Horticulture

in New Zealand

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

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HORTICULTURE
IN NEW ZEALAND

BULLETIN OF THE ROYAL N.Z. INSTITUTE OF HORTICULTURE
NUMBER 27, AUTUMN 1983

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EDITORIAL

It seems like only last week I was writing the editorial for the summer bulletin and now we are getting the autumn issue ready for printing. Time is certainly passing by and at an even greater rate are the seasons.

The summer in Canterbury has been very variable, ranging from the odd hot day to days of cool overcast conditions. Growth in the garden has certainly reflected this with poor results, particularly in the veges. I hope your region has been better. I think it will only be a short time before we have our first frost and then come all those winter jobs that must be done.

With the poor summer Canterbury has had, the Autumn could well be short and not very sweet, so may I suggest you spend the cool evenings reading the Bulletin and the 1982 Annual Journal that is now available.

Those of you who have kiwi-fruit growing will be interested to know that the plant can be used for just about anything, so why not try marketing it to help pay the power bills this winter!

In recent issues you will I feel sure, have noticed the line drawings that we have used. These drawings have been kindly done for us by Mark Brooks, who I would like to thank for his efforts and excellent work. Also in this issue we have a drawing by Chris Durney, who I hope will do many more. If you are gifted at this type of work and would like us to use a drawing you may have done, please send it to me and I will certainly use it if space permits. The size of the drawing is not critical as we can have it reduced or enlarged.

Happy reading.

- David Shillito
Editor.

TEMPLIN TRAVELLING SCHOLARSHIP IN ENGINEERING & HORTICULTURE

The New Zealand Insurance 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 Parks and Recreation Department of the Christchurch City Council.

There are three scholarships of $10,000 each and they are available for study in the United States of America or Canada and are normally tenable for one year. It is desirable that applicants should intend to study at Ohio State University U.S.A.

Application forms are available from the Trust Department, The New Zealand Insurance Company Limited, Private Bag, Christchurch. Closing date for applications is 31.5.1983.

JUST PUBLISHED

The 1982 Annual Journal of the R.N.Z.I.H. has just been published.

Articles are varied in their topical, technical and scientific nature and include :

A new cultivar of a native plant.
Monocots and Geophytes.
Maroochy macadamia.
Some lesser known Temperate Root Crops.
The culture of Hawiian and Fiji hybrids of Hibiscus in the Auckland area.
Persimmons in Japan and prospects for New Zealand.
The selection and establishment of ornamental plants (the Banks Lecture).
In praise of *Alstroemias*. Introduction to new flower crops.

The Annual Journal consists of 105 pages, is well illustrated and costs $7.00 post paid.

- R.A.FOUBISTER
Secretary

If mankind profits from past mistakes, what a wonderful future is coming up.

A.G.M. 1983

Enclosed as an insert to this Bulletin is a programme for the 1983 A.G.M. and Jubilee Conference of the Royal N.Z. Institute of Horticulture, which this year is being hosted by Auckland District Council.

To ensure the success of this, the 60th Annual Conference of members, and to mark the importance of the occasion, all members attending are urged to complete the conference registration form and return it to the Conference Secretary as indicated on the back of the enclosed form.

DON'T DELAY - REGISTER NOW

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REMITS TO 1983 A.G.M.

The following remits have been approved for submission to A.G.M.

Remit No. 1 - That National Executive writes to the Minister of Labour, with copy to the Minister of Agriculture and Fisheries, and the Minister of Internal Affairs, asking that Local Authorities, through their Parks and Recreation Departments, be given a block grant, equivalent to the unemployment benefit, for a given number of pre-entry students, provided the Local Authorities make up the difference in the award rates of pay which would apply in each case. The students must be registered with either Lincoln College or Massey University, and the work period shall not exceed 12 months.

- Canterbury District Council

Remit No. 2 - That the National Executive in their discussion with Education Department in the formulation and continuing review of the horticultural syllabus in secondary schools, encourage the District Councils to extend every assistance to teachers within their areas, in gaining a wider appreciation of practical horticulture.

- P. Jew/J. Dingley - Northern District Councils

Remit No. 3 - That the National Executive in their discussion with the Education Department seek the equating of the secondary school Horticulture Syllabus with the first stages of the National Diploma in Horticulture.

- J. Dingley/J.Veal - Northern District Councils

Remit No. 4 - That the requirements, as per 'Conduct of District Councils', which require a minimum of 10 members for an A.G.M. is an unrealistic number for small District Councils and 7 would be more suitable.

- Whangarei District Council

NOTICE OF MOTION : That the Rules of the Institute be amended to permit membership of National Executive to be increased in number by two, by offering ex-officio membership to the Heads of the Horticulture Departments of Massey University and Lincoln College, or their nominees.

- National Executive

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ELECTION OF OFFICERS :

President - Dr D.J. Atkinson has indicated his wish to retire as President of the Institute and Mr R.J. Ballinger has accepted nomination for this office in 1983/1984.

National Executive - Three members, Mrs M. De Castro, Mr G.D. Mander and Prof. R.N. Rowe retire by rotation this year, and Mr R.J. Ballinger has tendered his resignation. Of these, only Mr Mander and Prof. Rowe have declared themselves available for re-election. Four nominations have been received to fill the four vacancies thus occurring, namely:

Mr G.D. Mander - Tauranga
Mr M. Steven - Waikato
Mr P.J. Jew - Auckland
Prof. R.N. Rowe - Christchurch.

There being no other nominations, a postal ballot is not required and the above four members are deemed to be elected for a period of three years.

The National Executive for 1983/1984 will be:

Mr J.O. Taylor, Chairman	- Christchurch
Mrs W.R. Shepherd	- Wellington
Mr I.D. Galloway	- Wellington
Mr R.J. Nanson	- Wellington
Mr A.L. Mason	- Feilding
Mr G.G. Henderson	- Dunedin
Mr A.G. Jolliffe	- Nelson
Prof. J.A. Veale	- Palmerston North (Massey)
Prof. R.N. Rowe	- Christchurch (Lincoln College)
Mr G.D. Mander	- Tauranga
Mr M.Steven	- Hamilton
Mr P.J. Jew	- Auckland

* * * * * * * * * * * *

The detailed agenda for the business sessions of the A.G.M. is not yet finalised but will be available for distribution to attending members. There will be opportunity for delegates to raise items of "other business" and to participate in the afternoon discussion session.

We look forward to a record attendance in Auckland on May 21-23.

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R.N.Z.I.H. CHAIRMAN'S REPORT TO ANNUAL GENERAL MEETING MAY 1983

Ladies and Gentlemen -

The 1982-83 year to the end of March (when this report was written) has been one of steady progress despite the subdued national economy. Our membership has shown an increase from 1751 to 1920. We have improved our Bulletins, increased the Journal sales, and embarked on two new substantial publications during the year. District Council activities continue at a strong level and indications are that the Nelson-Marlborough District Council, in recess, will be reconstituted in the near future.

NATIONAL EXECUTIVE : Three meetings were held during the year and attendance over all was 70%.

In August 1982, I recommended that the function of the National Executive should take a new direction not only because of the longer intervals between meetings but also because we should reconsider our objectives so that the affairs of the Institute could be more effectively carried out. In effect, the National Executive's function is now focussed towards decision-making following recommendations brought to it by standing committees. The standing committees are now as follows: Policy and Finance (urgent business), Publications (Bulletin and Journal), Special Publications (e.g., Flowers for Shows), Notable and Historic Trees, Awards, Public Relations (replacing Regional Horticulture), and Nomenclature (International Society for Horticultural Science).

At the August meeting, I defined the Institute's objectives to be currently in the areas of (a) technical horticultural guidance in the training and education of its registered students and examination at a national level, (b) the promotion and understanding of environmental/amenity horticulture at the local and national level principally through district council and individual membership activity as well as sub-committee activity, (c) communication of all relevant horticultural information to members by way of the Institute's publications, and (d) administration, budgeting and control of the national affairs of the Institute in the interests of its members and for furtherance of a national corporate image of the Institute.

PUBLICATIONS : The new Bulletin editor, Mr David Shillito, has introduced an informative and inquisitive theme. Not only are concise and newsy horticultural items being published, but questions are being asked particularly to gauge and identify members' interests. Likewise, the students' section is proving to be most useful to the growing number of persons taking examinations - and equally useful to those not taking exams.

The Annual Journal continues to grow in importance and the new editor, Mr M. Oates, is to be congratulated on his first issue, No. 10 which was distributed in March.

The revised edition of Flowers for Shows is shortly to go to tender for printing. The editor, Mr E. Toleman, has put in a great amount of work in gathering and compiling the information for this much-needed publication.

CHAIRMAN'S ANNUAL REPORT (CONT.) ...

With the assistance of a horticulture graduate, Mr Mark Wootton, under the P.E.P. Scheme, the National Executive has embarked on a survey and request for financial assistance to all horticultural organisations, commercial and non-commercial, for information which will enable the Institute to publish a factual and informative booklet on careers and training opportunities in horticulture.

It is hoped that the publication will be available before the end of the school year.

NOTABLE AND HISTORIC TREES : Under the chairmanship of Mrs W. Shepherd and secretaryship of Mr D. Rowe, an increasing number of trees has been registered in what must now surely be the most valuable and prestigious record of such trees in New Zealand. It is to be hoped that none of these trees will ever be interfered with or destroyed. I extend my thanks and appreciation to Mr David Rowe for his secretaryship of this sub-committee prior to his resignation in December.

AWARDS : During the year, the Plant Raisers' Award was made to Mr H.J. Clark of Auckland, for

Protea 'Clark's Red'
Camellia 'Craig Clark'
Hibiscus 'Apricot Parade'
Rhododendron 'Sandra's Scarlet'.

Two further Plant Raisers' awards are expected to be announced at the A.G.M.

PUBLIC RELATIONS : Initial work of this committee has been centred on drawing up proposals for future action in matters concerning the Institute's public image. Specifically these matters relate to T.V. exposure for RNZIH activities, publicising RNZIH personalities and publicising the RNZIH educational activities.

DISTRICT COUNCILS : Again it is pleasing to record that most District Councils are actively engaged in local horticultural activities.

REMITS FROM 1982 CONFERENCE :

Remit No.1 - from Northern District Councils proposing the appointment of a Standing Committee to deal with urgent business between National Executive meetings.

A Standing Committee comprising the Chairman and four Christchurch members was appointed at the September 1982 meeting of the National Executive.

Remit No.2 - from Northern District Councils proposing that a short meeting of the new Executive be held during Annual Conference.

This remit is to be actioned whenever practical and possible.

Remit No.3 - from Northern District Councils concerning RNZIH representation on the Beautiful New Zealand Scheme.

Mr Galloway and Mr Nanson were appointed to represent RNZIH interests.

CHAIRMAN'S ANNUAL REPORT (CONT.) ...

Remit No.4 - from Northern District Councils concerning local approaches to news media.

National Executive confirmed that District Councils could approach media on a local basis, when appropriate, on matters of local interest.

Remit No.1 from 1981 A.G.M. concerning the introduction of a paid Life Membership was considered by National Executive in May 1982 and could not be supported at this stage.

FINANCIAL : Despite the current 'freeze' on wages and prices, costs of administration continue to rise. During the year it was necessary to employ additional part-time staff, and with the growing amount of administration work, costs of postage and stationery also increased. Financial statements for 1982 are published in this issue of the Bulletin.

(a) General Account - This account reflects financial matters relating solely to the administration of membership affairs. It covers costs associated with the National Executive, Publications, Capitation, with a proportion of secretarial, postage, printing and other administrative expenditure. Income is restricted to subscriptions, interest and sale of publications, plus minor sundry receipts.

In 1982 subscription and interest income increased by approximately $1,500 while total expenditure decreased by some $1,900. However, a not unexpected deficit of $4,293 in the publications account eroded the net surplus which would otherwise have accrued.

(b) Examinations Account - Substantial increases in examination entry fees and Horticultural Cadet enrolments, together with an increase in Government Grant, because of increased student numbers, combined to produce a surplus of $6,630 in this account. Expenditure also increased, but was held at reasonable levels, commensurate with the greater volume of administrative work involved. The surplus recorded this year will go a long way towards offsetting deficits which have occurred in this account in the past few years.

(c) Publications Account - It is intended in future to itemise this account, to indicate more clearly the costs and returns obtained from each separate publication. During 1982 the net surplus from Annual Journal sales was $530 (sales $4,353 : costs $3,823) while net surplus from other publications was $825 (sales $975 : costs $150).

Publication costs totalled $9,731 (Journal $3,823 : other $150 Bulletin $5,758). Clearly the deficit in the publications account can be attributed solely to the costs of the quarterly Bulletin which is an acceptable charge against members' subscriptions.

(d) Balance Sheet - The finances of the Institute remain in a sound condition with accumulated funds now standing at $24,422. This sum is in effect the working capital of the Institute, and the cash reserves appearing under current assets are essential to maintain adequate cash flow during some periods of the year

CHAIRMAN'S ANNUAL REPORT (CONT.) ...

when income is not being received. Long-term deposits in the Trust Accounts are now all earning good interest, and the favourable rates being obtained for phased short-term deposits are reflected in the interest income of $1,317.

Subscriptions in arrears are higher than in previous years and members are urged to pay their accounts as promptly as possible.

IN MEMORIUM : We record with regret the passing of the following members during the year:

Mr T.H. Warburton AHRIH (Vice-President) - Greytown.
Mr F. Parker AHRIH - New Plymouth.
Mr R.D. Chamberlain AHRIH - Hawera.
Mr T.F. Archer AHRIH - Nelson.
Mr B. Teague FRIH - Wairoa.
Mr J.I. Short FRIH - Wellington
Mr P. Everett FRIH , Hon. Life Member - Auckland.
Dr A. North, Life Member - Rotorua.
Miss M.G. Mitchell, Life Member - Auckland.
Mrs J.R. Hunger, Hon. Life Member - Patea.
Mrs N.V. Anderson, Life Member - Stratford.
Mrs J. Henery - New Plymouth.
Miss E.M. McCarthy - Dunedin.
Mr J.H. Edwards (Student) - New Plymouth.
Mr B.M. Joyce (Student) - Christchurch.

Our sincere sympathy is extended to next of kin and relatives.

CONCLUSION : Your National Executive will have for its 1983/1984 objective, not only a continuance of the overall success of 1982, but a furtherance of the basic aims of the Institute, particularly in horticultural education, and projection of the RNZIH image. This will entail greater promotion of activities at District level, and more forceful representation in matters horticultural at the national level.

I take this opportunity of recording my thanks to all members of the National Executive for their support during the year, to District Councils for their unfailing enthusiasm at the local level, and finally to the National Secretary, Mr Foubister and his assistant, Mrs E. Reeves, for their seemingly unending ability to cope with the ever-increasing volume of administrative work generated by some 1,100 students and 900 general members.

- J.O. TAYLOR,
Chairman,
RNZIH NATIONAL EXECUTIVE

THE ROYAL NEW ZEALAND

INSTITUTE OF HORTICULTURE (INC.)

FINANCIAL STATEMENTS

FOR THE YEAR ENDED 31 DECEMBER 1982

C O N T E N T S

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ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURE

BALANCE SHEET

AS AT 31 DECEMBER 1982

CURRENT LIABILITIES			1982	1981
Accounts payable		3,772		4,233
District Council Funds Suspense (Note 3)		1,078		953
TOTAL CURRENT LIABILITIES			4,850	5,186
PUBLICATIONS RESERVE			-	396
Notable & Historic Trees Committee (Note 4)			954	1,749
Accumulated Funds				
Balance 1/1/82		15,746		14,561
Examinations Account (Note 2)		6,631		-
Excess of income over expenditure		1,091		1,185
Accumulated Funds 31/12/82			23,468	15,746
TRUST ACCOUNT BALANCES	CAPITAL	INCOME		
- Endowment Fund (comp)	1,531			
- F. Cooper Memorial Fund (comp)	1,198			
- J.A. Campbell Memorial Prize Fund	500	137		
- Junior Memorial Prize Fund	500	91		
- D. Tannock Memorial Prize Fund	500	166		
- P. Skellerup Prize Fund	1,025	171		
- R. Skellerup Prize Fund	1,025	255		
- D. MacKenzie Memorial Prize Fund	500	133		
	6,779	953	7,732	7,133
			$37,004	$30,210

CURRENT ASSETS		1982	1981
Subscriptions in Arrears		2,138	1,580
Bank of New Zealand		4,987	7,031
Sundry Debtors		63	118
Books on hand for sale		1,660	1,946
B.N.Z. Term deposit		18,000	9,000
P.O.S.B. - current account		20	19
TOTAL CURRENT ASSETS		26,868	19,694
DEPOSITS HELD FOR FUNDS (Note 6)			
P.O.S.B. - special funds	1,732		1,633
General Finance Co.	-		1,350
B.N.Z. Finance Co.	4,050		2,200
Christchurch City Council	1,050		1,050
Christchurch City Council (2)	400		400
B.N.Z. Savings Bank	78		103
B.N.Z. Notable & Historic Trees	954		1,749
Palmerston North City Council	500		500
B.N.Z. Term Deposit	1,000		850
TOTAL DEPOSITS HELD		9,764	9,835
FIXED ASSETS			
Office equipment (at cost)	1,546		
Less: Accumulated depreciation	1,174		
		372	681
		$37,004	$30,210

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

25/3/83.

ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURE

GENERAL ACCOUNT

INCOME AND EXPENDITURE ACCOUNT

FOR THE YEAR ENDED 31 DECEMBER 1982

		1982	1981
INCOME			
Subscriptions	14,157		12,883
Donations	55		63
Secretarial services - N.Z.I.P.R.A.	608		798
Sundry receipts	13		-
Interest	1,317		953
Net surplus from Publications Account (Note 5)	(4,293)		321
TOTAL INCOME		11,857	15,018
LESS EXPENDITURE			
Accident Compensation	147		-
Advertising	25		175
Capitations paid to District Councils	2,452		1,998
Salary, wages and secretarial services	3,331		5,383
Audit fee	360		520
Depreciation	309		309
Printing and stationery	1,588		801
Postages, telegrams, telephone charges	753		339
General expenses	171		339
A.G.M. expenses	544		-
Travel expenses	1,046		1,592
Grant - Notable & Historic Trees Committee	-		1,200
Office rent	40		-
TOTAL EXPENDITURE		10,766	12,656
		1,091	2,362
Deficit Examination Account		-	(1,177)
EXCESS OF INCOME OVER EXPENDITURE		$ 1,091	$ 1,185

25/3/82

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

ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURE

EXAMINATIONS ACCOUNT

INCOME & EXPENDITURE

FOR YEAR ENDED 31 DECEMBER 1982

		1982	1981
INCOME			
H.T.C. enrolments	2,390		810
Registration	2,623		2,416
Examination entry	14,925		6,886
Exam recount fees	125		36
Sundry income	616		294
Government Grant	30,315		23,893
Loder Cup Committee	1,000		750
		51,994	35,085
EXPENDITURE			
Audit fee	240		-
Exam Board expenses	4,587		3,735
Examiners fees and expenses	7,560		7,219
Sundry refunds of fees	511		224
General expenses	46		42
Loder Cup Committee	1,000		750
Hired examination room	165		135
Office rent	360		-
Postage and telephone	1,882		1,555
Printing and stationery	2,748		2,357
Secretarial and office stationery	26,264		20,245
		45,363	36,262
EXCESS OF INCOME OVER EXPENDITURE		$ 6,631	$(1,177)

25/7/83

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

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.

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, audit and accountancy fees, and rent, 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 1982			1,749
Add: Interest from investment account			89
Registration fees			57
			1,895
Less: Secretarial expenses		90	
New labels		827	
Sundry expenses		24	941
			$ 954

NOTE 5 PUBLICATIONS ACCOUNT

		1982	1981
SALES		5,328	6,713
Transfer from Publications reserve		396	-
		5,724	6,713
Less			
Costs of publication	9,731		4,819
Adjustment for decrease in stock on hand	286		1,573
		10,017	6,392
NET DEFICIT FROM PUBLICATIONS FOR YEAR		$(4,293)	$ 321

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.

	1982	1981
District Council Funds in Suspense	1,078	953
Notable & Historic Trees Committee	954	1,749
Trust Account Balances	7,732	7,133
TOTAL DEPOSITS HELD FOR FUNDS	$9,764	$9,835

25/7/83

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 1982, and of its income and expenditure for the year then ended.

McCULLOCH MENZIES, Chartered Accountants

Christchurch, N.Z.

25 March 1983

OBITUARY

It is with regret that we note the death of Mrs. N.V. Anderson of Stratford in January 1983.

Mrs. Anderson had a long association with the Insitute and was made a Life Member in 1962. In 1967 she was made an Associate of Honour for her work within the Institute.

The Canterbury District Council records with sadness the passing of Mr. Eric Bayliss. Mr. Bayliss became a member of the Institute in 1946 and was made a Fellow two years later. Always interested in plants, particularly trees and shrubs, always interested in the welfare of the Institute and always friendly, he will be missed by the legion of friends who came to know him over the past 36 years.

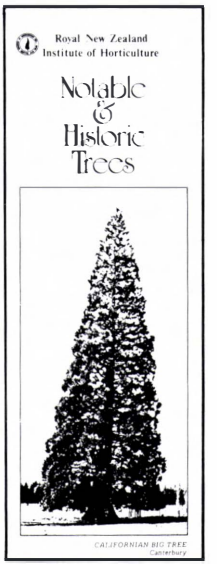
NOTABLE & HISTORIC TREES BROCHURE

To help publicise the work of the Notable & Historic Trees committee a new brochure has been published giving information on the formation of the scheme and the procedure for registering trees.

The projected aim is to serve as a preliminary to national legislation that will ensure the protection of such trees.

Anyone wishing to obtain a copy/ copies of this brochure to help publicise the campaign are asked to write to :

RNZIH Notable & Historic Trees,
P.O. Box 11-379
Manners St.,
WELLINGTON



Aussie Government official at the C.E.R. talks was heard to comment "That's what happens when you involve industry in its own affairs".

IT CURES BOILS, PAVES ROADS AND FEEDS PIGS.

(from the Hawkes Bay Times)

"Its growers claim that it can relax muscles, stimulate circulation, invigorate the spleen, relieve colds and rheumatism and reduce insomnia and amnesia."

So read an article in the Chinese newspaper Ta Kung Pao about "China's miracle fruit" - better known here as the kiwifruit.

The article describes the fruit as "one of the wonders of China". It says the fruit's remedial properties have been known to the Chinese for centuries. Its other uses range from paper manufacture to paving roads.

The Chinese name for the fruit, mi hou tao, translates as "peach of the Macaque monkey" and refers to that animal's liking for the fruit.

The article claims the fruit grows best on well-drained soil on sunny, leeward slopes up to 2300 metres above sea level.

"The fruit is highly nutritious and contains six to eight times the amount of vitamin C found in citrus fruits, and 30 times that of apples and pears," it reads.

"The seeds of the gooseberries are as small as sesame, and are sometimes used as an ingredient for making pastries in China.

Its round leaves contain starch, protein, vitamin C and various other nutrients, and make good pig feed. The fragrant flower is rich in nectar and also provides a good base for the production of perfume.

And the root of the plant is often made into herbal medicine. It has proved effective in reducing fever, improving urination, dispersing extravasated blood, stimulating blood circulation, stepping up milk secretion in nursing mothers, and relieving inflammation.

In some places nursing mothers drink the liquid from the boiled root, plus refined sugar, to promote lactation. And sufferers from boils, contusions or sprains are often given the mashed root for external application.

The stalk of the Chinese gooseberry is rich in glue, which is obtained simply by soaking in water. This glue is used widely specially in making construction materials. It is usually mixed with clay, sand, Macadan, lime and salt, and used to pave roads or as a protective covering for walls.

It is also a constituent in printing ink and dyes, and is used in making plastics and chemicals."

The newspaper containing the article was found by Mr. L.C. Lee of Pyes Pa, at the Canton Railway Station when he visited China recently.

"That article makes you wonder why we export nearly all of our kiwifruit crop," he said.

Borago officinalis

DIPLOMA AND CERTIFICATE GRADUATIONS - 1982

We regret that limitations on time and space have prevented publication in this issue of the names of graduates in the National Certificate and National Diploma examinations held in 1982. A full list of graduates and prize winners will be published in the next issue of the Bulletin.

Editor

GRASS GRUB CONTROL METHODS RECONSIDERED

Current procedures using Lindane for controlling grass grub infestations are being drastically re-thought in the light of recent research findings.

Delegates at the Weed and Pest Control conference in Hamilton were reminded how Lindane was being applied at the time when it was believed the maximum pasture damage was being caused - during the actual grub, or larval phase of the insect's life cycle.

The kill rate, according to the M.A.F. scientists, while never spectacular, appeared to justify continuing this practice. They had, however, noted that control seemed most effective in the season following the application of the chemical.

Research into this aspect revealed that the chemical was much more effective against emerging adult beetles than against the grubs. Furthermore, it was effective at reduced application rates.

Following extensive field trials, researchers have now confirmed these findings and have also established that time and placement of Lindane application is absolutely critical.

The beetles emerge from the soil during a brief period in spring. Broadcast application of Lindane to the very top layer of soil, just before this time, has been shown to achieve kills of 80 to 88 per cent of subsequent grass grub populations.

In contrast, the existing recommendations for deep-drilled applications earlier in the season have only suceeeded in accounting for some 41.7 per cent of grubs.

Due to concern regarding possible residues in animal products from Lindane-treated pastures, the chemical has until now been approved for use during a limited period of the year.

With evidence now available that reduced application rates can achieve the desired control, researchers are seeking permission from the Agricultural Chemicals Board to extend the period during which Lindane may be used to include the critical spring period.

TAX AVOIDANCE - A DUTY

Horticulturalists and other citizens should not be embarrassed about any plans they may have to avoid paying tax, providing they are legal. A famous British Court decision states : "It is the duty of every taxpayer to pay the minimum tax legally possible".

WELCOME:
to the following new members

Alexander Mrs. R.E. New Plymouth
Ansell K.A. Motueka
Baker T.J., Cromwell
Boyd T.W., Clevedon
Briggs W.J., Auckland
Brook Ms. N.G., Christchurch
Chiaroni M., Hokianga
Cunliffe W.R., S. Canterbury
Evans Ms. A.C., Dunedin
Fern Ms. K.A., Nelson
Goldfinch Mrs.L.M. New Plym.
Hatch Miss D.L., Pukekohe
Hennah Miss G., Hokianga
Hosken T.J. Tauranga
Hussey B.A., Wellington
Knowlton A.D., Cambridge
Lightfoot S.J., Auckland
Mackenzie Mrs. E. L. Hutt
McCauley Ms. E.A., Hamilton
Morris Miss C.J., Pukekohe
Ogier T.N., Kati Kati
Orewa College
Pasley B.S., Auckland
Reeve M.D. Hamilton
Ross Miss L.A., Cromwell
Russell G., Hawkes Bay
Scidoc Mr. J.S.A., England
Short T.G., Wellington
Stewart Miss D.W., Auckland
Stone Miss T.M. New Plymouth
Thompson Mrs. M.A. New Plym.
Tunnicliff M.J., Nelson
Turner M.R., Warkworth
Walker Miss J.A., Auckland
Wilton Ms. C.M., Auckland
Anderson T., Auckland
Antill J.W., Wellington
Blumhardt C., Auckland
Boyce K.J., Gisborne
Brock I.A., Auckland
Chaney E.W., Auckland
Corbett M.B., Auckland
England Mrs. E., Christchurch
Evans N.A., Auckland
Gardencare, Wellington
Gordon A. Urenui
Hayes Ms. S.L., Auckland
Hillebrandt R., Wellington
Hurst E.J., Ohaupo
Knaggs B.R., Morrinsville
Leatham M.L. Christchurch
Lindup A.W., Taupo
McCall Ms. S.D., Hamilton
Martin K.R., Auckland
Nodder Mrs. E. New Plymouth
O'Halloran Ms. K.M., Napier
Parkins R.G., Hamilton
Pulford M.W., Nelson
Riggir I., Porirua
Ruby Ms. B.L., Auckland
Semmens Ms. K.J., Auckland
Sherwood D.J.L., Kati Kati
Southall Mr.&Mrs.G.D. Te Awamutu
St. Paul Mrs. J., Waiheke Is.
Squire K.P., Westland
Thompson W.F.F., Wellington
Turner Ms. M.R., Auckland
Tyler Moore Mrs. PA, Manurewa
Waiheke Hort. Society
Wellington Bonsai Club

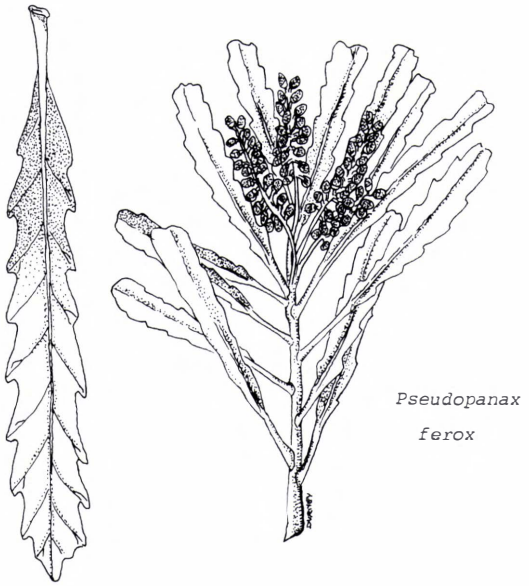
DISTRICT COUNCIL NEWS

I regret owing to the shortage of space available in this issue of the Bulletin, I have been unable to include any District Council News.

This popular section will however be back in our Winter issue with the news and events in your region.

- Editor

STUDENT SECTION



Pseudopanax ferox

EDITORIAL

Are we really in danger working amongst plants? We could be led to believe so if viewing T.V. recently. Not from poisonous sprays, soil shredders, hernias or TCI assignments, but from the plants themselves. 'The Day of the Triffids'. Could overfeeding a pitcher plant produce a triffid? Then to be told in an advertisement the same night that some plants are dangerous, if included in our diet, made me realise the danger of being a vegetarian.

Remember to make steady progress on your assignments during the year, revising work as you go. Swot should not start two weeks before the examinations.

If you have any views, particular interests, or found any interesting articles on horticulture, please write to us. All articles will be strictly confidential and published in the next bulletin.

Best wishes.

Merv. Spurway

PEST AND DISEASE IDENTIFICATION AND CONTROL

by
Mrs. J. Amos, N.D.H. Examiner

When you know the cause of pest and disease symptoms in plants, it is easier to find out the control by reference to textbooks, Aglinks, correspondence course notes, labels on containers of agricultural chemicals and by asking people.

The first step is to be observant and to recognise that something is wrong with the plant. Do you know what a normal healthy plant of the same species and variety looks like at all stages of growth? You can only become familiar with plants by working with them, and by really looking at them when taking cuttings, pricking out seedlings, planting, weeding, pruning etc.

Notice when symptoms occur: the time of year, the stage of growth, climatic and soil conditions.

Notice where they occur: in leaf, stem, flower, roots, buds, on top of the leaf, at the edge or underneath, on older leaves or young developing leaves and on which plants.

The common names of some diseases are descriptive: rust, powdery mildew, wilt, root-rot, leaf-spot, leaf-curl.

Most pests are easily seen with a magnifying glass or pocket lens with X10 magnification. Aphids, caterpillars, scale insects, mealy bugs, even spider-mites can be recognised. Slugs, snails, beetles and weevils cause a lot of damage to plants but may not always be so easy to find.

On horticultural properties with a good standard of hygiene and routine pest and disease control, there may be few opportunities to see pests, diseases and their symptoms. When the range of crops is limited, some common problems may not occur.

Most students have access to home gardens, where spraying is not routine, and where there is a variety of flowers, fruit and vegetables. Common pests and diseases can usually be found. Watch for symptoms and get them identified. Your foreman or employer can probably help you.

Take advantage of any practical demonstrations and talks on the subject. Ask if these can be arranged if there are several students in your district.

From the demonstration samples, try to remember :

a) The plant - the symptom - the disease.

b) The pest - what it looks like - what it does to the plant - where it is on the plant - what is the name of the plant.

Then read about it so that the relationship between plant and pest or disease and best methods of control can be better understood.

Some garden centres and horticultural retailers have a good range of horticultural chemicals for the control of pests, diseases and weeds. Take time to see the full range, to read the labels carefully, noting (under the trade name) the common name of the chemical, what it controls and how to use it safely.

In conclusion, be observant, collect samples, have them identified and then read for appropriate control measures.

THE HAIL STORM

by

R.A. Crowder, Senior Lecturer,

Dept. of Horticulture, Landscape & Parks, Lincoln College

Every so often the people of New Zealand are astonished by "freak" weather conditions that leave them licking their wounds and wondering if the climate is changing.

As horticulture becomes more acceptable as a livelihood, and more widespread in its distribution, it is time to look more carefully at these "freak" happenings to ascertain their cause and whether they might not be more frequent than at first believed.

The summer of 1982-83 will long be remembered in Canterbury for the frequency of hail storms. This phenomena occurred from two to four occasions between November 1982 and January 1983 and culminated in the great storm of January 19 1983.

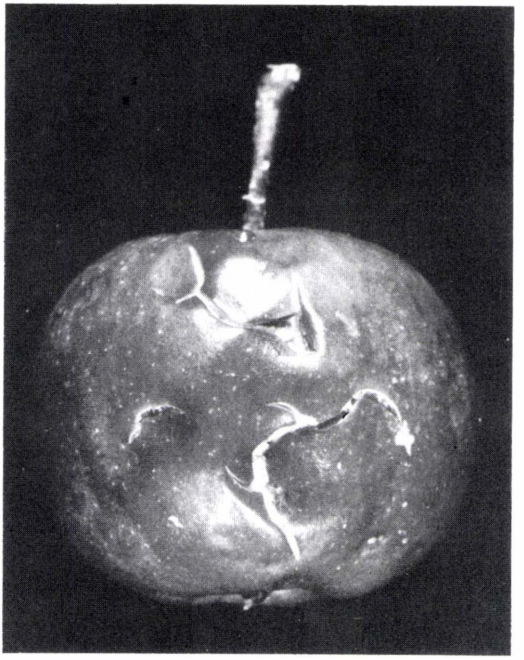
Hail storms are important because they can cause very severe damage to plant material and in some instances as in Canterbury in January, severe material damage as well. Almost always such storms are associated with electrical phenomena, squally winds and heavy rains, which can cause further damage.

The problem with all this is that the hail storm in Canterbury, Nelson, Blenheim, Hastings, and Gisborne is uncommon, yet is a very strong and normal feature of the climate. It is therefore understandable that most people regard the hail storm as unusual in these areas and consequently are amazed when they get "wiped out" by such a phenomenon.

If you live on the west side of New Zealand, however, the hailstorm is almost a common feature of the climate and especially in the winter months. Despite this, grumbles and wipe outs are relatively uncommon, although they do occur from time to time during the summer months.

In general, eastern areas receive from 2-5 hail storms per year, whereas western areas may exceed 20 per year.

The reasons for this are very interesting. In the east, hail storms are caused by unstable conditions along an advancing cold front. Now, although eastern districts receive many cold front passages during a year, only very few develop the conditions necessary for hail or thunderstorms. To develop a major storm, you need humidity in the air ahead of the cold air. Usually a cold front follows a warm, dry, north-west airstream. Such an airmass is not conducive to the development of severe storms. It is the weak, cold front that causes the trouble. Such a situation does not allow penetration of the north-westerly airstream. Usually local heating ahead of the front causes a sea breeze effect to develop drawing in moist, oceanic air which creates ideal conditions for instability head of the advancing cold front and consequent storm development.



Apple damaged by hail in a recent storm in Canterbury.

The severe hail storm in the east is therefore an early summer phenomena and occurs most frequently from October to January when the difference between heating of the land and coldness of the upper air and sea is most extreme. Because the heat energy is greater, the clouds are higher and the liability to large hail storms is greater.

During winter, the whole energy exchange is much less and any hail that falls is small, and there are no crops anyway.

West of New Zealand the scenario is somewhat different. Hail is still caused by instability but it is derived by the heating of the cold Southerly airmass becoming warmed by contact with a relatively warm sea. Humidity is present but temperatures are lower at the sea surface and the thermals are not so violent. These conditions are met far more frequently however, than the more specific criteria required on the East Coast with a consequent much greater frequency of hail, thunder, and squalls though, on the whole, hail is of smaller size. It can, however, cause severe crop damage at times particularly when associated with strong winds and in the summer when hail again tends to be greater in size.

In New Zealand therefore, hail is more frequent in the west but less devastating than in the east where it is however, less frequent.

The 1982-1983 season is a timely reminder for horticulturists that hail is a force to be reckoned with and should be included within the framework of budgetary risks.

PRUNING

From 'Garden Rubbish' by W.C. Sellar and R.J. Yeatman

There is never exactly the right amount of garden. You have to be either increasing it by sowing, mulching and grafting or decreasing it by thinning out, cutting back and, of course, Pruning.

Thinning out can safely be left to sparrows, slugs, wireworms and (particularly in the case of sweet-peas) *mice* - though the latter tend to overdo it and it is perhaps worth recording the famous MacSicker or Ca'Canny method of sowing sweet-peas adopted by our friend Angus MacFungus, viz. first dip the seeds in paraffin and red lead (against mice) and then sow seeds six inches deep (in mouse traps).

Pruning is easy, because the instructions are usually so lucid. For instance, "in pruning currant bushes it is a good rule to cut all new shoots off the old wood of *red*-currants to enable the new fruit to form on the old shoots, but to cut all *old* shoots off the *black* - currants to enable the stewed fruit to shoot off the *red*-currants" (and *vice versa*, or more lucidly, *tutti frutti*).

It is much the same with apple trees, but more difficult to explain, since there are no black-apples.

In pruning roses, also, we have a good guiding principle, viz. to promote strong shoots in weak growers and cut out weaker shoots in strong growers by *cutting back to the third dormant eye facing outwards in April,* except for special climbers that bloom on short shoots in July and, of course, shooters that climb in special long bloomers in August or utter bounders that shoot in climbing shorts in September - all of whom must be cut dead or, alternatively, *shot at sight.*

PLANT NAME CHANGES APPROVED BY THE NZNA

The following are name changes approved by the New Zealand Nurserymen's Association's Nomenclature Committee, and contained in their report, October 1982 (from 'Commercial Horticulture', February 1983).

Name in Use	New Name	Authority
Luculia grandiflora	*Luculia grandifolia*	Hillier
Cistus formosus	*Halimium lasianthum*	Hillier
Olearia gunniana cvs.	*Olearia phlogopoppa* 'Blue Gem'	Oxford Botanics and Hillier
Olearia gunniana cvs.	*Olearia phlogopoppa* 'Pink Gem'	Oxford Botanics and Hillier
Musa ensete	*Ensete ventricosum*	Hortus III
Chamaecyparis lawsoniana 'Erecta Viridis'	*Chamaecyparis lawsoniana* 'Erecta'	Hillier
Forsythia 'Lynwood Gold'	*Forsythia* 'Lynwood'	Hillier
Cedrella sinensis	*Cedrella sinensis* 'Flamingo'	H Redgrove
Prunus subhirtella 'Pendula'	*Prunus subhirtella* 'Pendula Rosea'	Hillier
	Prunus subhirtella 'Falling Snow'	As published RNZIH
	Prunus yedonensis 'Awenui'	Adams
Acer negundo 'Aureo-Variegatus'	*Acer negundo* 'Elegans'	Hillier
Acer negundo 'Argenteo-Variegatum'	*Acer negundo* 'Variegatum'	Hillier
Cistus albiflorus	*Cistus* 'Bennetts White'	As published RNZIH
Cotinus americanus	*Cotinus obovatus*	Hillier/Hortus III
Fremontia californica	*Fremontodendron californicum*	Hillier/Hortus III
Juniperus chinensis 'Stricta'	*Juniperus chinensis* 'Pyramidalis'	Hillier
Nepeta mussinii	*Nepeta faassenii*	RHS/Hortus III
Viburnum fragrans	*Viburnum farreri*	Hillier
Meconopsis baileyi	*Meconopsis betonicifolia*	RHS
Prunus 'Incame Okame'	*Prunus* 'Okame'	Collingwood-Ingram

The following name changes are under ongoing investigation:

Name in Use	New Name Under Investigation	Authority
Podocarpus dacrydioides	*Dacrycarpus dacrydioides*	de Laubenfels
Neopanax laetum	*Pseudopanax laetus*	Philipson
Podocarpus spicatus	*Prumnopitys taxifolia*	-
Podocarpus ferruginea	*Prumnopitys ferruginea*	-
Thuja orientalis	*Platycladus orientalis*	Welch

SUBTROPICAL FRUIT POLLINATION

from 'Aglink' by P.R. Sale

Pollination is essential for the production of most fruit crops.

It is the process whereby pollen is transferred from the anthers to the stigma of the same or another flower. Successful pollination results in the germination of the pollen grain, growth of a pollen tube into the ovary and the development of a fruit.

(1) Self pollination is where a variety is pollinated with its own pollen.

(2) Cross pollination is where a variety is pollinated with pollen from another compatible variety.

Pollination depends on

(a) Presence of suitable pollen.

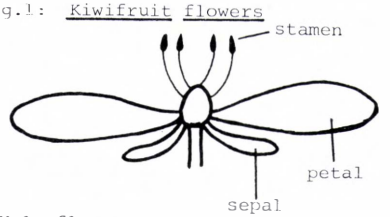
(b) An agent to transfer this pollen to the stigma.

KIWIFRUIT

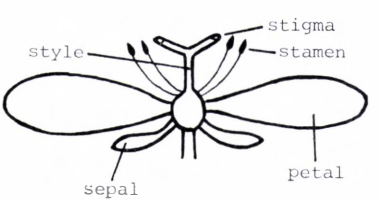
The kiwifruit only produces comparatively small numbers of flowers and a high degree of pollination is necessary for a good crop.

The kiwifruit is dioecious, (male and female flowers are produced on different plants). Anthers produced in female plants have non-viable pollen.

Fig.1: Kiwifruit flowers



Male flower



Female flower

Both male and female flowers must be present with an adequate overlap of their blossom period. - This is an important factor in the selection of a male clone. Male vines should be planted throughout blocks at a maximum ratio of 1 male : 8 females. Ratios as low as 1 : 4 have merit, but in these instances the male vines should not be allowed to occupy more than one ninth of the total area. All male clones evaluated so far have had viable pollen, but the pollen only remains viable for 2-3 days after the flower opens. Females remain receptive for 7-8 days.

(1) Insects play a major role in pollination; honey bees are the most important of these. However the kiwifruit flower is not very attractive to bees. It produces no nectar and has dry pollen which is difficult for bees to pack into their pollen baskets. Consequently, bees are inclined to visit more attractive sources than kiwifruit, such as citrus in nearby orchards, clover in unmown orchard swards or pasture, or bush plants such as rewa-rewa.

To overcome this, hives should be introduced into kiwifruit orchards at a density of 7-8/ha. They should be carefully sited to encourage bees to work. Insecticides toxic to bees must not be used while hives are in orchards. Good liaison with beekeepers is essential for a satisfactory pollination service to be maintained.

(2) Wind is a minor factor in pollination.

(3) Hand pollination is suitable for small areas and simply consists of rubbing a freshly opened male flower across a female flower for 1-2 seconds. One male flower can be used for 5 or 6 female flowers.

AVOCADOS

The avocado produces many flowers, and only a very small percentage of these need to set for a good crop. There are up to 500 flowers for each fruit set in a good commercial crop.

The avocado flower is monoecious (having both male and female parts), but it has a dual opening cycle (Fig.2) :

Stage 1 : Functions as female - stigma receptive to pollen.

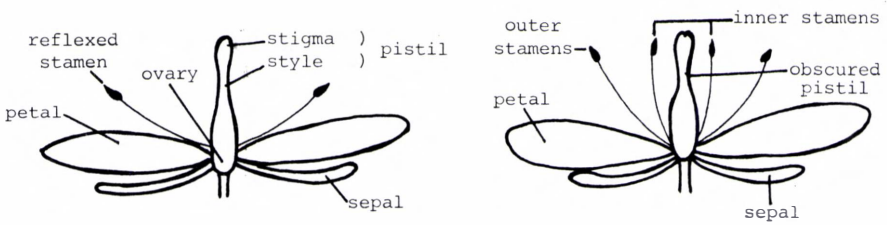
Stage 2 : Male stage - pollen is shed.

In addition, there are two behavioural patterns :

Type A - Stage 1; a.m.) 36 hour
Stage 2; p.m. of the following day) period

Type B - Stage 1; p.m.) 20 hour
Stage 2; a.m. of the following day) period

However, with thousands of flowers opening each day the situation becomes :



Stage 1: female Fig.2. Avocado flower Stage 2: male

	a.m.	p.m.
Type A -	Female	Male
Type B -	Male	Female

This pattern of flower behaviour is very regular above 20°C, but as temperatures drop below this, or if the weather becomes changeable, the pattern becomes disrupted and considerable overlap of flower stages on the same tree can occur.

This disrupted floral pattern is prevalent in New Zealand, leading to less dependence on cross pollination between A and B types, and means blocks can be cropped as a single variety. However, best results are likely where adequate cross pollination is provided for.

Variety	Type
Hass	A
Hayes	A
Reed	A
Fuerte	B
Zutano	B

Fig. 3: Flower types of main New Zealand varieties.

The avocado is insect (mainly bee) pollinated. The flower has a good nectar content, making it attractive to bees. As avocado blocks reach the bearing stage, the introduction of hives into the orchards at the flowering period is worth while.

Adequate temperatures are vital for fruit-set in avocados, so good shelter belts are of prime importance to retain warmth. They also allow maximum bee activity.

Recent work in New Zealand suggests that at least 2 consecutive days with minimum temperatures of 17°C day, and 11°C night are necessary for a pollination to be successful.

Late flowering is a desirable characteristic for New Zealand as temperatures rise considerably in late spring and early summer, thus giving a better chance of satisfactory pollination. Hayes and Reed are late flowering varieties.

TAMARILLOS

The tamarillo produces a sequence of flower trusses through the growing season, similar to its relative the tomato. Consequently, it has a constant need for pollination throughout most of the growing season.

No critical work has been done on tamarillo pollination. It has, however, been observed that it can be self pollinating, but needs a disturbance of the flower to disperse the pollen onto its own stigma. This disturbance could be by wind, insects or artificial means. Insects, particularly bees including bumble bees, visit tamarillos and assist both self and cross pollination.

FEIJOAS

The feijoa produces a moderate number of flowers and requires ample pollination for a good crop to be set, and for fruit to have a high pulp content.

Few feijoas are self fertile. Self fertility is an important point to be evaluated in the selection of new varieties. The previously preferred varieties Triumph and Mammoth are not fully self fertile. Of the two recently-selected improved varieties Apollo is self fertile and mutually cross compatible with Gemini. At this stage of knowledge provision for some cross pollination should be made in feijoa plantings.

Bees work feijoas, but the importance of their role in pollination is not yet fully clear. Further work on the pollination of feijoas is necessary as its importance as a commercial crop increases.

PASSIONFRUIT

Seedlings of the Purple passionfruit, *Passiflora edulis* as grown in New Zealand are self compatible, and largely insect, especially bee, pollinated.

The flowers are attractive to bees having a good nectar supply with high sugar content, and a heavy, sticky pollen suitable for the bees to gather. Bees are not normally introduced into passionfruit blocks in New Zealand, but if pollination is poor or fruit is lacking in seed numbers and pulp, hives could be introduced.

Temperature at pollination time is probably a significant factor in successful fruit-set as with other fruits.

DID YOU KNOW:

Sphagnum peat moss is the partially decomposed fibrous root system of the sphagnum moss plant and is somewhere between 9,000 and 15,000 years old. Its water holding capacity is 12 to 20 times its weight.

Formed at the rate of 30 centimetres every 300 years, sphagnum peat moss bogs are usually 4 to 15 metres deep and cover 400 to 1200 hectares.

Sphagnum peat moss bogs are located roughly between the 46th and 55th parallels. Warm summers promote growth of the green moss, and severe winters prevent the roots from completely decomposing. Russians, Irishmen and Scots have been burning peat to heat their homes for centuries, but only in the last 100 years have we realised the horticultural value of sphagnum peat moss.

COMPUTERS IN NURSERY PRODUCTION

Extracts from an article by Jon Varley, Wye College, England.

(from 'The International Plant Propagators' Society Combined Proceedings, Vol. 31, 1981)

Computers have been in existence for over 50 years but only within the past five years have they become cheap enough to play a part in the running of small businesses. Not only has the cost dropped dramatically, but the original rather slow and ungainly computers have now been replaced by powerful "microcomputers". Whatever the technology a computer is only as good as the programme it is running. Large and expensive programmes have now also been replaced with sophisticated packages sold at relatively low costs.

The Computer as a Management Aid

Any small business, and the nursery is no exception, must consider the possibility of using a small computer to aid with management tasks and general running of the office. For example, programmes can be bought for calculating wages, invoicing and to maintain credit limits and payment times. Word processors can produce catalogues, catalogue updates, newsletters, and advertising leaflets of excellent quality and in large quantities without resorting to commercial printers. Their cost is low - anything from $100 to $1,000 (England, 1981) for a sophisticated programme, or about $10,000 for the complete computer system plus a selection of business programmes.

Stock control by computer may be more costly because of the wide range of plants a nurseryman may produce - different species, sizes and prices. The computer would have to be bigger and programmes modified. Another variation of use to the nurseryman would be the ability of the stock control system to categorise plant types and, if necessary, suggest alternatives that may fill the customers' requirements.

Planning with Computers

The variable nature of the nursery industry may limit the use of computers for planning production. There is a danger when using planning programmes that all growers would soon be producing the same five or ten species and, of course, this is neither practical or desirable. In the more generalised field of economic planning, the nurseryman with a microcomputer can use programmes adapted to handle forecasting parameters, and can instantly perform, "If X changes then what happens to Y?" type calculations e.g. it could help a nursery manager to decide whether to sell off a line as small plants, or allow them to grow on for a year or two to become specimens.

Mechanisation and the Computer

One of the most important applications of microprocessors for the nurseryman is in the area of mechanisation of the nursery and environmental control.

Electronic controls for propagation equipment have been with us for years, but a small microprocessor unit could control multiple functions such as misting devices, underbench heating and drip irrigation. It could also take into account many things a simple electronic device could not, such as the amount of sunlight and the need for irrigation sequencing to avoid low water pressures in main supplies. Irrigation of outside areas can be similarly governed, using information about soil moisture and sunlight to decide upon sprinkling or irrigation of soil-planted species.

Nurseries with large areas of polythene tunnels or glasshouses can benefit by use of a computer control system for protected environments. These systems can provide much better control of growing conditions for the plants, and can integrate all control functions within one machine; not only environmental conditions but also CO_2 levels, thermal screens, automatic irrigation and hydroponic systems.

Control systems are more costly than office systems because of the installation costs and associated hardware (such as sensors) that go with them. At present, a small control system for greenhouses costs around $10,000.

Standardisation of nursery practices will play an important part in making computers more applicable to the industry, as standard operations are much easier to include in computer programmes than non-standard ones. Fears are often expressed about cuts in employment where computers "take over" jobs previously carried out by the labour force. So far in horticulture, we have not seen this happen. In the office, the computer allows some areas to become more efficient and less arduous, or else accomplishes things that were not previously possible, and in the control field the computer replaces either electronic or mechanical devices, work that was not done manually anyway.

To sum up, the commercial nurseryman must now consider the use of computers for both office and control applications and take advantage of this versatile and useful tool.

SOUTH ISLAND TRADE FAIR

The 1983 South Island Horticultural Trade Fair is to be held on the 27th and 28th of April at the Addington Showgrounds, Christchurch.

The Fair is being organised by the Canterbury Agricultural and Pastoral Association, the Canterbury Growers' Society and the M.A.F.

HORTICULTURAL PERIODICALS

The following list of periodicals may be of help to students. For further information write to the appropriate addresses.

AGLINKS :	Media Services, Ministry of Agriculture and Fisheries, Private Bag, Wellington. Series of fact sheets - cover a wide range of topics: crops, equipment, soils, pests etc. By subscription or available at M.A.F. Offices.
THE APIARIST :	P.O. Box 5056, Papanui, Christchurch. Free.
N.Z. BEEKEEPER :	National Beekeepers' Assn. of N.Z. Inc. Editor, P.O. Box 594, Masterton. Quarterly.
CANTERBURY GROWERS' REVIEW :	Canterbury Growers' Society Ltd., P.O. Box 1992, Christchurch. Monthly.
N.Z. COMMERCIAL GROWER :	Assn. of N.Z. Vegetable and Produce Growers' Federation Inc., P.O. Box 10-232, Wellington. Monthly.
COMMERCIAL HORTICULTURE :	New Zealand Nurserymen's Association (Inc.) Box 31-045, Lower Hutt.
FRUIT AND PRODUCE :	N.Z. Fruit and Produce Merchants and Auctioneers Fed., P.O. Box 546, Wellington. Monthly.
THE NEW ZEALAND GARDENER :	Private Bag, Wellington. Monthly.
HORTICULTURE NEWS :	P.O. Box 1614, Auckland. Monthly.
THE ORCHARDIST OF N.Z.	N.Z. Fruitgrowers' Federation Ltd., P.O. Box 3541, Wellington. Monthly.
SOUTHERN HORTICULTURE :	P.O. Box 10-128, Wellington. Quarterly

ENDANGERED PLANTS IN CULTIVATION AT THE DUNEDIN BOTANIC GARDENS

by

P.B. Heenan, N.D.H. Student

Why is one in ten of New Zealand's native plants at risk of becoming endangered?

There are two main reasons, natural disasters and man's influence on the environment. Natural disasters include floods, disease, fires and landslides. Generally these cannot be avoided. Man's influence has probably had the greatest detrimental effect on plant life. Behaviour by man such as indiscriminate collecting of plants, clearing land for building sites, roads and agricultural use, draining swamps and reclaiming "waste" land have direct adverse effects on plants which have a limited distribution.

Chemicals sprayed in a broad spectrum effect numerous non-target species. This is the case with *Notospartium carmichaeliae*, pink broom in Marlborough which has been decimated to such a low population by spraying for gorse and broom it is now classed as a vulnerable species.

The introduction of noxious animals and weeds have both had obvious adverse effects on our native plants. Animals such as rabbits, deer and sheep eat palatable species, thus reducing their numbers and weeds like gorse, *Ulex europaeus*, sorrel, *Rumex acetosa* and numerous European grasses smother our native plants with their dense fibrous roots or shading vegetative growth. All these weeds can reproduce easily in our environment.

Disturbance in search for minerals occurs at sites with a high number of rare plants, because the mineralisation which induces mining is often likely to lead to peculiar soil types. These soils support plants which have adapted to the soil type and therefore, possibly are found nowhere else.

Both natural and man-influenced disasters are usually only localised so only plant species with a limited distribution and/or small population are detrimentally affected.

Plants which are classified as being at risk can be grouped into one of the following categories :

a) Endangered (E) - in danger of becoming extinct.

b) Vulnerable (V) - could move into the endangered category if factors causing depletion continue to operate.

c) Rare (R) - small populations known, these are found in restricted but stable numbers.

d) Local (L) - having a local but stable population.

The Dunedin Botanic Gardens have some thirty species of New Zealand plants at risk in cultivation, most of these are growing in the native plant borders. They are at varying stages of maturity and health.

Four species of broom are grown. Of these the pink broom, *Notospartium carmichaeliae* (classification V) from Marlborough is the most attractive. We have two large plants, both of which flower prolifically each year. The largest plant is 3 metres high, and its pink flowers hang in racemes from compressed pendulous branchlets.

Chordospartium stevensonii (E) also from the Marlborough region is slowly attaining its classic weeping form. Our young healthy plant is 2 metres high. Weeping broom, as it is known, is easily recognised by the circular scars on its branches.

We have several specimens of *Carmichaelia williamsii* (V). This plant is characterised by its very wide, flattened stems and yellow flowers up to 25 mm long. Our best plant is a 2 metre high specimen opposite the hebe border on Lovelock Avenue. This plant can be seen to have flowers virtually all year. There are several smaller plants in the native plant borders.

The fourth broom *Carmichaelia kirkii* (E) was once recorded at about one dozen sites in North Otago and South Canterbury, but it is now reduced to a few main populations in Canterbury.

Chordospartium stevensonii

Pittosporum dallii

We have two healthy specimens of this sprawling broom, one of which flowers abundantly in December. Our two plants are grown as specimen shrubs, but if they were grown amongst other shrubs they would sprawl through them.

Our *Pittosporum* sp. border contains three species at risk, *P. obcordatum* (E), *P. turneri* (L) and *P. dallii* (E). *P. dallii*, Dall's pittosporum is the only New Zealand species with white flowers. It is said to be shy flowering, and I have not seen our plant flower in the last four years. It is 3 metres high and until recently it was badly infected with mistletoe, *Loranthus micranthus*. The majority of this has been removed, but it had already adversely affected the tree's health. Its serrate dark green leaves make it a desirable garden plant. In the British Isles it is reputedly widely grown in gardens.

Fierce lancewood, *Pseudopanax ferox* (L) grows on the west side of the rhododendron dell. There are several mature plants here, probably remnants of the original bush. These plants are in excellent health, producing abundant seed. There are also self sown seedlings growing in the vicinity of the mature trees. Also growing in the dell is *Senecio perdicioides* (R). This grows to a height of 1.5 metres, it has sweetly scented yellow daisy-like flowers. The light green shiny leaves, which have a serrated margin make it an excellent contrast plant to grow amongst rhododendrons.

The scree garden contains *Celmisia mackaui* (R), *Euphorbia glauca* (V), *Fuchsia procumbens* (E), *Geranium traversii* (R), *Myosotidium hortensia* (V) and *Aciphylla dieffenbachii* (R). *Aciphylla dieffenbachii* is from the Chatham Islands. It is in excellent health, and its very attractive, finely dissected, feathery foliage would make it a desirable garden plant. Its yellow flowers appear in November on a 1 metre compound umbel and make an ideal contrast to the soft green foliage. The genus *Aciphylla* has mostly unisexual flowers and most plants are dioecious. Our plant has male flowers. *Celmisia mackaui*, the Akaroa Daisy was recently transplanted into the scree. It shifted very easily. It is an interesting plant in that its large leaves have no tomentum (hair) on the underside. This is an unusual feature for a large leaf species. The leaf petioles and flower stems are usually purple. It flowers regularly and its white flowers are up to 50mm wide.

Other at risk or endangered plants grown at the gardens include : *Pomaderris apetala* (E), *Pomaderris rugosa* (V), *Olearia traversii* (R), *Olearia pachyphylla* (E), *Corokia macrocarpa* (L), *Hebe townsonii* (L), *Hebe barkeri* (V), *Hebe cupressiodes* (V), *Cordyline kaspar* (R), *Myoporum laetum* var. decumbens (R), *Hymenanthera angustifolia* (L), *Cyathodes robusta* (L), *Tecomanthe speciosa* (E), *Metrosideros carminea* (E) and *Hibiscus trionum* (V). It is interesting to note that this latter plant is naturally abundant in the tropics and in his "Flowers of Europe", Oleg Polunin describes it as an annual weed of S.E. Europe. Also growing is *Pisonia brunoniana* (R), which we occasionally use as an indoor plant for its foliage, and three excellent specimens of *Marattia salicina* (V) in the fernery.

Finally, help to preserve our disappearing plant heritage, grow a plant that is rare or endangered.

Let the earth produce all kinds of plants ..... Genesis 1:11.

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JUBILEE CONFERENCE 1923 - 1983

THEME - AMENITY HORTICULTURE AT THE CROSSROADS

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VENUE: AUCKLAND UNIVERSITY CONFERENCE CENTRE -
(ARCHITECTURAL SCHOOL)
22 SYMONDS STREET, AUCKLAND.1.

TIME: FRIDAY 20 - SUNDAY 22 MAY 1983

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OFFICIAL OPENING BY

DR. THE HON I.J. SHEARER

MINISTER FOR THE ENVIRONMENT

MINISTER OF SCIENCE & TECHNOLOGY

ENROL TODAY for this Conference. Meet old and make new friends; share horticultural experiences. See the growth of horticulture in Auckland. All enquiries to CONFERENCE SECRETARY, MRS J. VEAL, 9 GRAY CRESCENT, TORBAY, AUCKLAND PHONE: AUCKLAND 404-7301.

P R O G R A M M E

FRIDAY 20 MAY

10.00 a.m. Executive Meeting - Regional House, Hobson Street.
7.00 p.m. Conference Registration & Social - at University Conference Centre, followed by
8.30 p.m. "An Introduction to Hunua Ranges & Kauri Management Trials", by Mr Ian Barton, Forester, Auckland Regional Authority.

SATURDAY 21 MAY

8.45 a.m. Registration continues.
9.15 Conference business commences.
10.00 Official Opening and Address by Dr The Hon I.J. Shearer, Minister for the Environment.
10.20 Morning Tea.
10.45 Conference resumes.
12.30 p.m. Luncheon (provided at Conference Centre).
1.30 Guided Tour of Auckland University Grounds.
2.30 Conference resumes.
Discussion session on issues facing horticulture.
4.30 Conference business concludes - Afternoon Tea.
5.00 Banks Memorial Lecture - Mr B. McKenzie. "The Export of Ornamental Plants".
7.45 Jubilee Conference Dinner - University.

~~MONDAY 23~~ SUNDAY 22 MAY

9.30 a.m. Horticultural Tour.
Depart from University Conference Centre for tour of Regional Botanic Gardens, Hunua Ranges Water Catchment Reserves and Kauri Management Trials.
5.00 p.m. Auckland International Airport.
5.30 Auckland City.

MONDAY 23 MAY

9.30 a.m. Depart South Pacific Hotel, Customs Street for Eden Garden, Palmers Garden Centre, Waitakere Ranges and D.S.I.R. Mt Albert.
4.00 p.m. Return to City.

CONFERENCE REGISTRATION FORM

(Please detach & return no later than Friday 6th May)

VENUE: AUCKLAND UNIVERSITY CONFERENCE CENTRE -
FRIDAY 20 - SUNDAY 22 MAY 1983

NAMES OF ALL PEOPLE IN YOUR PARTY ATTENDING CONFERENCE:-

MR/MRS/MISS	INITIALS	SURNAME	CHRISTIAN NAME	CHARGE
				x $15 each
				Includes Sat. Luncheon.
				$ _____

JUBILEE DINNER - 21 MAY

Number attending _____ x $15 $ _____

SUNDAY TOUR, SOUTH AUCKLAND - 22 MAY

Number attending _____ x $10

Includes luncheon $ _____

Cheque enclosed for total of $ _____

MONDAY TOUR - subject to 30 participants.

Number attending _____ x $5 Includes luncheon.

Payment on Registration at Conference.

ACCOMMODATION SUGGESTIONS - book direct with hotel promptly and advise that member of Horticultural Institute Conference.

	Sgl	Dbl.
- South Pacific Hotel (Licensed) Custom St East.	$ 60	$ 73
- Grafton Oak Courtesy Inn, (Licensed) Cnr Grafton Bridge & Grafton Road. (Special Group Rate)	$ 44	$ 48
- Arundel Private Hotel, 12 Waterloo Quadrant. Adjacent University Campus. (Bed & Breakfast) Family Rate $12.00 per person per night. One night deposit required with booking.	$ 19	$ 29

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Private transport will be available from the Auckland International Airport for members arriving on Saturday morning 21 May.

ADVISE:-

Flight Number:- _____

Approx. Arrival time:_____

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Please indicate requirements -
