demonstrations on tree climbing and visited Massey's Landscape Development Teaching Unit and Conservatory. The DSIR's (Grasslands Division) turf plots were also inspected to keep contractors up to date in turfgrass management.

Proceedings from the Short Course will be available early in 1980 - price \$4.00.

- D.E. Aldous

Also from Dr Aldous :

"It is a pleasure to report that John Salinger, Senior Lecturer in Horticulture at Massey University, has successfully completed his doctoral studies. Dr Salinger's thesis topic was entitled 'The Influence of Temperature on the Growth and Flowering of Oriental Lilies (Lilium cultivars)' - Congratulations.

District Council News..

WHANGAREI : The Whangarei Newsletter always features a list of plants from the display table at the most recent meeting. These lists are compiled by Ken Young (FRIH), and the September list included :

Veltheimia virifolia, a lovely half-hardy bulb from South Africa, similar in appearance to a giant *Lachenalia*.
Clematis amandii, a vigorous evergreen from Central and Western China, introduced about 1900. 5cm white flowers during early Spring.
Bomarea - the 150 species from South America and West Indies are closely related to the *Alstroemeria* and *Lapageria*.
Doronicum - a genus of about 25 species of perennials natives of Europe and temperate Asia.
Olivia miniata - another choice South African species much prized as a florist's flower.
Allonsoa - a valuable and free flowering perennial, salmon-pink and an orange-red, hardy and easily cultivated.
Cavendishia acuminata named in honour of W.P.Cavendish, Duke of Devonshire 1790-1858, owner of the magnificent mansion and gardens of Chatswood.
Genista stenopetala, *Pieris japonica*, *Pieris taiwanenses*, *Euphorbia* & *Acacia riceana*, were also included.

An important oil seed is the brazil nut, used for making margarine. The brazil nut tree, *Bertholletia excelsa*, could be described as the king, or certainly one of the great princes of the forests of the Amazon. It has a beautifully straight stem going up as high as 30m, before forming a crown. The fruit is interesting - it is about the size of a croquet ball and has a shell harder than a coconut, with some 25-30 seeds inside. These seeds are exported in ships' holds either just as they are, or shelled.

Our September meeting was a very interesting film evening presented by one of our talented members, Os Blumhardt, who showed films and spoke on Singapore and plant hunting in Thailand.

AUCKLAND : The October Newsletter includes this article from Mr Noel Kitchen (FRIH) :

'Last April I spent ten sad days at Norfolk Island, a minute basalt dot in the vast South Pacific Ocean, a dot four miles by three miles, of 8528 acres. The ocean swells have eroded precipitous cliffs to a height of 300 -400 feet. The island lies 420 miles from New Caledonia, 560 from Lord Howe Island, 850 from Australia and 1016 from Fiji, and 480 from New Zealand. Captain Cook discovered the island in 1774 and listed much of the vegetation, paying particular attention to the giant dominant pines.

Propably submarine volcanic eruptions threw up this mountain mass which through geological time has been gradually eroded.

As a result of its isolation, seeds have had to overcome the difficulties of ocean transport to survive the hazards of colonisation in a new environment. Only a freak representation of seeds from larger land masses even reached Norfolk Island and survived, the resulting population now being unbalanced or disharmonic. For instance the island carries species from NZ,

DISTRICT COUNCIL NEWS CONT :

AUCKLAND (cont)

New Caledonia, Australia, Antarctica, but whole groups of other plants are completely unrepresented. The survivors have undergone further evolution under the climatic conditions of their new home. There have arisen endemic varieties, species and sometimes even genera which are found nowhere else. Here lies a vast field of study. Perhaps the seed which arrived on the ocean wave brought with it not the whole gene population but only a special combination which led to this species change.

A striking fact is that since Cook's discovery the total vascular flora has increased from 173 to 417 species, but 244 of these latter are introduced weeds, horticultural and agricultural species.

What is the current attitude of the Norfolk Islander to its unique heritage of vegetation? There are reserved areas of 1807 acres, many insecurely fenced and with gates wired open, where cattle freely roam. Many of Cook's listings have disappeared and large areas of the land are overrun with thickets of luscious guavas, *Lantana* spp, *Solanum* spp, etc. I repeat - I spent ten sad days at Norfolk

Members who saw the TV film of the Queen's Garden at Buckingham Palace should follow it up by reading Peter Coats' book 'The Gardens of Buckingham Palace' (M. Joseph) and learn something of the history of this delightful piece of land in the heart of London. "The story of the garden at Buckingham Palace may fairly be said to start 350 years ago, in the reign of King James I"... are the opening words of Part 1 - 'The Mulberry Gardens.' This part covers the history of the garden; part 2, the garden today, and part 3, the wild life in the garden. There are numerous illustrations in the book including one of Queen Charlotte for whom *Strelitzia reginae* (Bird of Paradise plant) was named, Sir Joseph Banks describing it 'as a just tribute to her botanical zeal and knowledge'.

During the 1800's in France, a nurseryman grafted a purple broom on to a laburnum. Apparently the graft did not 'take' properly but from the callus a flower grew which differed from both the broom and laburnum and has evidently been propagated under the name of *Laburnocytisus* (= *L. adamii*) which, as well as producing distinctive flowers, can produce individual branches bearing either pure laburnum or pure broom flowers. Quite a versatile shrub although the colour combination doesn't sound harmonious. Is this shrub available in NZ?

FROM THE POVERTY BAY HORTICULTURAL SOCIETY "CUTTINGS" :

Did your garden become a dust-bath for sparrows in last summer's heat, and you just able to water a few special things? I have discovered in a Gisborne nursery a newer medium - fibre-ised pine bark. A top layer of this on the garden would not only look attractive but, if applied now (October), conserve moisture - and what a pleasure to your earthworms!

Thirty interested people enjoyed a bus trip to Mr and Mrs Berry of Tiniroto. Mr Berry conducted us over the farmland hills to inspect rare trees and plantings of rhododendrons.

DISTRICT COUNCIL NEWS CONT :

SOUTH TARANAKI : Mr L.P. Trott, of Hawera, recently gave a talk on the Staghorn fern. Mr Trott is wellknown for his skill in cultivating ferns, indoor plants, cacti and succulents, and explained how to deal with the interesting Staghorn fern. He demonstrated how to attach the plant to its host and how to feed it once it was firmly in place, recommending banana skins as an excellent fertiliser. Colour slides of specimens, grown to perfection, in the Oasis Gardens at Brisbane, showed just how appealing the Staghorn could be, given the right treatment and the environment.

Advice and encouragement to orchid lovers was ably given by Mr Alan Gray of Whenuakura, who had on display some of his lovely specimens in flower. He explained how he deals with the plants to achieve such good results and answered a number of questions from his interested audience. He also invited members to visit his orchid house at a later date.

WELLINGTON : Mr Graham Walton, Chief Advisory Officer (Apiculture) with the Ministry of Agriculture and Fisheries, spoke about beekeeping and the overall importance the industry has in connection with our export earnings. \$100m of horticultural exports depends on bees. He made special mention of the rapid expansion of the kiwi fruit industry with vines now being grown commercially from Northland down as far south as North Westland. This year, 4,000 beehives were used to ensure a good set of fruit and 13,700 tonnes of kiwi fruit worth \$30m were exported. It is predicted that by 1990 81,000 tonnes of fruit worth \$100m could be exported by this industry and to achieve this aim some 20,000 hives will be needed.

Graham explained why such numbers of hives were necessary (8 per hectare) to pollinate kiwi fruit. It appears that the pollen is unattractive to bees and the flower has no nectar so the only way to ensure successful pollination is to swamp the area with hives so the bees are forced to collect the kiwi fruit pollen. Each hive holds a colony of about 60,000 bees at the peak of the summer season.

An economical unit for an apiary consists of 500-1,000 hives, with 700 being about the maximum that one man can manage. Arataki Honey Ltd, of Havelock North, is one of the largest beekeeping enterprises in the Southern Hemisphere with 14,000 hives.

The honey yielded from a hive averages about 28 kg. The gross annual yield for NZ is 6,000 tonnes and as we are one of the highest consumers of honey in the world, only a third of this amount is exported.

A recent assessment of the potential of honey-dew honey from the beech forests down south is being studied. An estimated 60,000 beehives could be utilised to produce in excess of 3,000 tonnes of honey-dew honey with a \$5m export value. A ready market for this commodity exists in Eastern Europe.

Oil grows on bushes ! Only one alternative source has been found for the valuable whale sperm oil and spermaceti and that is the Jajoba bean. The first South African plantation of this "miracle"

DISTRICT COUNCIL NEWS CONT :

WELLINGTON (cont)

American bean has been started in the Duineveld region of the Southern Cape. Not only do Jojoba (pronounced ho-bo-bah) obviate the hunting of the giant sperm whales (banned by every country except Russia and Japan), but the oil treasuries they contain can also replace mineral oils now used in car differentials and automatic transmission systems.

The oil from the jojoba bean is a tried and tested substitute for sperm oil, and is used, in particular, for high pressure lubrication, for protecting machine tools, for pharmaceuticals and cosmetics, and in the printing, paper and textile industries. The plant flourishes on "worthless" sandy soil which cannot carry any crop except Protea flowers. Picking is done by hand but a machine picker resembling a vacuum cleaner, is being developed in America. The bush is tough enough to survive a year without water and has a life estimated at more than 100 years. It is also remarkably pest free.

CANTERBURY : Saturday 22 September saw the visit of 50-60 Canterbury RNZIH members to the Zealandia Nursery Complex at Avoca Valley, near Christchurch. The Manager, Mr Ray Holland, led the party around the complex, pointing out the most efficient heating/cooling system and automatic temperature sensing devices - a boon to the busy nurseryman. Members were impressed by the neatness and cleanliness of the place, which, we were informed, is the way it is kept at all times. This nursery is a holding nursery only, and supplies to retail outlets and for export. Heating is by coal-fired furnace, and we also saw the machine-mixed potting mix being made.

OTAGO : Following the AGM, a panel discussion was held on the theme "Colour in the Garden". Mrs Phil Warren started the ball rolling by discussing the value of rhododendrons and associated plants in providing colour in the garden over an extended period. Ralph Markby continued with some interesting information on alpine and smaller plants, while David Sumpter concluded by listing a number of trees and shrubs, which, with flowers and foliage, provide a seasonal range of colour. This panel discussion was most successful and with each speaker drawing on a fund of personal knowledge and experience, provided us with some excellent ideas. The ensuing general discussion stimulated a very useful and informative exchange of ideas.

Trees of Interest - this booklet compiled by the Dunedin City Council Planning Department, as part of a review of the District Scheme, is available and worthwhile having.

MANAWATU : The Spring edition of "The Cultivator" reports that the Manawatu District Council of RNZIH is becoming more active of late. In October a presentation of trees was made to the Girl Guides Camp at Ashhurst - this received press coverage from the three local papers.

The Council intends to organise theoretical and practical coaching for local NDH students next year.

The Horticultural Research Station at Levin would like to hear from anyone who has plants of Waratah which may be suitable as cut flowers. They are going to do trials to make selections of suitable types, with a view to export markets.

THE NATIONAL ROSE SOCIETY OF NEW ZEALAND INC.

Benefits of joining a Rose Society :

There are District Societies throughout NZ who arrange :

Monthly meetings, with guest speakers,
Table shows ... competitive displays.

Members become eligible to attend Judging Classes and
examinations,

" " " " travel on Official Tours,
" " " " attend Conventions held in
Spring/Autumn each year.

Visits to nurseries, private gardens, neighbouring
Societies and Field Days, together with pruning
demonstrations and spraying tuition.

Financial Members receive :

NZ Rose Annual yearly,

A cultural handbook (when you first join),

"The Rosarian" - issued three times a year.

Members' badges are available for purchase at 95c each.

If you wish to contact your local Rose Society, write to :

Mrs Heather MacDonell, Secretary, National Rose Society of NZ,
17 Erin Street, Palmerston North.



PUKEITI RHODODENDRON TRUST - NEW PLYMOUTH

A comprehensive planting report has recently been completed by the executive planting committee. Over the next few years members will see the results of this planning in the development of new areas and the consolidation of others, with particular emphasis being placed on the extension of our already large species collection. When you visit Pukeiti, keep an eye out for the new planting site below the hybrid block on the northern side. An all weather track has been formed which goes in from below the Hybrid block and emerges in the Nuttallii Valley. Here you find new plants of species including *Rh. praeevernum*, *Sutchuenense*, *Griffithianum*, *Campanulatum*, *Ovatum*, *Stamineum*, *Arizelum*, *Uvariifolium*, *Fulvum*, *Fulgens*, to name but a few. There are several ideal sites in this area also for growing the epiphytical rhodos such as the *Maddenii* and *Malesian* series.

Rhododendrons have the potential to exceed in growth far and away what one would normally expect. A magnificent Kingdon-Ward *Rh. Giganteum* in the large-leaved species area of Pukeiti has grown to such proportions in 25 years that the track alongside it has had to be re-routed, which meant an old rata trunk over 4' through had to have a 12' section cut out of it!

Progress on major capital works is well under way. The Perrott Glasshouse at Pukeatua was dismantled and transported to Pukeiti in September in an operation of military precision. The visitor administration block, once completed, will be moved in from the Taranaki Polytechnic.

Notable and Historic Trees

The RNZIH Notable and Historic Trees Committee wishes to bring to the attention of members that the procedure for writing to Tree Registration Officers is through the appropriate District Council, marked "Attention Tree Registration Officer".

Tree Registration Officers appointed to date :

Poverty Bay -	Mr W.H. Hay, P.O. Box 52, Gisborne
North Taranaki -	Mr G. Fuller, 25 Victoria Road, New Plymouth
Canterbury -	Mr W. Fielding-Cottrell, Springs Road, Christchurch R.D.3
Waikato -	Mr I. Gear, Morrinsville Road, Newstead R.D.4, Hamilton
Otago -	Mr S. Kemp, C/- M.A.F., Private Bag, Dunedin
Auckland -	Mr A. Tagg, 5 Avicé Crescent, Remuera, Auckland 5
Wellington -	Mr R. Mole, C/- Parks Dept., Wellington C.C., P.O. Box 2199, Wellington

Unofficial Tree Registration Officers are :

Manawatu -	Mr F. Mason, P.O. Box 155, Feilding
	Mr J. Reeves, C/- M.A.F., Private Bag, Palmerston North
	Mr Brian Soper. C/- Parks Dept., Blenheim Borough Council, Blenheim

The RNZIH Notable and Historic Trees Committee has recently become grateful recipients of a Mobil Environmental Grant of \$500, this sum to be used to provide wooden plaques to hold the metal name plates provided by Mr Peter Skellerup's founding donation.

Two recent additions to the Register :

1. A kauri, *Agathis australis*, in Eastbourne,
2. A gold-leaved chestnut, *Castanopsis cuspidata*, in Lower Hutt.

N.B. : the oak, *Quercus robur*, presented by Hitler to Jack Lovelock, is actually in the grounds of Timaru Boys' High School, not in Invercargill, as stated in Bulletin 13! This error is regretted - thanks to the reader who pointed it out.

RNZIH REGIONAL HORTICULTURE COMMITTEE :

Some members may not be familiar with the Regional Horticulture Committee, which under the chairmanship of Mrs W. Shepherd of Wellington, is responsible for the organisation and ensuring the viability of RNZIH schemes such as the Plant Evaluation Scheme, Notable and Historic Trees Scheme, the investigation of possible submissions to Government on matters of horticultural and environmental importance, and the investigation of suggestions from all sources on such matters as Judging qualifications, etc, and the production/reprinting of RNZIH books such as "Flowers for Shows" and "Floral Art Handbook".

Book Review

HORTICULTURE

by R.Gordon Halfacre and John A.Barden

McGraw Hill Book Co., 1979

This is a well produced book of 722 pages covering the essentials of Horticulture. Divided into a number of parts - Principles, Plant Environment, Horticultural Practices and Branches of Horticulture, the stage is set for a logical treatment and integration of the diverse sciences and practices comprising Horticulture. In the first two parts, there is an excellent treatment of the scientific aspects which support or provide the bases for practices and industry organisation. Coverage in Part I includes Plant Classification, Plant Cells, Vegetative Growth and Development, Reproductive Development and Plant Metabolism.

Part II comprises chapters focussed on Temperature Relations, Water Relations, Light Relations, Soils and Nutrition, while Part III consists of chapters on Mechanisms of Plant Propagation, Pruning and Growth Control, Pest Control and Marketing, Storage and Food Processing.

Part IV is made up of accounts of Pomology, Vegetable Production, Floriculture, Nursery Production and Landscape Design. The book is the best of its kind and is suitable for a wide spectrum of students and readers. Degree students in horticulture, botany students and agronomists and other graduates with interests extending beyond their immediate disciplines will find this a very useful introductory text. Apart from a few pages in the chapter on Plant Metabolism, the whole of the text is very suitable for frequent consulting by the N.D.H. student, horticultural apprentices, and University Diploma students.

The amateur horticulturist will find this a very beneficial reference text, particularly for those beginning to extend their knowledge of horticulture and improve their skills. This is indeed the best comprehensive account of horticulture published and presented in such a straight forward manner.

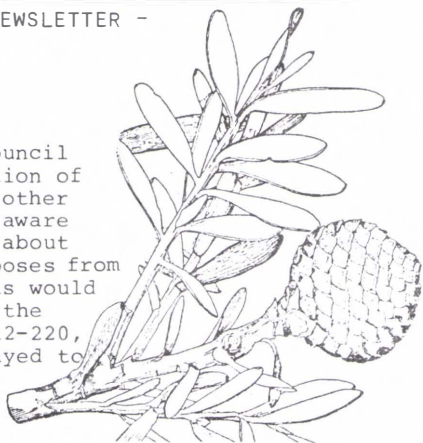
The book is readily available through any book store.

- Prof J.A. Veale, Massey.

FROM THE NATURE CONSERVATION COUNCIL NEWSLETTER -
JUNE - AUGUST 1979

NOTICE : REMOVAL OF NATIVE BUSH

An ad hoc committee of the Forestry Council is at present considering the application of the indigenous forest policy to lands other than state forests. If any reader is aware of examples of where bush is being or about to be removed for timber or other purposes from lands other than state forests, details would be welcome. They can be forwarded to the Nature Conservation Council, P.O.Box 12-220, Wellington North and they will be relayed to the appropriate committee.



IN "THE GARDEN", (Journal of the Royal Horticultural Society) Vol. 105 part 5, May 1979, Patrick Synge reviews the first major instalment in the series listing plant species that are under threat of extinction in their natural habitats.

Some extracts should prove of particular interest to our readers :

THE IUCN PLANT RED DATA BOOK *

The Red Data Books are among the most useful publications of the International Union for the Conservation of Nature and Natural Resources (IUCN), but this represents the first plant one on a major scale, although even the 250 sheets included here from 90 different countries represent only a small proportion of over 25,000 plants estimated to be threatened. It represents a piece of the most massive international collaboration.

There is the *Tecomathe speciosa*, a Bignoniaceous climber from the Three Kings Islands off the northern coast of New Zealand. Only one plant was discovered in 1945 and in 1951 there was still only one, climbing to the top of a large *Leptospermum*. The goats which threatened its seeding have now been removed and the islands, which are rarely visited, have been declared a Flora and Fauna Reserve. However, it sets seed freely and is now growing in several English gardens, including Wisley. It is a lovely plant with large waxy, curved, tubular white flowers borne in clusters.

Another threatened plant is the Chatham Islands forget-me-not, *Myosotidium hortensia*, a much desired but sadly scarce plant in horticulture, said to thrive on a diet of rotten fish, since it is always found close to the sea. The flowers are bright blue and the leaves large, green and fleshy.

What can gardeners do about conservation? I think the first thing is greater awareness of the problem and the plants endangered. If you are lucky enough to grow any of them, cherish them and propagate them, and distribute them to other gardeners. Botanic gardens throughout the world are making great efforts to maintain a stock of rare and endangered plants of their area and assist in efforts to keep a stock of them in the wild where they grow. Large reserves are desirable, but not always necessary. A fence around an area of an acre or two to keep stock out, and frequent visiting to check the plants are not being swamped or overgrown, are all helpful and can be done on a small scale locally.

We do not know why one plant may be rare and endangered, while another adjacent may be abundant and spread freely. Some require most specific soil and climate conditions, others need only to be protected from human and animal disturbance. Perhaps the greatest threats are to the plants of tropical forests which are being cut down at a terrifying rate and the loss of which may alter the climates of large areas.

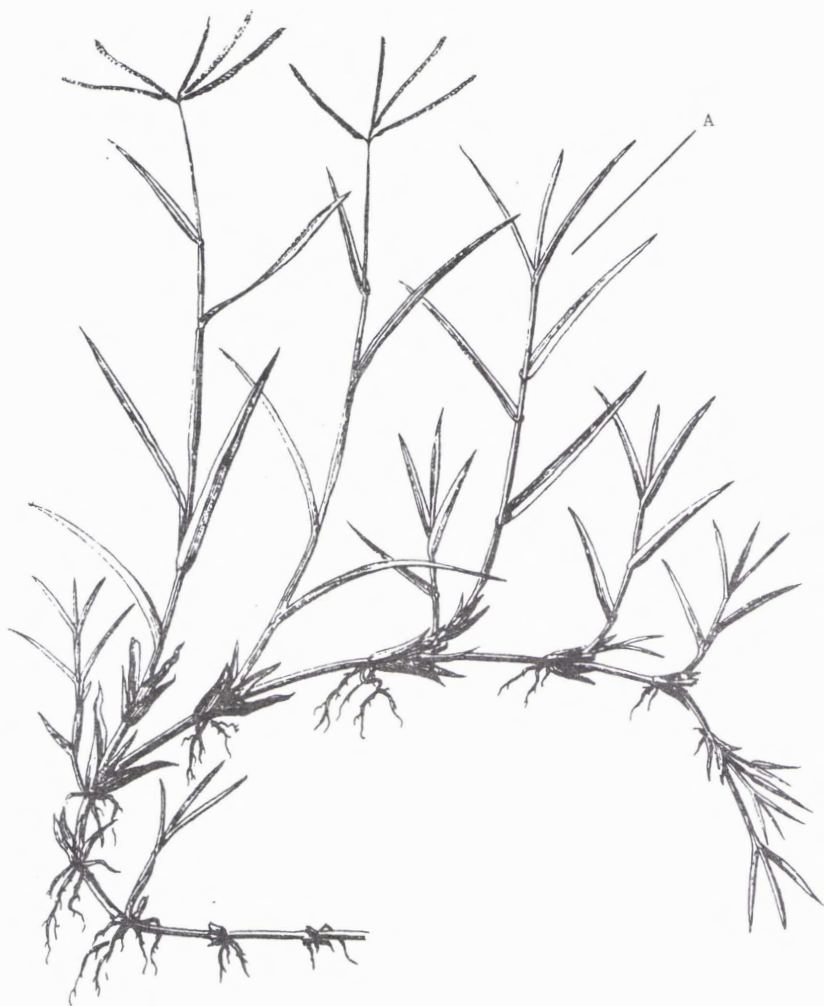
* the IUCN Plant Red Data Book, is compiled by Gren Lucas and Hugh Synge for THE THREATENED PLANT COMMITTEE. Published with the assistance of the The World Wildlife Fund. pp.540. Available from the RHS at 10.90.

Know Your Turfgrass - 6

D.E. ALDOUS

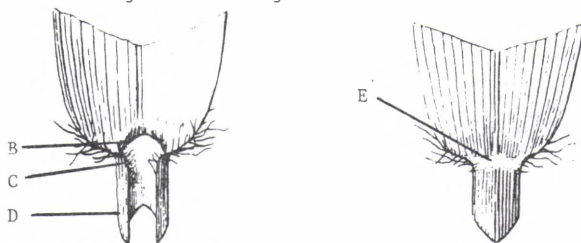
INDIAN DOUB

(*Cynodon dactylon*)



KNOW YOUR TURFGRASS - 6

Indian Doub - *Cynodon dactylon*



- A. Vernation : folded in bud, blade-sharp pointed, smooth to sparsely pubescent.
- B. Ligule : fringe of hairs (2 - 5 mm).
- C. Auricles : absent.
- D. Sheath : compressed to round, loose, split.
- E. Collar : continuous, narrow, glabrous, hairy on margins.

REMARKS : Adapted to the warmer parts of New Zealand, Indian Doub (bermudagrass in the US) is a sod-forming perennial grass which spreads both by stolon and rhizomes. Grows in a wide range of soils. High tolerance to saline conditions. Not shade tolerant. Tolerates wide soil pH range of 5.5 to 7.5. Requires medium to high density for turf culture. Cutting height 1 - 2cm, although improved varieties (Tifgreen, Tifdwarf, etc) can be maintained at 5 mm. Prone to thatch. The more important varieties used for turf overseas are Tifgreen (Georgia AES 1965), Santa Ana (California AES 1966) and Midway (Kansas AES 1965).

ANNUAL GENERAL MEETING 1980

Nominations for the award of Associate of Honour of the Royal NZ Institute of Horticulture, for election at the 1980 Annual General Meeting, should be forwarded to the Secretary before 15th February 1980. District Council Secretaries have been sent notes on the procedural policy for AHRIH nominations and members wishing to initiate nominations through their District Council should contact their local Secretary.

Members and District Councils are reminded that remits and/or other notices of business for consideration at the A.G.M. should also be in the hands of the National Secretary by 15th February 1980.

The 1980 Annual General Meeting will be hosted by the Waikato District Council in Hamilton. The date has yet to be finalised but preliminary plans are in train and an excellent programme will be provided for attending members.

- R.A. Foubister,
National Secretary RNZIH.

TO BORNEO IN SEARCH OF FLOWERS -



Mr Os Blumhardt, a Maungatapere (Northland) nurseryman, and longtime member of the RNZIH, went searching for rhododendrons in Borneo earlier this year. Before leaving for his three weeks' trip, Mr Blumhardt had to obtain an import licence, detailing the items he planned to bring back, and from where they came.

Mr Blumhardt travelled first through Thailand and ordered a number of different orchids and these eventually arrived in New Zealand at the same time as he returned home. Then he set off for Sabah, Northern Borneo, and the real purpose of his journey.

Accompanied by a guide, Mr Blumhardt made his way up Mt Kinabulu, more than 4084 metres high. He stayed in huts and lived mainly on a diet of peanuts, canned corned beef and vermicelli. During his travel he collected 11 or 12 different varieties of rhododendrons, some of them looking very unlike the common garden variety.

One of the more unusual varieties had leaves like coarse grass and red bell-like flowers. The species of rhododendron on Mt Kinabulu are many and varied. An example is the heather-rhododendron (*R. ericoides*) a shrub with needle-leaves set closely around the twigs, and scarlet flowers about $\frac{1}{2}$ " long. *R. lowii* is the other extreme with thick twigs, large leaves and clusters of scentless yellow or pinkish flowers.

Mr Blumhardt also collected a number of trees and shrubs and says that many of them are similar to New Zealand natives such as rimu and manuka. When he returned to New Zealand, he had to leave most of his plants and seeds behind in Auckland while they were checked. All the plants he brought back have to be placed in quarantine for one season and checked in every month by a Ministry of Agriculture and Fisheries official.

The plants will be ready in about two or three years to sell, but Mr Blumhardt doesn't think there will be a great market for them. They will be of interest mainly to a small group of gardeners interested in unusual varieties.

Mr Blumhardt made the trip because of his own interest in different plants rather than for commercial reasons, although he may eventually make enough money from the new plants to cover his expenses. The trip also provided him with some unusual plants to trade with non-commercial growers in Australia who have unusual species he would like to get his green fingers on.

RICH DISPLAY - The richness of colour to be found in the NZ bush was well demonstrated in the Whangarei Spring floral carpet festival, by the display produced by the Whangarei Native Forest and Bird Protection Society.

Competing with spring bulbs, camellias and other colourful seasonal flowers, the society produced a richly hued carpet solely from native blooms. Included were manuka, koromiko (five shades), kaka beak and kowhai, kumarahou, puriri and rangiora flowers. Background foliage provided further colour contrast with kaiwaka, rimu, karaka, variegated coprosma and five-finger. contributed by Mrs Iris Bradford-Smith,

PROPAGATION OF RHODODENDRONS - DR J.S. YEATES, AHRIH, PALMERSTON NORTH.

*(Reprinted from "The Cultivator", newsletter of the Manawatu
RNZIH District Council.)*

To write a brief account of Rhododendron propagation is not an easy matter, because for one thing, the genus Rhododendron includes a wide diversity of types which differ greatly in their ease or difficulty of propagation.

Of course, if propagation by seed is involved, the method is rather similar for all types - but the seedlings will rarely resemble the seed parent exactly, even if bees have not cross-pollinated them. The species of Rhododendron, as opposed to the hybrids mostly sought by the home gardener, come reasonably true from seed, and if you try hybridising Rhododendrons, you will naturally want to grow the seed and one in a hundred may prove to be a choice plant when it flowers.

To grow seed of Rhododendrons (and Azaleas), scatter the seed very thinly on the surface of a mixture of wet peat and sugar fine pumice. Alternatively use wet sphagnum moss, or old powdery rotted material from a log lying in the bush. Do not cover the seed, but water it lightly with a fine rose on a watering can, cover with two thicknesses of wet newspaper and then a sheet of glass. Any sort of container can be used such as a small plastic container about 15cm x 10 cm and 15cm deep, or for larger quantities a regular seedling tray filled to about 13mm from the top. Sow just after the shortest day or early August, keep in a warm place (15C-21C) and do not let the sunshine directly on to it. In 3-4 weeks the seed should sprout. Remove the paper but leave the glass for a few weeks more. After 2-3 weeks prop up the glass a little to harden the seedlings. When they form true leaves (usually at less than 13mm high) prick them out in a similar mix about 25mm apart, keep from direct sun. When about 20mm high, space them out to 5cm apart in boxes of peat and sand or pumice and again grow them in shade. Keep them moist. By autumn they should be ready to plant outside, though they may be left in the box for another year. Azalea seedlings grown in this way will reach at least 30cm in height if grown all the summer in a moist shade house.

So much for growing from seed. If you want to propagate vegetatively from a particular plant you admire, there are the following options available, some of use for one type of Rhododendron, others for different types. Layering is a simple method that can be used for all types which have branches near to ground level. Take a shoot near ground level, cut a tongue in the past season's wood where it is still green, cutting from base towards the tip of the shoot. Twist the shoot sideways so that the tongue projects slightly sideways from the shoot, and bury it 25mm or 50mm in the ground, preferably in a rich leaf mould sort of soil, and cover the buried part with a heavy stone to keep it in place and hold moisture in the soil. After about a year cut it from the parent bush but leave in place for another year to get it well established on its own roots. This method was largely used in the nursery trade in earlier years, but now cuttings or grafting are most used. Methods used depend on the group of Rhododendron being propagated. These types are (1) the small-leaved evergreen Azaleas which are fairly easily raised from cuttings of half-ripe wood 2-3 months after flowering and inserted

PROPAGATION OF RHODODENDRONS (CONT)

in a sandy-peaty mixture in a shaded frame, or in a box totally enclosed in a polythene bag and kept in a fairly warm place in good light but without direct sunlight; (2) the lepidate or scaly-leaved Rhododendrons like *fragrantissimum* can usually be propagated as above. These are the types which have small mushroom-like scales on the underside of their leaves, plain under a magnifying glass. The shoots are also taken about 3-4 months after flowering, of current year's growth and usually root better if a slice of 13mm long and a third of the thickness of the shoot is cut off and the base of the cutting dipped in a hormone powder. The cutting should be lightly tapped to remove excess powder and then planted in a small hole firming with the fingers. The mixture should be peaty and moist containing a third pumice to help in aeration. Best success is obtained in a well shaded glasshouse which has automatic mist control and heating by an electric cable underneath to 20C. A deep box or shaded frame tightly covered with polythene and damped down daily could also be used. The weaker mixtures of hormone powder (1 or 2) are best for soil cuttings and no.3 for those cuttings taken from more mature shoots; (3) the non-lepidate Rhododendrons, the most often grown which can be raised by the above method, some varieties rooting fairly quickly 2-4 months, while others are very difficult and for these grafting is usually done.

For grafting, the root stock must first be grown in a pot. One method is to grow seedlings and to get them established and actively growing in 12cm pots in a shadehouse. A better alternative is to grow an easily rooted variety from cuttings taken in mid-December - Sir Robert Peel is a good variety to use. In the following spring, pot them into 12cm pots in a peat and sand mix with very little fertiliser. Grow them in a shade house until March when they are ready to be grafted. Cut the top off 6mm above the second leaves and then with a sharp knife or razor blade cut out the small buds in the remaining leaf axils. Cut down the middle of the stem for 20mm and then take the scion to be grafted. It should be of about equal thickness to the stock and cut it to form a wedge using a very sharp blade, about 12mm long at the base. This should be inserted into the split stock - ensure that the bark matches on one side at least, and that the scion is pushed firmly right to the bottom of the cut in the stock. Bind it firmly with raffia or grafting tape. Next get a small handful of wet spagnum moss and wrap it over the length of the cut in the stock and 12mm below. Tie the wet moss in place before slipping a polythene bag over the scion and top two leaves of the stock. The bag should be firmly tied below the cut. The leaves will give off moisture, keeping the atmosphere in the bag quite moist. Keep the grafted plant in a shady place and well watered. Inspect at intervals and break off any shoots that start to grow on the stock. After six weeks or more, leave the bag untied but still in place, until the grafted scion shows signs of growing, but even then keep successful grafts in a moist shady place until well established.

The most difficult evergreen Rhododendrons to graft are the really large leaved types related to *R. grande*, which often have leaves 30cm or more in length. They have very thick shoots and need to be grafted on to the seedlings of related types. (All Rhododendrons are best grafted on to stocks of related types.)

One easy method of grafting is to grow stock plants in the open

PROPAGATION OF RHODODENDRONS (CONT) , , , ,

until they have thick stems, 20mm thick. Then about September cut them off 8cm above the soil, split them open as above using a butcher's knife and hammer. Then insert one scion bark to the bark of the stock. Preferably cover the cut surface with some grafting wax, cover the whole with a polythene bag with the edges buried in the soil, and some lengths of heavy wire inside the bag to hold it clear of the grafted plant. Then shade the whole plant.

When the scion makes spring growth remove the plastic bag, but leave in the shade until the new growth has hardened off. By establishing scions on a large root system in this way, a comparatively rapid growth to a large plant is possible.

The propagation of deciduous Azaleas has so far not been mentioned. They are the most difficult of all. Soft cuttings are taken in November or December and usually rooted with bottom heat and controlled mist. Once well rooted they are given artificial light by night to force them into growth. If they do not make rapid growth before winter the majority will fail to survive. They can be rooted in a cold frame under carefully controlled conditions, but it is not easy. Fortunately, by trial crossing of good parents, seedlings of excellent quality can be grown to flower in two or three years.

THE HISTORY OF GARDENING

Who were the first gardeners to cultivate decorative as well as edible plants? Antony Huxley's book on the "History of Gardening" (RHS) tells of mankind's fascination over the years with gardening - the instinct we have to have "something growing".

The first garden tools were probably a simple pointed stick, and reindeer antlers, which progressed to a wooden digging stick. The Egyptians used picks of two sticks tied together. When metal was developed garden tools advanced. The Chinese used a metal-headed stick by the year 0 A.D., but the Romans were the first to use metal tools in a big way, including spades, mattocks, rakes, hoes. Over the years, the hoe has been elaborated in many ways. The fork did not appear until the 16th century.

Pest Control - The Romans tried magical methods, carbonate of soda. In 1742 one enterprising Englishman kept pet seagulls to keep down pests. In the 19th century the first use of sulphur to attack disease and nicotine against insects in general is recorded. In the 20th century synthetics were introduced, including the "wonderful" DDT.

- notes from Radio NZ National Programme, 18/8/79

FAGUS SYLVATICA - EUROPEAN GREEN BEECH.

The Grounds Maintenance Section of the University of Otago is interested in obtaining large, well grown specimens (3 - 5m) of the European green Beech *Fagus sylvatica*.

Possible suppliers - please contact Mr R.M.Scott, Grounds Officer,
Works & Services Dept.,
University of Otago,
P.O. Box 56, Dunedin.

COASTAL PLANTING IN AUCKLAND

In our last Bulletin we featured the HERBS and SHRUBS sections of the booklet "Coastal Planting in Auckland", produced by the Auckland Regional Authority Parks Department. This is the last section, featuring:

TREES

Botanical name	Common name	Native plants	Hardiness in extreme conditions	Soils	Attractive features	Pruning	Comments
<i>Acacia longifolia</i> 'Sophorae'	Sydney golden wattle.		Hardy.	Sandy.	Form and flowers.		Thrives in moving sand. Makes a good screen for less hardy plants.
<i>Agonis flexuosa</i> .	Willow myrtle.		Shelter.	Average.	Form and flowers.		A graceful evergreen tree withstanding average coastal conditions.
<i>Araucaria heterophylla</i> .	Norfolk Island pine.		Hardy.	Average.	Form.		A large coastal tree for spacious situations.
<i>Banksia integrifolia</i> .	Coastal banksia.		Shelter.	Average.	Flowers.		Fast-growing hardy tree.
<i>Casuarina equisetifolia</i> .	Sheoke.		Shelter.	Sandy to average.	Form.		The best species for Auckland's coastal conditions. If this species is not available, <i>C. gauduca</i> is a suitable subject, although making a smaller tree.
<i>Cordyline australis</i> .	Cabbage tree.	★	Hardy.	Most.	Form and flowers.		Hardy coastal tree. Tolerates wet soils.
<i>Corynocarpus laevigatus</i> .	Karaka.	★	Shelter.	Average.	Leaves.		Slow-growing. Very hardy once established.
<i>Dodonaea viscosa</i> .	Akeake.	★	Hardy.	Most.	Leaves and fruit.		A quick-growing hardy tree for short-term shelter.
<i>Dysoxylum spectabile</i> .	Kohekohe.	★	Shelter.	Good.	Form and flowers.		Hardy when established. Produces panicles of white flowers from trunk.
<i>Eriobotrya japonica</i> .	Japanese loquat.		Shelter.	Average.	Leaves and fruit.		Attractive as well as supplying edible fruit.
<i>Erythrina x sykesii</i> .	Coral tree.		Shelter.	Most.	Flowers and leaves.		Very easily grown from woody cuttings. Semi-deciduous. Flowering early spring.

<i>Eucalyptus botryoides</i> .	Coastal gum.		Hardy.	Most.	Form.		A large fast-growing tree which will tolerate damp and saline situations. Outstanding in resistance to salt winds.
<i>Eucalyptus ficifolia</i> .	Scarlet gum.		Shelter.	Average.	Form and flowers.		Prefers a warm situation. Frost tender when young. Attracts birds.
<i>Eucalyptus leucosylon rosea</i> .			Shelter.	Average.	Form and flowers.		Popular small tree. Hardier than the scarlet gum. Autumn flowering attracts birds.
<i>Eugenia smithii</i> .	Acmena (monkey apple).		Shelter.	Moist.	Form and fruit.	To shape.	A good hedge plant as well as a shelter and shade tree.
<i>Ficus macrophylla</i> .	Moreton Bay fig.		Shelter.	Average.	Form and leaves.		Large tree for parks.
<i>Lagunaria patersonii</i> .	Norfolk Island hibiscus.		Hardy.	Most.	Form and flowers.		One of the hardiest of medium-sized coastal trees. Pyramidal habit. Profusion of small pinkish flowers.
<i>Meryta sinclairii</i> .	Puka.	★	Hardy.	Average and well drained.	Leaves.		Requires a loamy soil. Frost tender. Contributes tropical character to planting.
<i>Microsideros excelsa</i> .	Pohutukawa.	★	Hardy.	Most.	Form and flowers.	To shape.	Ideal coastal tree for spacious location. Useful for replanting natural areas.
<i>Myoporum insulare</i> .	Tasmanian ngaio.		Hardy.	Most.	Leaves.	To shape.	Ideal for informal shelter.
<i>Myoporum laetum</i> .	N.Z. ngaio.	★	Hardy.	Most.	Form.	To shape.	Provides initial quick shelter, but if allowed to grow unchecked will form a shade tree.
<i>Pittosporum crassifolium</i> .	Karo.	★	Hardy.	Most.	Leaves.	To shape.	A good hedge plant if pruned regularly in early stages. Will tolerate draught and shade.
<i>Pinus radiata</i> .	Monterey pine.		Hardy.	Most.	Form.		Although a forest tree, useful for shelter and shade in spacious locations.
<i>Sophora microphylla</i> .	Small-leaved kowhai.	★	Shelter.	Good.	Form and flowers.		Requires free-drainage. Does not do well where grass is a problem.
<i>Vitex lucens</i> .	Puriri.	★	Shelter.	Good.	Form, flowers and berries.		Requires shade and shelter when young. Ideal park tree. Attracts birds.

WE WELCOME THE FOLLOWING NEW MEMBERS :

GENERAL MEMBERS :

Mr A.J. Dench, Palmerston North
Mrs R.N. Barton, Auckland
Mr J.H. Strickett, Auckland
Mr A. Malcolm, Christchurch
Sir Edward & Lady Sayers, Dunedin
Mr David McIntosh, Lower Hutt

STUDENT MEMBERS :

Mr D.E. Clayton-Greene, Cambridge
Mr M.F. Ellis, Mosgiel
Mr D.T. Sole, Wellington
Mr S.P. Stockley, Taupo
Mr B.A. Andrews, Rangiora
Ms B.P. Gore, Pukekohe
Mr I.R. Haire, Auckland
Mr J.C. Lawry, Ngawha Springs
Ms J.V. Perkins, Maungatapere
Ms R.L. Smith, Otane
Mr S.C. Classen, Motueka
Ms K.R. Davies, Christchurch



Mr E.F. Foreman, Waitara
Mr C.W. Hannan, Upper Hutt
Miss C.R. Kennedy, Tauranga
Mr G.B. King, Blenheim
Mr R.S. Koller, Auckland
Mr R.P. Reed, Auckland
Mrs L.E. Smith, New Plymouth
Mr J. Scofield, Manapouri
Mrs M.H.C. Scofield, "
Mr S.A. Stirrat, Pukerua Bay
Mr W.G. Bryan, Lower Hutt
Mr M.P. Farrell, Christchurch

RNZIH ANNUAL JOURNAL 1979 -

The 1979 edition of the RNZIH Annual Journal is available from the Secretary, P.O.Box 12, Lincoln College, Canterbury, at a cost of \$4.50. Members who have paid for their copy will receive it by post. Others may order a copy by forwarding cheque/money order for \$4.50 to the address above.

The 1979 edition includes articles on :

"Pioneer Canterbury Nurserymen", by Mr S.A. Challenger,
"The Passing of NZ Lowlands Forests", as presented by Dr A. Edmonds, Banks Lecturer for 1979,
and several papers from the NZ Institute of Agricultural Science Institute Conference held in August 1979 at Lincoln College.



DISTRICT COUNCIL SECRETARIES

- AUCKLAND :
Mrs K.J. Veal, FRIH,
9 Gray Crescent,
Torbay, AUCKLAND 10.
- BAY OF PLENTY :
Mrs D.A. Hardwick, FRIH,
Minden Road,
Te Puna, TAURANGA.
- CANTERBURY :
Mr Roy Edwards,
Dept. Horticulture, Landscape
& Parks,
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