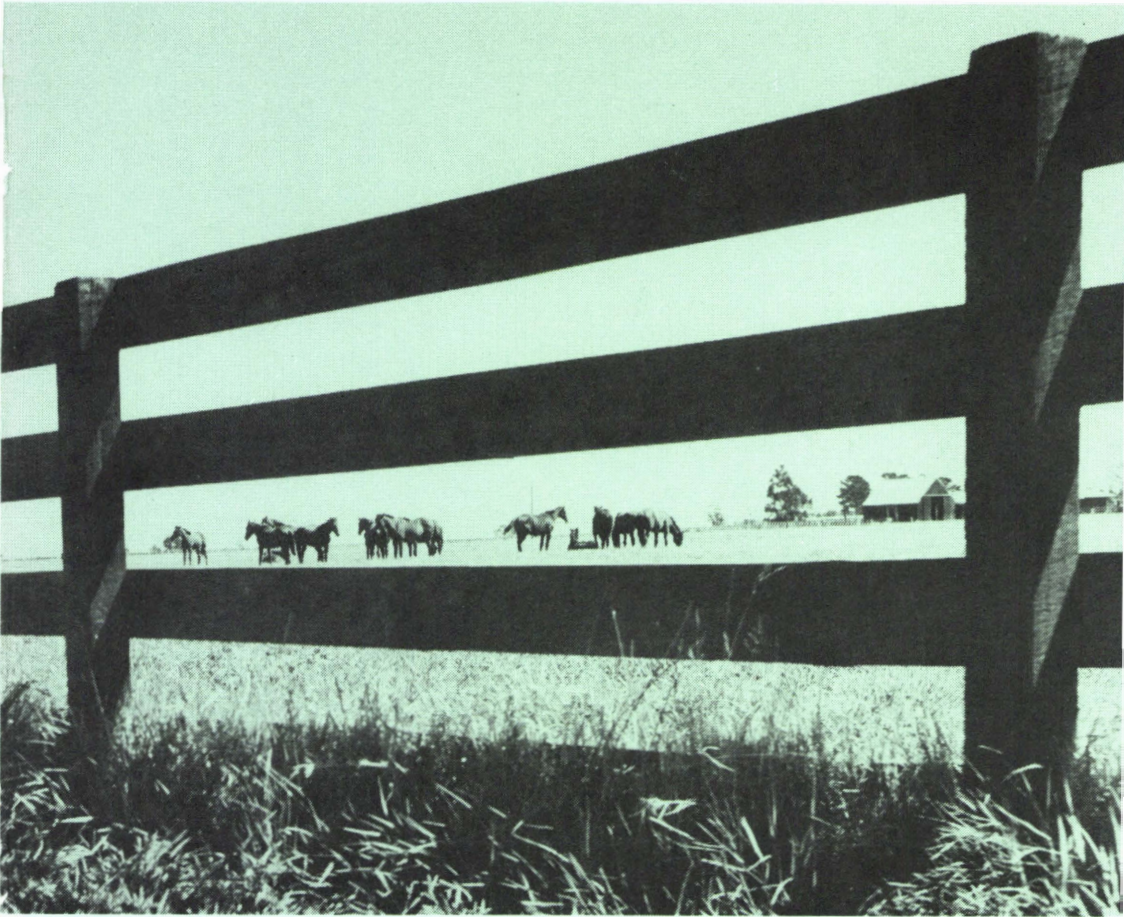


Horticulture

in New Zealand

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



35

Autumn

1985



HORTICULTURE

IN NEW ZEALAND

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BULLETIN OF THE ROYAL N.Z. INSTITUTE OF HORTICULTURE

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Cover photo: Nevele Stud, Canterbury.

ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURE (INC)

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<i>Bulletin Editor</i>	Mr D.L. Shillito
<i>Student's Editor</i>	Mr N.W. Owers

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EDITORIAL

The last task, which I always find myself doing for the Bulletin, is writing my editorial. One advantage this time in being so late in doing so has meant I have had the opportunity to read both Dave's and Nick's comments on the inevitable autumn weather. For this reason I shall say no more except I hope you have not come down with a cold yet!

As usual in the Autumn bulletin we have the details on the May A.G.M., this year being hosted by the North Taranaki District Council. The programme sounds most interesting and I hope those members who are attending take every opportunity to enjoy it.

On receiving this edition you will have noticed the new method of posting. In line with many other publications the incorporation of the envelope and the publication is becoming standard practice. There are two major reasons for this change, the first being that envelopes are not getting any cheaper, and the second is that when the 2000 bulletins arrive at the Institute's offices at Lincoln College there are usually 2000 other jobs to be done, and placing each bulletin in an envelope is not top of the list. I hope everyone receives their copy in good condition, but if not please let us know so we can make modifications if necessary.

In the last couple of issues I have resisted the temptation to pass the inevitable comment about members sending articles and items of interest. Again I shall not mention it as I know you are always on the look out and would not hesitate to send them into me!!

ONE FINAL COMMENT. The Institute is going through changes at present, courses are changing, membership is increasing, WHAT DO YOU WANT THE INSTITUTE TO DO FOR YOU? I would love to know.

David Shillito,
Editor.

CULTIVATION OF ELDER-BERRIES

Taken from

Production Vegetables (Switzerland)

At present, an area of about 20 ha of black elder is under cultivation in Switzerland. This production is mostly concentrated in central Switzerland where one finds at Sursee a collecting centre where they also prepare retail sales. There are also 2-3 producers in the Canton of Fribourg.

With an area of 20 ha, the maximum area for elder-trees has practically been reached in Switzerland. A progressive increase in area remains possible, above all when the possibilities of the market will be better known.

The black elder-tree is a shrub or tree up to 8 m high. The branches of *Sambucus nigra* as it is called in latin, are full of white sap. Its stinky bark, which is light grey-brownish in colour becomes cracked with age. The yellow-whitish flowers have a strong taste and are found on big flat cymes in the form of an umbrella. Most of the time, 5 flower stalks are together. The fruits are round in shape, 5-6 mm in diameter, shiny black-purplish with a dark red juice.

Flowering time is May-June. The elder-flowers contain ethereal oils which can make you sweat. Eldersyrup, mixed with lemon juice and drunk hot, is an old help for restoring health from colds, catarrhs, chills, sore throats, etc. The flowers can be dried in the shade quite quickly, but not with a temperature over 40°C.

The Elder-trees, in Switzerland, grow from low levels (300 m) to 1500 m., mostly on the forest borders and on the shores of rivers. It is in many gardens too. Picking time depending on the altitude is between August and September (fruits). The berries with the black-redish juice are slightly poisonous if eaten raw. But cooked in many different ways, they are edible and cannot harm. Dried they can help someone with diuretic problems. When the berries are fully ripe, they are usually cooked into different products such as jams, jelly, syrup etc.

In east Switzerland as in other Northern European countries, one likes another by-product made of elder-berries which is a kind of thick syrup (with the consistence of honey) or rather a paste.

Apart from the elderberries, the flowers have a market too. Only one Swiss company, a factory for toffees with herbs, needs annually 2000 kg of dried elder flowers. This corresponds to an area of 1.5 ha.

ELDER-BERRIES, OF HIGH NUTRITIOUS VALUE

The black elder has a high nutritious value. It is rich in mineral salts and contains as well, much vitamin C. The elderberry juice contains twice as much acids than apple juice. It also contains more sugar. 100 kg of elderberry gives 70/75 litres of juice. Because of its high nutritious value, the culture of elder-trees imposed itself in Switzerland.

As we have seen the values of elder, one can assume that a development of the consumption of produces made from elder will take place.

OF EASY CULTIVATION

The black elder is very easily cultivated. It is planted on soils not too fertile. It is disease free and not attacked by fungi. Therefore it does not need chemical treatments during vegetative growth periods and maturation of the berries, therefore the crop is harvested in a natural and healthy state. The elder does not like large amounts of azotes. Analyses have shown that elder contains the same mineral and nutritious values, even after an excess with fertilizers containing azotes. To find varieties apt of the creation of cultures, the observation of birds such as starlings, blackbirds etc, has been valuable. One came to the conclusion that certain elder trees were invaded by birds while others were deserted. Of course the latter varieties have been chosen for the cultures.

THE NEW ZEALAND GUARDIAN TRUST COMPANY LIMITED

TEMPLIN TRAVELLING SCHOLARSHIP IN ENGINEERING AND HORTICULTURE

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

There are two scholarships of up to U.S. \$10,000 each this year and they are available for study in the United States of America or Canada and are normally tenable for one year.

Application forms are available from the New Zealand Guardian Trust Company Limited, P.O. Box 9, Christchurch. Closing date for applications is 31/5/1985.

FROM THE SECRETARY

Autumn is fast approaching us here in Christchurch, and the Institute's 1985 Annual General Meeting and Members' Conference is fast approaching in New Plymouth. The Annual General Meeting is the best forum for meeting other members of the Institute, sharing experiences with like minded people and having your say in how the Institute should conduct its affairs over the next twelve months. Elsewhere in this Autumn Bulletin is the Chairman, Alan Jolliffe's first Annual Report, and the Institute's Financial Statements for the year ended 31 December, 1984. It is important that all members read these documents carefully as the financial state of the Institute is a matter of importance to all members.

The Institute is clearly 'on the move', particularly in respect of its educational function administered through the Examining Board under the Chairmanship of Dr Ron Close.

Two brand new R.N.Z.I.H. qualifications are about to be launched:

- 1) The Certificate in Horticultural Theory, which is a Certificate aimed at filling a need whereby people involved with horticulture, but not actually employed in practical horticulture can study towards a theory based qualification. Interest in this Certificate, which hopefully will be gazetted in time for students to sit examinations this year, has been high, especially among teachers, as the demand for horticulturally qualified secondary school teachers is greater than can, at present, be satisfied.
- 2) A prescription committee is being set up to draft the prescription for a Certificate in Horticultural Business Management. The Horticultural Training Committee of the Agricultural Training Council is keen for the R.N.Z.I.H. to take the initiative in this direction and hopefully the new Certificate will be examined in 1986.

In addition to these two developments, a Certificate in Parks Practice is 'in the pipeline', and the Certificate in Horticultural Practice as well as the N.C.H./N.D.H. programme has undergone a major prescription review.

All these developments are likely to generate a higher 'profile' for our Institute, a move which I feel certain will benefit both students and general members alike.

To complete the current picture of change, even Enid, Aileen and myself are 'on the move' as we will be moving out of Ivey Hall (the College requires the premises for other purposes) and into accommodation previously occupied by the N.Z. Agricultural Engineering Institute at Lincoln College. The good news is that we will probably be easier to find when members are visiting Lincoln.

I look forward to meeting many of you at New Plymouth on the weekend of 17 - 19 May.

Dave Cameron.
National Secretary.

WELCOME: to the following new members

Anderson G.K.	New Plymouth	Beardmore E.N.	New Plymouth
Beckett G.W.	Havelock Nrth	Brinkert A.	Auckland
Brock I.A.	Auckland	Brouwers E.M.	Taranaki
Brown J.	Hamilton	Burnip G.	Christchurch.
Clunie S.F.	Fiji	Davies L.M.	Hamilton
De Castro S.J.	Blenheim	Dovaston S.J.	Te Puke
Duffy E.J.	Nelson	Edgar J.D.	Blenheim
Flynn M.T.	Napier	Garthwaite N.M.	Invercargill
Gilmour J.D.	Cambridge	Gordon J.A.	Invercargill
Greenhough R.	Lower Hutt	Groves B.E.	Leeston
Hammond J.G.	Christchurch	Hodgson C.W.	Christchurch
Houlden A.M.A.	Auckland	Insley C.	Edgcumbe
Irwin S.E.	Auckland	Jenkins D.J.	Tauranga
Joblin B.E.	Hamilton	Kilbridge M.J.	Gisborne
Lowe	Bay of Plenty	McRobie K.S.	Christchurch
Marshall A.	Wellington	Mawson L.W.	Invercargill
Mok K.S.	Singapore	Nelson P.H.	Levin
Oswald D.K.	Manurewa	Parkin C.J.	Tauranga
Patterson D.J.	Christchurch	Peard G.R.	Hamilton
Pellow G.M.	Auckland	Racette M.A.	Hamilton
Sheridan R.A.	Dunedin	Spratt P.	Auckland
Springett R.J.	Eltham	Sprosen	Christchurch
Trafford Mr & Mrs	Auckland	Van Den Bemd S.	Te Kuiti
Waters L.J.	Hamilton	Young J.C.	Whangarei

62 ND NATIONAL CONFERENCE

17-19 MAY

The North Taranaki District Council is delighted to be host for the 1985 National Conference and have chosen the New Plymouth Girls High School which celebrates it's Centennial this Easter as the venue.

The programme commences on the Friday evening with a social and registration in the Assembly Hall where there will be displays of:-

Botanical Illustrations
A collection of Rare and Unusual Plants
An orchid display and horticultural book display.

Five local guest speakers will give short 20 minute talks on topics chosen to introduce the visitor to the Taranaki horticultural scene, after which supper will be served.

On Saturday morning 18th May the Annual General Meeting will be held in the Lounge at 'Scotlands' the boarders hostel. The Conference will be opened by His Worship the Mayor David Lean.

After lunch coaches will depart for Pukeiti Rhododendron Trust Inc, where guided tours of the grounds will be undertaken. There are always some of the Vireya or Malesian Rhododendrons in flower besides the fabulous collection of exotic and indigenous plants, features such as the giant rata, the waterwheel and illustrated books such as the two volumes of 'The Flora Superba' by Paul Jones.

The Banks Lecture will be given at 6.00 p.m. by Miss Nancy M. Adams whose subject will be 'Botanical Illustrating'. Since joining the staff of the Dominion Museum in 1959, Miss Adams has achieved world renown particularly for her work in illustrating native plants which led to the award of the Loder Cup in 1964. In addition to her valuable work for the National Parks Board she has several notable books on native flora to her credit.

The Conference Dinner will be held following the Banks Lecture in 'Scotlands' when there will be ample time to talk plants and renew acquaintances. Mr Alan Jellyman, Director of the Parks and Recreation Department will be the after dinner speaker.

Delegates will be collected by coach on Sunday morning and be taken to 'Tupare' the garden of Sir Russell and Lady Matthews. Here there are some lovely specimen trees including the Dove Tree *Davidia involucreta*, Tulip trees, Acers, Birch and a wide range of conifers in a picturesque setting.

After morning tea at the Parks and Recreation Department Nursery the group will be divided for guided tours of Brooklands Park and the historic Colonial hospital building 'The Gables'.

Following luncheon back at the New Plymouth Girls High School we will depart at 1.00 p.m. for Sir Victor Davies Park, a delightful inner city, riverside haven where despite it's small size many native plants, including some uncommon ones are thriving.

A short walk beside the Huatoki Stream leads past the site of an early water-powered flour mill through Redcoat Lane with its connection with the nearby Marsland Hill Barracks to Pukekura Park.

Features to be seen here are many and will include the Waterwheel, Fountain, Waterfall, Historic and Notable Trees and the unique Display Houses inter connected by fern clad tunnels.

Afternoon tea will be served in the Cricket Pavilion overlooking the Sportsground after which you will be returned to the New Plymouth Girls High School and are free to depart for home, perhaps calling in at L. Mangamahoe or the Energy Projects on the way.

ACCOMMODATION:- We encourage you to stay at the Conference venue the New Plymouth Girls High School where there are 10 double bedrooms, 6 singles and 1 room for three, the rest are dormitories. All offered at only \$20.00 per head per night, this will include all meals, with the optional exception of the Conference Dinner for which there is a separate concession price of \$7.50 for those staying at the High School otherwise \$12.50.

There are several nearby Motels if preferred.

REGISTRATION:- This will be \$25.00 and will include the Social and illustrated talks on Friday evening, the A.G.M., all morning and afternoon teas, two luncheons and entrance fee to Pukeiti Rhododendron Trust.

We would be grateful if coach parties would include the short trip of 51 kilometres to Pukeiti Rhododendron Trust and back and the around town tour on the Sunday in their itinerary. If time permits call in at L. Mangamahoe or the Energy projects on the way home.

A 10 minute Audio Visual display promoting the Conference is being circulated but time will not permit all District Councils to receive and show it. It is intended to go to Auckland, Hamilton, Wellington and possibly Christchurch before the Conference.

The North Taranaki District Council is keen to make the 1985 National Conference a memorable experience and hopes that it will receive wide support among members.

North Taranaki District Council.

LAPAGERIA CAN BE VERY SPECTACULAR

by

K.H. Marcussen, Christchurch

I have always been very fascinated by the Chilean Bellflower, *Lapageria rosea*. Not only are the 10cm long pink flowers outstanding but they appear at a time when something colourful is of particular value. I had tried earlier to establish one, unsuccessfully, and was very pleased when a nurseryman gave me another plant a few years back. That was in May, 1981.

So I prepared the planting site carefully, put it in and really looked after it to ensure that it would grow.

It did well. The nurseryman told me to be satisfied if it retained its planting size after one growing season. This one doubled in height. The second year it continued to thrive, about doubled in size again and produced a few flowers.

It was during the third season however that it really got away. It put up several very strong shoots from the base which reached to the top of the arch it was planted against, that is 2.5m high. By the late summer some 50 buds had developed. The first flowers opened in March, just a few, but as they last about a month the main crop started to open before they dropped off.

Some photographs were taken on 11 May, 1984, when 25 flowers were open or in very large buds. Fig. 1 was taken on 29 May, when it carried some 35 flowers and the oldest had started to drop off. Just prior to that we had experienced some very hard frosts, nearly -9°C , and the plant suffered. Young immature leaves and shoots were frosted and most died. That happened also to the smaller (green) flower buds. Established growth and more developed (pink) buds and the opened flowers were little affected. Some three weeks later it still carried 22 flowers.

It gave us a lot of pleasure and was admired by everyone seeing it. I have been encouraged to write about it, explain what was done to get this growth.

I started off by studying the available literature for information on the plant to find out what the basic needs were supposed to be and how to treat it.

POSITION

Sunshine is very bright in Canterbury and we often have long dry spells. So a position was chosen where it would not get sun all day, where the roots would be reasonably cool and assured of some moisture (even when we were away). Drainage is not a problem as the sub-soil is old river bed.

It was planted in a corner of a rose bed, bordered by concrete paths. It is fairly close to the house, on the east side. The neighbour's house gives a lot of shade so the soil could get daily sunshine only some three hours, from 10.00 a.m. to 1.00 p.m.

The soil is light and tends to pack if lacking adequate organic matter, so this is supplied regularly. Fertility is good as the roses are kept well manured. No fertilisers were therefore added before planting. But a generous application of rough compost was made and worked well into the soil.



Lapageria rosea three years after planting, photographed
29 May, 35 flowers

GENERAL CARE

The outer roots were eased from the outside of the potting clump to facilitate their getting into the garden soil quickly.

Water has been applied copiously whenever required and the *Lapageria* received its share of the rose fertiliser whenever dressings were made, viz. A well balanced mixture in late winter and one high in nitrogen repeatedly during summer.

During the third growing season it was additionally given a liquid feed (9-4-6 plus trace elements). It was growing so vigorously that I placed a can with the prepared feed at the corner of the house and gave it a good soak several times a week during the season.

No disease problems arose but it soon became apparent that greenfly just loves *Lapagerias*. It became the indicator plant for this pest for the whole garden and had to be sprayed regularly. Acephate was used, which gives control also of leafroller caterpillars. These I found to be very fond of the succulent tips of strong growth!

TRAINING

Lapagerias are twiners and require some form of support. In this case it was a large post and a trellis alongside across the house. In the first instance I wanted to train it up the post to the top of the arch (which spans the drive) - and hopefully, in time along the cross-bar. I had seen a photograph of a *Lapageria* trained horizontally. It was gorgeous with the flowers hanging down. That was my aim.

It was necessary to help it for a start with length of twine which it twisted around, but by and by shoots were trained round the post and it became self-supporting. It also needed help to get it running up the angle of the arm supporting the crossbar during the third season.

FLOWERING HABIT

The flowers develop on current season's shoots; at least mainly so. But flowers are carried both on the strong shoots coming from the base, on the upper part, and on quite spindly shoots coming away from old wood, sometimes very low on the plant. The shoots on which flowers developed were trained to get the flowers visible, not covered up by the leaves.

THE FOURTH SEASON

We are now well into the fourth season (January, 1985) and the plant continues to grow well. It has not been given any special attention this year except a soaking every time I have the hose near it. The growing space has been extended by bringing some of the side shoots across the trellis so that, eventually that will be covered. Several shoots have reached the top of the arch and are now being trained along the crossbar. It would appear that my hope of seeing that garland of flowers above the drive will be fulfilled.

Many buds have developed already and the largest are 3cm long now. We might well see the first flowers in February this year.

AGM 1985

The 1985 Annual General Meeting and Conference is being hosted by the North Taranaki District Council and will be held at New Plymouth Girls High School on Saturday 18 May, 1985.

The full programme and registration form is enclosed as an insert in the middle of this Bulletin and all members attending the A.G.M. and Conference are urged to complete the form and return it to the Conference Secretary without delay so that the organisers can make final arrangements for the conference.

An article covering many aspects of the Conference prepared by the North Taranaki District Council is included elsewhere in this Bulletin.

* * * DON'T DELAY - REGISTER NOW * * *

REMITTS TO 1985 A.G.M.

"That the R.N.Z.I.H. takes the initiative to foster the collection and collation of historical horticultural records. Information on the names of New Zealand researchers and their fields of interest to appear annually in the Journal. This could form the basis of an informal Garden History Society under the umbrella of the R.N.Z.I.H."

Wellington District Council.

ELECTION OF OFFICERS

Members will recall that following the 1984 A.G.M. there was one vacancy unfilled on the National Executive. That vacancy was filled by the National Executive co-opting Mr Ian Gear of Hamilton to its membership in accordance with clause 5 (a) (v) of the Rules of the Institute.

Mr Ian Galloway, Mr Alan Mason, and Mr Richard Nanson retire from the Executive by rotation this year, and all are eligible for re-election. When nominations for the three vacancies thus created closed on Thursday 14 March, 1985 the following nominations had been received.

Mr Ronald R. Flook	-	Wellington District Council
Mr Alan L. Mason	-	Wellington District Council
Mr Richard J. Nanson	-	Wellington District Council

As no further nominations were received the above nominees will be elected unopposed at the 1985 A.G.M., and no postal ballot will be necessary.

The National Executive for 1985-86 will therefore comprise:

- | | |
|---------------------------------|---|
| Chairman:- Mr Alan Jolliffe | - Nelson |
| Mrs Robin Bagley | - Dunedin |
| Mr Ron Flook | - Wellington |
| Mr Ian Gear | - Hamilton |
| Mr Phil Jew, AHRIH | - Auckland |
| Mr Graeme Mander | - Tauranga |
| Mr Alan Mason | - Fielding |
| Mr Ian McDowell | - New Plymouth |
| Mr Laurie Metcalf | - Invercargill |
| Mr Richard Nanson, AHRIH | - Wellington |
| Mr Mike Steven | - Hamilton |
| Mr John Taylor, AHRIH | - Christchurch |
|
 | |
| Ex Officio: Professor Ken Milne | - Head of Department of Horticulture & Plant Health, Massey University. |
|
 | |
| Professor Richard Rowe | - Head of Department of Horticulture, Landscape & Parks, Lincoln College. |

A detailed agenda for the business session of the A.G.M. will be distributed to attending members nearer to the date of the meeting. Members will have the opportunity to raise matters that are not included on the agenda as items of "General Business".

Dave Cameron,
National Secretary.

R.N.Z.I.H. CHAIRMAN'S REPORT TO ANNUAL GENERAL MEETING MAY 1985

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

I tremble a little in having to write my first Annual Report as Chairman of the National Executive. It is difficult to follow in the footsteps of John Taylor. He led this Institute, by example, along the road of growth, through the hedgerows of red tape, past the forests of doublers and out to the horizon of tomorrow where we all hope this Institute will flower.

John's boundless energy, intimate knowledge of the Institute, charm and persuasive ability has left this Institute ready to leap into the future.

John - we salute you and thank you for all your work over the last six years.

Our Membership is now approaching 1,800 with 999 being students. We have more students enrolled with us than any other Horticultural Teaching Establishment. Membership is growing, showing the importance of horticulture in our economic structure. Not only is horticulture important in the produce area (export crops and home consumption) but also in the amenity horticulture area. The Tourist Industry is also expanding and the provision of quality amenity areas has a positive impact.

Tell your friends about the Institute and encourage more people to become members.

District Councils are the life blood of this Institute. You are all, or should be, an active member of the District Council. Many District Councils run full and varied programmes, providing outings, lectures and meetings of interest to students and other members.

At a local level join with the District Council and their activities because without your support, help and enthusiasm they cannot function as they should.

The National Executive has again been well served by those elected. The Executive thanked John Taylor for all his hard work, drive and enthusiasm during the six years he was Chairman of the National Executive.

Since taking over the office of Chairman I have been impressed with enthusiasm of all members. In August we set up several Committees to be convened by Executive Members for specific roles in the Institute.

They are:-

Emergency Committee	- 3 members
Finance and Administration	- 5 members
Publications	- 5 members
Awards and Honours	- 5 members
Public Relations	- 5 members
Nomenclature and Plant Raisers	- 5 members
Horticultural Education	- 5 members
Examining Board Liason	- 1 member

Membership of these committees is made up of a Convenor (National Executive Member) and members of the Institute with particular expertise in their fields. Each Committee has "Terms of Reference" and is required to furnish reports and recommendations to each Executive Meeting.

I know that this will make for better, more informed decision making and allow the Executive more time to discuss matters that will take this Institute forward even further.

The Annual Journal has again been produced to a very high standard by Mike Oates. Quietly Mike gets the job done and provides us all with a very valuable publication each year. Since its inception the Journal has grown to be one of the best of its type.

Flowers for Shows was also published in June, 1984. Eric Toleman of Hamilton spent many hours rewriting and editing this review. We gratefully acknowledge his work for this unique publication. I am sure you will find it invaluable for your shows.

"Horticulture: The Career For You?" is a publication detailing training education schemes and career prospects in Horticulture. This has now been printed.

The Bulletin has again kept its high standard thanks to the skills of our two editors - David Shillito and Nick Owers. It is always interesting to read articles written by our own, and younger members.

One can't help thinking at a time like this that there is an awful lot of talent out there in our membership who can write short articles for the Bulletin. I challenge every member to write a contribution this year - what an "Editor's Dream". I bet you can't do it, but I would love to report it next year!!

The Examining Board, under the Chairmanship of Dr Ron Close have had a very busy year. You will read about that in his report. Of interest though is the review of the N.D.H. syllabus and setting up of new courses.

The National Executive appreciates the work the Examining Board does for Horticulture in New Zealand.

The Annual Accounts are set out for you. As a break from tradition I have asked our Secretary, Dave Cameron to write the Commentary for these.

Notable and Historic Trees have continued to progress. Ron Flook of Wellington is now the Convenor. His enthusiastic team is now putting together new systems (including adaptations for Computer listing) to help with the administration of the scheme. A separate report will be forthcoming from Ron Flook.

On 20 March a very successful afternoon seminar about Notable and Historic Trees was conducted. Participants from the R.N.Z.I.H., Government Departments, Local Authorities and interested groups decided to form a working party to formulate a report and make recommendations to the Minister for the Environment. I am sure this will result in a National Policy and hopefully Government funding for the scheme.

The People who keep this Institute on an even keel throughout the year need more than a mention in the Annual Report. This year there was considerable change. Ashley Foubister who retired as Secretary during the year 'set the pace' for the Institute and the services it offered to members. Since 1977 Ashley served as Secretary and our grateful thanks go to him for all his work.

Ashley returned to the office in a temporary capacity when Neville Neeson, Ashley's successor became ill. Neville had been Examinations Officer prior to being appointed Secretary. Neville had to resign as Secretary due to ill health.

Dave Cameron joined the Institute as Secretary late in 1984 direct from the Administration side of Waikato University. Fortunately Dave's knowledge and energy enabled the Institute to cope with a very busy Examinations period. Since then he has tackled the job of servicing the many parts of the Institute.

Dave, welcome aboard and keep our 'engine room' in top gear.

Helping Dave are Enid Reeves - Examinations Officer, and Aileen Taylor- Clerk/Typist. Both worked extremely hard this year with the change of Secretaries and the examinations. Thank you both for your work during that difficult period.

As members of the Royal New Zealand Institute of Horticulture you all have benefitted from the input of others this year. In closing this Annual Report I want to issue three challenges.

- 1) Get involved with the Institute - (write an article, go to meetings)
- 2) Get young people involved and holding office at District Council level.
- 3) Introduce one new member to the Institute so we can beat that 2,000 figure.

Kind regards.

- Alan Jolliffe
Chairman, National Executive.

1984 FINANCIAL STATEMENTS

The Financial Statements, duly audited, for the year ending 31 December, 1984 are included in this Bulletin. Clearly 1984 was a successful one in financial terms for the Institute. The General Account realised an excess of income over expenditure of nearly \$9,000 while a surplus of \$3,800 was achieved in the Examinations Account. However it is important to note the following points with respect to the two balance sheets:

1) General Account

Members will recall (all too easily no doubt) that last year the method of collecting subscriptions was changed from a July deadline for subs for the current year, to a September deadline for payment of subscriptions for the following year. To achieve this, all members were asked to pay their 1984 and 1985 subscriptions before 31 July last year, with the 1986 subs not falling due till October, 1985. Most members responded well and hence the 1984 subscription income was \$16,000 higher than 1983. Some of this additional income was necessary to off set a net deficit of nearly \$8,000 from publication expenses. While it is a matter for some concern that only 250 Annual Journals were ordered in 1984, and hence the sale of Journals did not cover production costs, the majority of the publications deficit was caused by printing costs of the "Flowers For Show" Booklet. The Balance Sheet shows assets of just over \$4,000 as "books on hand for sale". Most of these books are "Flowers for Show" and they have been listed as assets at production cost, (just over \$5.00 each). However the Institute is currently selling these books at \$10.00 per copy, and sales are proceeding steadily. Hence with nearly 700 copies on hand considerably more than the \$4,000 listed as 'assets' should in time be realised.

2) Examinations Account

It is pleasing to note that after a number of years when the Examinations Account income did not cover its expenditure, last year a surplus of \$3,800 was achieved. This was after \$3,000 had been put aside by the National Executive to cover production costs for the booklet "Horticulture; the Career for You?" (the booklet is at the printers at the time of writing and copies will be available by the time you read this). In addition, the Examination Account finances allowed the Institute to purchase a small copying machine (\$3,100) which has proved a great success both in terms of convenience for the Secretariat as well as from an economic point of view (photocopying now costs us about 4¢ per copy whereas we previously had to pay 7¢ or 10¢ depending on which Lincoln College copying service we used).

The surplus was produced partly through unexpected circumstances as the Institute was without the service of a Secretary for 3 months (July, August and September) and hence a considerable salary saving was made. In addition increased examination entries moved us towards an 'economy of scale' situation in the operation of the annual examinations.

As has been said elsewhere in this Bulletin the Institute is at present deeply involved in a number of new developments, all of which require a large amount of voluntary input by various Institute officers and members. These people are prepared to give their time and expertise for no financial return which is of great value to the Institute in its examining role, but the need for the Institute to employ its own horticulturist to act as a curriculum development officer and horticultural advisor is growing all the time. It would therefore seem imperative for the Institute's Examination Account to continue to generate additional income in future years so that we may continue to fulfill the role of examining authority on a national basis for qualifications in horticulture according to the various "Approvals Notices" issued on our behalf by the Ministry of Agriculture and Fisheries. The 1985 student fees, and the submission to the M.A.F. for the 1985 Government Grant have been structured with this need in mind.

D.B. Cameron,
National Secretary.

NOTICE FOR ALL HOLDERS OF THE NATIONAL CERTIFICATE

IN HORTICULTURE

The R.N.Z.I.H. has received advice from Lincoln College that holders of the N.C.H. could be considered for entry to the College's Diploma in Horticultural Management. Although each case would be considered on its merits it is understood that the College would not be overly concerned regarding an applicants standard of achievement within the N.C.H., but it would be necessary for applicants to have had a breadth of study to ensure that they had covered adequately all the material that would form pre-requisites to the subjects in the Diploma in Horticultural Management.

People wishing to enquire further regarding entry to the Lincoln College Diploma in Horticultural Management should address their enquiries to:-

Mr J.H. Scott,
Deputy Registrar (Academic),
Lincoln College,
Canterbury.

THE ROYAL NEW ZEALAND
INSTITUTE OF HORTICULTURE (INC.)

FINANCIAL STATEMENTS

FOR THE YEAR ENDED 31 DECEMBER 1984

C O N T E N T S

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ROYAL NEW ZEALAND INSTITUTE OF HORTICULTUREGENERAL ACCOUNTINCOME AND EXPENDITURE ACCOUNTFOR THE YEAR ENDED 31 DECEMBER 1984

	<u>1984</u>	<u>1983</u>
<u>INCOME</u>		
Subscriptions (Note 8)	33,548	17,484
Donations	52	20
Secretarial services - N.Z.I.P.R.A.	-	42
Sundry receipts	111	2
Interest	3,559	2,099
Net deficit from Publications Account (Note 5)	(7,995)	(3,455)
<u>TOTAL INCOME</u>	29,275	16,192
<u>LESS EXPENDITURE</u>		
Accident Compensation	159	191
Advertising	232	-
Capitations paid to District Councils	3,840	2,362
Salary, wages and secretarial services	7,509	3,683
Audit fee	310	310
Depreciation	687	309
Printing and stationery	1,872	2,123
Postages, telegrams, telephone charges	718	450
General expenses	169	286
A.G.M. expenses	747	511
Travel expenses	2,166	1,687
Grant - Notable & Historic Trees Committee	500	500
- Northern District Councils	50	-
Office rent	1,176	-
Typewriter expenses	88	267
Plant Raise Awards	75	152
<u>TOTAL EXPENDITURE</u>	20,298	12,831
<u>EXCESS INCOME OVER EXPENDITURE</u>	\$8,977	\$3,361
	=====	=====

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

J. A. Lee
22/3/85

ROYAL NEW ZEALAND INSTITUTE OF HORTICULTUREEXAMINATIONS ACCOUNTINCOME & EXPENDITUREFOR YEAR ENDED 31 DECEMBER 1984

	<u>1984</u>	<u>1983</u>
<u>INCOME</u>		
C.H.P. enrolments	5,925	2,670
Registration	3,852	2,053
Examination entry	23,890	14,335
Exam recount fees	-	-
Sundry income	507	702
Government Grant	36,156	33,656
Loder Cup Committee	1,500	1,000
	<hr/>	<hr/>
	71,830	54,416
 <u>EXPENDITURE</u>		
Audit fee	240	240
Exam Board expenses	7,227	3,448
Examiners fees and expenses	13,142	14,191
Sundry refunds of fees	970	429
General expenses	148	23
Loder Cup Committee	1,500	1,000
Hire examination room	68	254
Office rent	-	-
Postage and telephone	2,292	2,411
Printing and stationery	5,778	3,859
Secretarial and office stationery	33,596	31,223
	<hr/>	<hr/>
Less Transfer to "Careers in Hort" Fund (Note 7)	64,961 3,000	57,078 -
	<hr/>	<hr/>
<u>EXCESS OF INCOME OVER EXPENDITURE</u>	\$3,869	\$(2,662)
	=====	=====

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

L. Kato
22/3/84

ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURE
NOTES TO THE FINANCIAL STATEMENTS

NOTE 1 STATEMENT OF ACCOUNTING POLICIES

The following accounting policies have been adopted:

Inventories

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

Depreciation

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

Interest Received

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

Subscriptions

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

NOTE 2 EXAMINATIONS FUND

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

NOTE 3 DISTRICT COUNCIL FUNDS IN SUSPENSE

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

NOTE 4 NOTABLE & HISTORIC TREES COMMITTEE

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

Balance of Account 1 January 1984	966
<u>Add:</u> Interest from Investment Account	84
Registration Fees	4●
Grant from National Executive	500

carried forward... 1,590

J. Rubin
22/3/84

ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURENOTES TO THE FINANCIAL STATEMENTS

(Continued)

		...brought forward	1,590
<u>Less:</u>	Advertising	41	
	Stamps and Stationery	357	
	Sundry Expenses	27	
			425
			\$1,165
			=====

<u>NOTE 5</u>	<u>PUBLICATIONS ACCOUNT</u>	<u>1984</u>	<u>1983</u>
	<u>SALES</u>	5,708	6,289
	<u>Less</u>		
	Costs of publication	16,326	9,494
	Adjustment for increase in stock on hand	(2,623)	250
		<u>13,703</u>	<u>9,744</u>
	<u>NET DEFICIT FROM PUBLICATIONS FOR YEAR</u>	<u>\$(7,995)</u>	<u>\$(3,455)</u>
		=====	=====

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

NOTE 6 TRUST ACCOUNT BALANCES

The funds in Trust Accounts are represented by investments and bank accounts. The capital portion represents the contributions of the donors and the income portion represents the unexpended portion of accumulated income to date. In the case of the Endowment Fund and the F. Cooper Memorial fund, no such distinction is made and the funds on hand represent a composite of capital and income.

	<u>1984</u>	<u>1983</u>
District Council Funds in Suspense	1,289	1,147
Notable & Historic Trees Committee	1,165	966
Trust Account Balances	10,080	8,683
<u>TOTAL DEPOSITS HELD FOR FUNDS</u>	<u>\$12,534</u>	<u>\$10,796</u>
	=====	=====

J. R. R. R.
22/3/8

ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURENOTES TO THE FINANCIAL STATEMENTS(Continued)NOTE 7 CAREERS IN HORTICULTURE FUND

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

NOTE 8

The National Executive introduced a policy during the period of converting the timing of subscription payments from an 'arrears' situation to an 'advance' situation.

This has resulted in an increase in subscription collections during the transition period, as subscriptions are taken into income in the year in which they are received.

G. R. Ho
22/5/85

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

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

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

In our opinion, but subject to this limitation, the balance sheet and income and expenditure accounts give a true and fair view of the state of the Institute's affairs as at 31 December 1984, and of its income and expenditure for the year then ended.

Touche Ross & Co.

TOUCHE ROSS & CO., Chartered Accountants

Christchurch, N.Z.

22 March, 1985

LODER CUP 1985

Dr Eric J. Godley was the Director of the Botany Division of the Department of Science and Industrial Research for the 22 years from 1958 to 1980. Under his leadership the present series of the publication 'The Flora of New Zealand' was initiated, and three volumes have been completed to date. These are extensively used as sources for the popular books on our flora which lead to a wider public appreciation of native plants.

He has written many papers on floral biology and genetics, ecology of the Southern Antarctic region, and many reviews, as well as items of a more popular nature. Of special interest is his long series of articles for 'The New Zealand Gardener' describing little known or unusual characteristics of New Zealand plants.

He founded the 'New Zealand Journal of Botany', a learned journal of international reputation, and he has edited new editions of Laing and Blackwell's 'Plants of New Zealand' (7th Ed) and Cockayne's 'New Zealand Plants and their Story' (4th Ed).

His contribution to the conservation of New Zealand plants and of plant communities is a long standing and important one. In this respect his work as a member of the Scientific Coordinating Committee for Beech Forests has been especially important.

He has been a member of expeditions to South America and to the Subantarctic Islands of New Zealand and his published results have contributed significantly to our present knowledge of the flora and vegetation of those regions.

Some men spend half a day looking for the shortest way to do a job that could be done in an hour.

The driver is safe when the road is dry. The road is safer when the driver is dry.

STUDENT SECTION



Irish strawberry tree
Arbutus unedo
(Ericaceae)

Country of origin South/West Ireland, Southern Europe situated in northern edge of Archery Lawn Christchurch Botanic Gardens.

EDITORIAL

With the long summer coming to an abrupt end and cooler temperatures now prevailing over the country, the feeling of autumn is definitely in the air. The heavy dew these mornings aids, amongst other things, in the germination of newly sown grass. Autumn is an ideal time for lawn establishment or renovation. I trust you found the article on this topic in the summer bulletin of value, for this task.

The season of colourful summer bedding displays is now giving way to the autumn foliar tinges. Spectacular tones of colour are in evidence with many deciduous plants such as: the various *Acer* species, *Ginkgo biloba*, *Liquidambar styraciflua*, *Tilia europaea*, to name just a few.

Much leaf raking is to be done, and although the burning of leaves gives off a distinct rich, fragrant odour, this process is wasteful as leaves are a good source of organic matter. Leaf compost can be either incorporated into the soil, or used as a surface mulch.

I had the good fortune to observe a praying mantis *Orthodera ministralis* constructing an egg case on a branch of kowhai *Sophora tetraptera* in our garden the other evening. What a fascinating process!! The dedication - the mantis cannot be disturbed from its upright position; patience - it takes 1½ - 2 hours to form the egg case; and meticulous technique - 1 egg is laid in each of the 20 - 25 chambers of the case; of this insect in order to propagate its offspring is a true marvel of nature.

Assignment time is here again - let there be many hours of diligent study!

Kind regards,
Nick Owers.

PREPARATION AND PRESERVATION OF PLANT SPECIMENS

An herbarium is a collection of plants which is preserved for study to assist in the identification of subsequent collections. Specimens should therefore be carefully selected, properly prepared and accompanied by adequate data.

EQUIPMENT

The following equipment is serviceable, cheap and produces quite satisfactory results.

1. PRESS: This can be made from two wooden frames, each frame consisting of -
4 strips 30mm x 5mm x 400mm
5 strips 30mm x 5mm x 300mm
2. SMALL DRIERS: These can be made from absorbent paper, blotting paper, thick rough brown paper, under-felt or ordinary newspaper. These should be approximately 400 x 300mm in size.
3. A pair of leather straps about 1 metre long
4. Field note book, pocket size
5. A small lens, 5x or 10x magnification

SELECTION OF MATERIAL

Whenever available, roots, bulbs, tubers, stems, leaves, flowers and fruits, (with seeds) should be collected. Specimens should be representative of the plant collected, and sufficient to cover a mounting sheet. In the case of small annual plants, the entire plant can be preserved. With tall growing herbs or trees and shrubs, portions selected should show foliage, flowers and fruits. Fruiting material can always be collected at a later date. Never collect specimen for identification except when it is in flowering or fruiting condition.

FILLING THE PRESS

If the plant is a herb, carefully remove it so that as much as possible of the root system is preserved. Sufficient material to fill one of the drying sheets should be collected. Arrange the plant on the sheets as naturally as possible. Avoid crumpling or folding of the leaves. Try to show the upper and lower surfaces. Under certain circumstances, some of the foliage and/or flowers can be removed. Spread out the flowering portions of the plant. If the plant is too long, it should be carefully bent into a "V" or "N".

Having laid the specimen carefully out on the drier, sufficient 'fillers' should be placed on top to allow the specimen to be dried without interference from the next.

Usually from 6-10 sheets of newspaper will be sufficient. Another specimen is then laid out, and the performance repeated until all the plants are in the press. When closing the press, be sure that the long strips are on the outside, and strap firmly. Avoid having specimens sticking out from the press, otherwise they will become damaged, and thus become useless for mounting.

DATA TO ACCOMPANY THE SPECIMENS

FIELD NOTE BOOK: As the specimens are collected, an entry is made in the note book. This entry should include the date, the exact locality, type of soil, habitat, and if possible, the name of the plant. Many collectors number their specimens consecutively, doing so in sequence of collection. Where several collections are made from one plant at different dates, then different numbers are used. A number is never repeated, and all material collected under one number is identical.

THE LABEL: The following data must be included:-

Botanical name, with authority, Common name
Exact locality, habitat etc. Collector's number (when used)
Date and the name of the collector

A field label is sometimes used, but this should not replace the use of a field note-book.

DRYING THE SPECIMENS

Subsequent to filling the press, the specimens should be changed onto dry papers not later than 48 hours after. During the early part of the pressing, papers should be changed frequently otherwise moulds and mildew will destroy the specimens. Quick drying prevents this and also preserves the natural colours of the foliage and flowers. By placing the driers (before using) in the sun for about an hour, and then placing the specimens onto these sheets, drying will be expedited and excellent specimens will result. Artificial heat applied directly to the press may cause the specimens to become brittle and easily broken. After the first few days, the specimens can be left for longer periods between the changes of driers. No specimen should be removed from the press until thoroughly dry, otherwise wilting will occur.

With succulent plants, great care must be taken, otherwise many specimens will be lost. Dipping the specimens (before pressing) in petrol will assist the drying. Others can be left in the air for several hours before pressing. Experience will teach one how to deal with various problems as they arise.

Such a press as has been described, is very suitable to take when travelling. In this case the use of corrugated metal - or cardboard spacer, placed at intervals between the drying sheets allows air to circulate between the driers, and obviates the necessity for frequent changing.

IDENTIFICATION

Wherever possible, the collector should identify his own collections using a manual of cultivated plants. Specimens which cannot be identified, should be referred to someone familiar with the group of plants concerned.

MOUNTING THE SPECIMENS

Mounting is a time-consuming job, but the results are very satisfying and present a permanent record of plants of interest. Standard herbarium mounting sheets are usually 270mm by 430mm but foolscap size sheets can be used for student collections if desired. The mounting sheets should be sufficiently heavy to prevent the specimens from becoming damaged. A good grade drawing paper is quite suitable. Specimens are fastened to the sheets for high-class work.

ARRANGING THE COLLECTION

Any arrangement decided upon must be convenient. Material can be arranged in alphabetical order; in its horticultural grouping - shrub, herbaceous plant, alpine etc., or in botanical order, as laid down by botanical manuals. All species of the same genus should be assembled together. In a proper herbarium the sheets are placed into folders of light, but strong brown covers, slightly larger than the specimen sheets. The genera belonging to one family are then collected together and placed into other folders. By doing this, great assistance in learning the family characters and relationships is possible.

CARE OF THE HERBARIUM

Minute insects can destroy specimens, and a proper herbarium requires careful attention, though it is doubtful if this is needed with small student collections. Insect-proof cardboard cartons with a good insecticide placed with the sheets, will usually give complete protection.

BLACK WALNUT

JUGLANS NIGRA

*Taken from an information sheet compiled by the Utilisation
Development Division, New Zealand Forest Service*

AVAILABILITY, PROPERTIES, AND USES OF BLACK WALNUT *Juglans
nigra* TIMBER

Availability

Juglans nigra is native to the eastern United States and Canada. No extensive plantings have been carried out to date in New Zealand although some local timber is obtained from individual trees. However, this species is now a part of the Forest Service's specialty species plantings and therefore supplies should increase after the turn of the century.

Physical and Mechanical Properties

The heartwood of black walnut varies in colour from light to dark brown. The sapwood is nearly white. The timber is hard, strong, stiff, and has good resistance to sudden mechanical impact. The grain is normally straight with a handsome figure and coarse texture.

Black walnut saws and machines well to give a fine finish. It takes and holds paints and stains, can be readily polished and satisfactorily glued.

It dries rather slowly but can be kiln-dried under appropriate schedules. There is a slight tendency to honeycomb. It is very stable after drying.

The heartwood is one of the most durable North American timbers. The sapwood is susceptible to powder post beetles *Lyctus brunneus*.

Uses

The outstanding use of black walnut is for furniture, either as solid wood or as veneer and plywood. Large amounts are also used for gunstocks and interior finish (mouldings, fittings etc). The wood is particularly suited for gunstocks because of its ability to stay in shape after seasoning, its fine machining properties and its uniform texture.

WHY LEAVES CHANGE COLOUR

It requires no vivid imagination to picture Mother Nature going about on autumn days with a liberal supply of paint, with which she colours the leaves of the trees and other plants and thereby produces the riot of red, purple, orange, and yellow found in the woods. Every year at this time we revel in the beauty of the trees, knowing well that it is only a fleeting pleasure. Before long the leaves will flutter away from their summer home and become a part of the rich carpet that covers the forest floor.

Many people suppose that Jack Frost is responsible for the colour change, but he is not. Some of the leaves begin to turn before we have any frosts. According to an Indian legend, celestial hunters slew the Great Bear in the autumn, and his blood, dripping on the forests, changed many leaves to red. Other trees were turned yellow by the fat that spattered out of the kettle as the hunters cooked the meat. Other people had other legends, but we now know that change in colouring is the result of chemical processes which take place in the tree as the season changes from summer to winter.

All during spring and summer the leaves have served as factories where most of the foods necessary for the trees' growth are manufactured. This food-making process takes place in the leaf in numerous cells containing the pigment chlorophyll, which gives the leaf its green colour. This chlorophyll absorbs energy from sunlight and uses it in transforming carbon dioxide and water to carbohydrates, such as sugars and starch. Along with the green pigment, leaves also contain yellow or orange carotenoids - which, for example, give the carrot its familiar colour. Most of the year these yellowish colours are masked by the greater amount of green colouring. But in the fall, partly because of changes in the period of daylight and changes in temperature, the leaves stop their food-making process. The chlorophyll breaks down, the green colour disappears, and the yellowish colours become visible and give the leaves part of their fall splendor.

At the same time other chemical changes may occur and cause the formation of additional pigments that vary from yellow to red to blue. Some of them give rise to the reddish and purplish fall colours of leaves of trees such as dogwoods and sumacs. Others give the sugar maple its brilliant

orange or fiery red and yellow. The autumn foliage of some trees, such as quaking aspen, birch and hickory shows only yellow colours. Many oaks and others are mostly brownish, while beech turns golden bronze. These colours are due to the mixing of varying amounts of the chlorophyll and other pigments in the leaf during the fall season.

Fall weather conditions favoring formation of brilliant red autumn colour are warm sunny days followed by cool nights with temperatures below 7°C. Much sugar is made in the leaves during the daytime, but cool nights prevent movement of sugar from the leaves. From the sugars trapped in the leaves the red pigment called anthocyanin is formed. Familiar trees with red or scarlet leaves in autumn are red maple, silver maple, flowering dogwood, sweetgum, black tupelo or blackgum, northern red oak, scarlet oak, and sassafras.

The degree of colour may vary from tree to tree. For example, leaves directly exposed to the sun may turn red, while those on the shady side of the same tree or on other trees in the shade may be yellow. The foliage of some tree species just turns dull brown from death and decay and never shows bright colours.

Also, the colours on the same tree may vary from year to year, depending upon the combination of weather conditions. When there is much warm, cloudy, rainy weather in the fall, the leaves may have less red colouration. The small amount of sugar made in the reduced sunlight moves out of the leaves during the warm nights. Thus, no excess sugar remains in the leaves to form the pigments.

Only a few regions of the world are fortunate in having these show displays. Eastern United States and south-eastern Canada possess large areas of deciduous forests with broad-leaved trees and favourable weather conditions, including ample rainfall, for vivid fall colours. Some western areas, especially in mountains, have bright colouration too. Eastern Asia and southwestern Europe and others. The broad-leaved evergreen trees in the tropical rain forests shed their leaves very gradually, one at a time turning yellow and falling. In the seasonal tropical forests the foliage becomes parched and brown with the coming of the dry season.

As the fall colours appear, other changes are taking place. At the base of the leafstalk where it is attached to the twig, a special layer of cells develops and gradually severs the tissues that support the leaf. At the same time Nature heals the break, so that after the leaf is finally blown off by the wind or has fallen from its own weight, the place where it grew on the twig is marked by a leaf scar.

Most broad-leaved trees in the Northern U.S.A. shed their leaves in the fall. However, the dead brown leaves of the oaks and a few other species may stay on the tree until growth starts again in the spring. In the Southern States, where the winters are mild, some broad-leaved trees are evergreen, that is the leaves stay on the trees during winter and keep their green colour. Most conifers - pines, spruces, firs, hemlocks, cedars, etc. - are evergreen in both the North and South. The needle like or scale like leaves remain green or greenish the year round, though often becoming brownish green where winters are cold. Individual leaves may stay on the tree for 2 to 4 or more years.

Through fallen leaves, Nature has provided for a fertile forest floor. Fallen leaves contain relatively large amounts of valuable elements, particularly calcium and potassium, which were originally a part of the soil. Decomposition of the leaves enriches the top layers of the soil by returning part of the elements borrowed by the tree, and at the same time provides for more water-absorbing humus.

It is easy to copy brightly coloured leaves with crayons or coloured pencils. Place a leaf lower side up, because the veins on the lower side are usually raised. Then put a sheet of thin paper or writing paper (not thick drawing paper) on top of the leaf. Next, holding the paper and leaf so that they do not move, colour the paper on top of the leaf. Use fast, slanting strokes as in shading. The shape and markings will be copied exactly. The veins and leaf boarder will show as heavier lines. Different colours can be used to match the shades or markings. After you have coloured over all the leaf, cut out the paper leaf with scissors. Of course green leaves can be copied at any time in the same way.

Leaf prints can be made also with a stamp pad. Press the leaf lower surface down against the stamp pad, with a piece of paper on top to avoid soiling the fingers. Then place the leaf, inked side down, on a sheet of white paper with another sheet of paper on top. Hold the leaf firmly and rub hard over it. When the upper sheet of paper and the leaf are removed, a printed copy of the leaf will remain. A scrapbook of leaf prints with names of the trees is an interesting project for any boy or girl.

COLUMNAR CONIFERS

by

Hugh Redgrove on behalf of the N.Z.N.A.

Just as erect-growing trees and shrubs are useful where space is limited, so too are tall thin conifers. They give an element of height in landscaping and are available in tall, medium and quite small sizes that may be used in association with other dwarf plants on rock gardens.

The Italian Cypress must be well known to everyone, and makes a tall, dark green, pillar of considerable height (6 m up), if left untrimmed. But given an annual pruning and clipping, it may be trained to a perfect column of any height above 3m. The name is *Cupressus sempervirens stricta*, and as there may be some variation in the ordinary form, care should be taken to select trees of even size if several are planted together. Better still, go for 'Tottem' or 'Gracilis', and you will get plants of identical habit and fine foliage. Swane's Gold is an excellent yellow foliaged form of this conifer, raised in Australia, and although slow growing it makes a lovely golden pillar, 3 m tall, in about ten years.

In cold districts, *Libocedrus decurrens* makes a very stately, narrow tree, without the need for clipping, but in the warmer climates the growth is more open, making it less effective as a columnar specimen.

While the Serbian Spruce is the best form of spruce to grow in warmer areas, it is also good in the colder South Island, and because of its very symmetrical narrow pyramidal habit it may be recommended for any part of the country. Unless the garden is large, however, it may in time become too big, so it is seen at its best in parks and open spaces. Note the name, and do not accept substitutes - *Picea omorika*.

The Irish Yew *Taxus baccata* 'Fastigiata' provides a handsome, dark green pillar, so slow that ten years may elapse before it fulfills its intended role, and the golden form 'Fastigiata Aurea' is even slower, but no one can deny the sense of maturity and permanence that both these trees give.

The Irish Juniper is much quicker and grows particularly well in districts with cold winters, making about 2 m x 40 cm wide in ten years. This is *Juniperus communis* 'Hibernica', and a delightful miniature for the rock garden is *J. communis* 'Compressa' which has annual growth of only 5 cm. Most Junipers grow well and live long in the warmer northern gardens, and one called 'Skyrocket' is a fairly recent introduction and very fastigiate with silvery green foliage. It will be 2 m tall and only 30 cm wide at ten years.

There are several other erect junipers with a somewhat broader outline, but one from Japan has a most extraordinary habit, twisting and curling as it grows upright. This is *Juniperus chinensis* 'Kaizuka', and it is often used as an informal accent when height is needed (3 m in 10 years).

Another erect pillar is produced by *Thuja occidentalis* 'Pyramidalis' which will grow to 3 m in ten years. In time it would reach 10 m unless topped at intervals. This well-behaved tree makes a good boundary hedge, and even when sizeable trees are used at 80cm - 100cm intervals it will still be cheaper (and much more pleasing) than a timber fence.

Then there are many erect forms of Lawson's Cypress

Chamaecyparis lawsoniana, itself a pleasing green pillar, although broader at the base than those already discussed. 'Columnaris' has glaucous grey (2.5 m) 'Blom' is of similar colouring but smaller (2 m), 'Ellwoodii' is about the same size, and at its most compact in cool southern climates, 'Erecta' is bright green and broader towards the ground (2 m), 'Hillieri' of similar shape in a good bright yellow (2 m). The heights quoted are approximate at ten years.

MOWING NO LONGER A CHORE?

Mowing the lawns around the house could stop being a weekly chore when a turf retardant now being developed overseas is released for sale to the home gardener, according to Dr Roger Field, Reader in Lincoln College Plant Science Department.

Dr Field was overseas in Britain and the United States from November 1983 until August 1984. One of his major research interests while overseas was chemical manipulation of plant growth and development with synthetic plant-growth regulators (PGRs).

He saw several interesting developments in using PGRs on grass species with some chemical compounds stimulating tillering, reducing leaf size and reducing overall vegetative growth without influencing reproductive development. 'Such compounds do not have obvious applications for turf retardation or in improving pasture quality when used alone,' he said.

However, the chemical compound mefluidide, used to retard reproductive development of pasture grasses, and a new compound, amidochlor, both had promising applications for turf retardation and improving pasture quality.

'Amidochlor probably will be released soon as amenity turf retardant that can be used by the home gardener and weekly lawn mowing may soon be a thing of the past,' he said.

CONTROLLING WEEDS WITH INSECTS

by

Dr R.L. Hill and Dr O.R.W. Sutherland

of

Entomology Division, D.S.I.R.

WHAT IS A WEED?

Many plant species have been transferred either accidentally or deliberately to New Zealand, where they are not attacked by the insects and diseases which control them in their place of origin. Some reproduce with such vigour that they interfere with agriculture, the environment or human health. These species can be classed as weeds.

BIOLOGICAL CONTROL

Biological control aims to adjust the natural balance which exists between a weed and its environment by introducing and establishing insects and diseases which attack the weed in its country of origin. In New Zealand this work is undertaken by Entomology Division of the Department of Scientific and Industrial Research, D.S.I.R., at the Division's Lincoln station with the assistance of Noxious Plants Officers throughout the country. So far, only insects have been introduced to New Zealand in this programme.

The introduction of a biological control insect is a long process and involves several stages. The insect is first safety-tested overseas to ensure that it feeds, develops and reproduces only on the target weed, even when starved. Both native New Zealand plants and those of importance to agriculture and horticulture are tested. It is then imported into New Zealand and placed straight into strict quarantine, where it is reared for several generations to make sure it has not brought with it any parasites or unwanted diseases. Data on the present distribution and abundance of the weed is gathered so the effect of the insect on the weed can be measured.

Once we are certain the insect is safe to release, large numbers are reared and hundreds or thousands are liberated on the weed at one or more suitable sites. If the insect establishes and reproduces successfully on its own, the natural spread of the species is helped by redistributing it from the first sites to other areas infested by the weed. Follow-up studies of the effect of the insect on the weed populations are the next step. A second or third species of insect may be needed to have an appreciable long-term combined effect on weed populations.

Overall, biological control is a long and initially expensive process. It does not aim to eradicate the weed, but aims instead to achieve a balance in which the weed no longer causes economic losses and chemical control can be minimised. If this is achieved, the on-going costs are almost nil.

CURRENT PROJECTS

Gorse, *Ulex europaeus*

The gorse seed weevil *Apion ulicis* was introduced in 1927 to control the spread of gorse by destroying seed. Although it is now a very abundant insect it has only a limited effect because gorse flowers at least twice in New Zealand and some seed escapes attack by the weevil. At present two other gorse-feeding insects are in quarantine and may be released in 1984/85. Other insects are also being considered.



Gorse seed weevil adult.

Broom, *Cytisus scoparius*

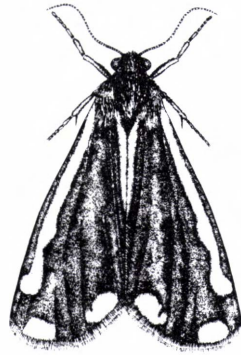
Several species are being safety-tested at present in the hope that one or more will prove to be a suitable biological control agent. No insects are expected to be released for several years yet.

Ragwort, *Senecio jacobaea*

Efforts to control this weed biologically began over 50 years ago. The cinnabar moth, *Tyria jacobaeae*, whose larvae feed voraciously on ragwort foliage, was first introduced from Europe in 1929 and the ragwort seedfly, *Pegohylemyia jacobaeae*, in 1936. Despite widespread releases, the two insects became established in only a few, separate, areas and had little effect on the weed. Attempts are now being made to redistribute both insects nationally. Thus, over 20,000 cinnabar moth *Tyria jacobaeae* larvae were released in Nelson/Golden Bay, the West Coast, Canterbury and Northland early in 1984. Larvae of a third insect, the ragwort flea beetle *Longitarsus jacobaeae*, feed on and destroy the root of the plant. This species was first released in the South Island in 1983 and more are being reared for further distribution.



Senecio jacobaea, ragwort; A rosette, B flowering stem



Cinnabar moth adult.

Nodding thistle, *Carduus nutans*

In the 10 years since it was first released, the nodding thistle weevil *Rhinocyllus conicus* has become established, often in abundance, throughout New Zealand. The weevil can destroy virtually 100% of the seed produced, and thistle infestations have declined where the insect is in greatest numbers, but its long-term impact on the weed remains to be determined. Meanwhile a second, root-feeding weevil, *Trichosiromalus horridus*, is in the initial rearing and release stages at Lincoln.

Californian thistle, *Cirsium arvense*

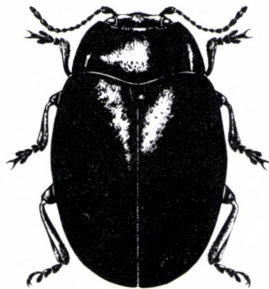
Two previous attempts at biocontrol of this weed failed when the insects did not establish. A third insect, the foliage-feeding flea beetle *Lema cyanella*, was released at Lincoln early in 1984. Further, more widespread distribution is planned.

St Johns Wort, *Hypericum perforatum*

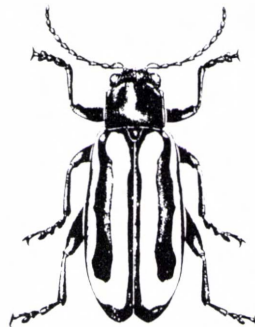
A foliage-feeding beetle, *Chrysolina hyperici*, was first released in the South Island in the 1940s. It established very successfully and is often credited with the virtual disappearance of the weed in Marlborough and its decline in Canterbury and Otago. But improved pasture management and rabbit control may well have been contributing factors.



Hypericum perforatum, St. John's wort; A habit, B flowers.



St John's wort beetle adult.



Agasicles hygrophila adult

Alligator weed, *Alternanthera philoxeroides*

In a joint project with the Noxious Plants Council, three insects have been introduced to New Zealand to control this South American aquatic weed which infests waterways, horticultural land and some pastures north of Auckland. Over thirty thousand adults of the aquatic flea beetle *Agasicles hygrophila* have been released in streams, rivers and lakes in Auckland and Northland since 1982. Adults and larvae feed on the weed foliage. Except where the plants are submerged by repeated flooding and killed off by winter frosts, the insects have become established, overwintered successfully and populations are continuing to expand and destroy the weed. Caterpillars of a second insect, the moth *Vogtia malloi*, live and feed in the stems of the weed and survive in a wider range of habitats than *Agasicles*. *Vogtia* is due to be released in the field in early 1984. The beetle *Disonycha argentinensis* was also released in the hope that it would attack weed infestations on the land. However, despite the release of many thousand insects, it has not survived in the field.

ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURE (INC.)

1985 A.G.M. AND NATIONAL CONFERENCE

N E W P L Y M O U T H

FRIDAY 17 TO SUNDAY 19 MAY, 1985

VENUE:- "SCOTLANDS", (BOARDERS' HOSTEL)
NEW PLYMOUTH GIRLS HIGH SCHOOL

OFFICIAL OPENING BY
HIS WORSHIP THE MAYOR OF NEW PLYMOUTH

MR DAVID LEAN.

Details of the Programme, and a Registration Form are printed overleaf. Please register early. The North Taranaki District Council promise you an enjoyable and educational weekend, in which you can renew old friendships and establish new ones.

ALL ENQUIRIES TO: THE CONFERENCE REGISTRAR,
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62ND NATIONAL CONFERENCE AND A.G.M.

New Plymouth Girls' High School

17th - 19th May, 1985

R E G I S T R A T I O N F O R M

The Conference Registrar,
Mrs M. Scrivener,
'Arborfield',
R.D. 9,
Inglewood.

Please register - (Block capitals please)

Name(s) : _____
(Use the name you want on your label)

Address: _____

Phone: _____

I/We shall be arriving by private car/air/bus a.m./p.m. on ____ May

I/We enclose registration fee of \$25.00 per person _____

I/We require accommodation at Girls' High School
@ \$20.00 per person per night _____

Optional dinner extra: \$7.50 if residing at G.H.S. _____

\$12.50 if non-resident _____

Enclosed cheque for total _____

Signature _____

Please ensure that your registration reaches the Registrar by 26th April

ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURE (INC.)

ANNUAL CONFERENCE 17/19 MAY 1985

NEW PLYMOUTH GIRLS' HIGH SCHOOL

P R O G R A M M E

FRIDAY 17 MAY

- 10.00 a.m. National Executive Meeting
'Scotlands' - New Plymouth Girls' High School,
Mangorei Road entrance.
- 7.00 p.m. Conference Registration and Social
inc. display of Botanical Illustrations,
Rare and Unusual Plants and Orchids.
- 8.00 p.m. Illustrated Talks (the Assembly Hall)
Introduction of speakers: C.I. McDowell,
Deputy Director of Parks & Recreation Department.
- "Horticultural Developments in Taranaki": W. Dykes,
Horticulture Advisory Officer, Ministry of
Agriculture & Fisheries.
- "Taranaki Landscape": G. Mulvay, Senior Technical
Assistant of Parks & Recreation Department
- "Hybridization Projects": M. Jury, Tikorangi
- "Pukekura Park Orchid Collection": I. Hutchinson,
N.D.H. Student.
- "Duncan & Davies Ltd.": D. Simpson, Managing
Director.
- 10.00 p.m. Supper.

SATURDAY 18 MAY

- 8.30 a.m. Conference Registration continues (Scotlands Lounge)
- 9.00 a.m. Conference business commences
- 10.00 a.m. Official Opening by His Worship the Mayor, David Lean
- 10.20 a.m. Morning tea
- 10.45 a.m. Conference resumes with Presidential address:
Mr R.J. Ballinger O.B.E. J.P. B.Aq.Sc.
- 11.00 a.m. Associate of Honour and Fellowship Awards by
President

- 12.15 p.m. Conference closes
- 12.30 p.m. Luncheon (provided at Conference Centre)
- 1.30 p.m. Coaches depart for Pukeiti Rhododendron Trust Inc.
- 2.00 p.m. Guided tour by Mr G. Smith, Curator
Mr A. Jellyman, Executive
Mr D. Brown, Assistant Curator
- 3.30 p.m. Afternoon tea (Pukeiti Lodge)
- 4.00 p.m. Return to New Plymouth via Oakura
- 5.00 - 6.00 Free
- 6.00 p.m. Banks Lecture: Nancy M. Admas (Assembly Hall)
"Botanical Illustrating"
- 7.30 p.m. Conference Dinner
After-dinner speaker: Mr A.D. Jellyman, Director
of Parks & Recreation Department.

SUNDAY 19 MAY

- 8.30 a.m. Coaches depart from New Plymouth Girls' High School
for main hotels and Horticultural Tour.
- 9.00 a.m. 'Tupare' - the garden of Sir Russell and Lady
Matthews.
- 10.30 a.m. Morning Tea - Parks & Recreation Department Nursery
- 11.00 a.m. Brooklands Park and 'The Gables' Historic Building,
Guided tour by Mr G. Fuller, Curator Pukekura Park
Mrs G. Lambert, Deputy Public
Relations Officer
- 12.00 noon Luncheon - the New Plymouth Girls' High School
- 1.00 p.m. Sir Victor Davies Park and walk to Pukekura Park
Guided tour of Display Houses by Miss I. Small
Miss A. McCrone
- 3.30 p.m. Afternoon tea (Cricket pavilion)
- Depart for home via Lake Mangamahoe or Energy
Project.

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