

**JOURNAL
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ROYAL NEW ZEALAND
INSTITUTE
OF
HORTICULTURE**

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Horticultural Training and Examinations

ADDRESSES:—It was mentioned in a previous article in the September, 1942, Journal, that the number and name of the street, city or town postal subdivision only should be shown in addresses e.g. Dunedin C.1., Christchurch N.W.2 etc. All names of suburbs should be omitted in order to conform with correct postal practice.

HORTICULTURAL DIARIES:—The Examiner comments favourably on the improvement in diaries during recent years. In some cases, however, diaries exceed the specifications laid down viz. "somewhat over 100 pages and about 8 x 10, with stiff or semi-stiff covers and ruling similar to foolscap with red-lined margin." In respect of the recent inspection several diaries required postage nearly treble that of the others.

BOTANICAL SPECIMEN. Question 8 of the Annual Examination paper on Horticultural Botany is compulsory and it reads:—"Describe as fully and as exactly as you can the specimen supplied by the Supervisor." Examination candidates are advised by each Supervisor to use their own language when not certain of the technical terms, but it is hoped that this concession will stimulate the desire for proper knowledge.

LANDSCAPE GARDENING. Candidates for the Intermediate and Diploma Examinations, whose nomination of the Special Subject of Landscape Gardening has been accepted, will be required to submit to the Examiners drawings of their work in this connection and to bring drawing instruments with them.

LOAN OF THESIS. The following is an extract from the Report of the Examining Board for the year ended 30th September, 1943:—"It has been decided by the Board that each thesis should be retained and that a Library of these should be formed under definite rules. It should be made clear to all students that each thesis submitted becomes the property of the Institute and that each candidate forwarding a thesis should retain a copy."

EXAMINATION TIME TABLE:—The written examinations commence at 9 a.m. on a Thursday in November and continue on the Friday also from 9—12. The time table is as follows:—

Thursday 9—12.

Junior Examination—Horticultural Botany.

Intermediate Examination—Principles of Horticulture.

Diploma Examination—Principles and Practice of Horticulture.

Friday 9—12.

Junior Examination—Principles of Plant Protection.

Intermediate Examination—Practice of Horticulture and Special Subject.

Diploma Examination—Special Subject.

In addition to the written papers, each candidate, other than Junior theoretical, is required to pass a separate oral test and a separate practical test. Each of these tests is to be held on an examination afternoon, or evening, if necessary. Advice of arrangements for the separate oral tests and practical tests should be received by the candidates on the Thursday morning.

Credit for the alteration in the Examination Time Table is due to Mr. J. C. McDowall, President of the Taranaki District Council, who wrote on the 20th November, 1941:—"I do not know whether it has ever occurred to the Examination Board that it is quite a **physical** ordeal for a youth who uses his hands in the garden to come inside and write solidly for six hours in one day."

This had reference to the previous practice of taking both written papers on the same day. The Dominion Secretary replied that "If a written subject were taken in the morning and oral in the afternoon, it might work in. Anyhow no one here has looked at it in the light of your suggestion which I will place before the Board."

At its meeting on the 25th February, 1942, the Examining Board "unanimously agreed that the written examination should be held on two succeeding mornings with the oral test and practical test in the afternoon and evening, if necessary."

And what a boon it has been to everybody!

EXAMINATION NOTES. The Canterbury District Council has always set a high standard in the quality and conduct of examinations, particularly in its oral tests and practical tests, as is shown by the following extracts from the Examiners' Report in respect of the 1943 Examination:—

Junior Examination:—"The Oral Test consisted of ten leading questions on gardens, tools, lawns, trees and shrubs, greenhouse practice, seed sowing and herbaceous plants."

The Practical Test consisted of the identification of six coniferous trees, six exotic trees, six indigenous trees and shrubs, six flowering shrubs and six herbaceous perennials. Each student was asked to give, where possible, the generic, specific and popular name of each specimen, its natural habit, method of propagation and use in horticulture. Tests were also carried out in the making of various types of cuttings, in potting and in soil composts.

Intermediate Examination:—In the Oral Test, the questions given followed the lines of those set for the Junior Examination but were of a more advanced nature, and included questions relative to the Special Subjects chosen by the students viz. Fruitgrowing and Landscape-gardening.

The candidate for the latter subject submitted plans of garden designs prepared by him during a course of studies on Landscape Architecture at the Christchurch School of Art."

In connection with the written papers for 1943, which appear elsewhere in this issue, the Examiner comments as follows:—Intermediate Examination, The Flower Garden in all its Aspects:—“In question 3 it is not advisable to associate *Narcissus* with *Myosotis* for a bedding display. The *Narcissus* passes out of bloom before the *Myosotis* reaches flowering point and the untidy foliage and flower stems of the former detract from the latter.

Question 4. “In most localities from 8 to 10 weeks elapse from time of planting out before wrenching is commenced.

Intermediate Examination, Trees and Shrubs together with their Propagation and Use in Horticulture:—

Question 1. “While it is possible to strike such plants as *Camellias* from hardwood cutting in favoured localities, such as New Plymouth, this is by no means a general practice throughout New Zealand and such isolated instances should not be quoted.”

Question 6. “The trimming of evergreen hedges in late Autumn, or early Winter, cannot be recommended as a general practice. As a matter of fact, many such hedges have been partially disfigured by severe frosts biting into the innumerable wounds made by the shears at this time of the year.”

Diploma Examination, Trees and Shrubs etc.

Question 7. “*Taxus baccata* cannot be considered as a tree with an ultimate height of over thirty feet. Although it does, in some cases, reach tree proportions, it is usually considered as a shrub and is accepted as such.”

“In the part of the question asking for six trees with conspicuous flowers, those enumerated were, in some instances, too small. One of the finest of all flowering trees, the Horse Chestnut, was omitted. Others which could have been given, and would have been more acceptable, are *Catalpa bignonioides*, *Robinia pseudacacia* and some of the *Acacias*.”

Question 3. “*Felicia angustifolia* is not generally hardy throughout New Zealand.”

Question 6. The full meaning of the terms “current season’s wood” and “previous season’s wood” is apparently not understood. *Olearia stellulata* and *Cytisus* Lord Lambourne flower on the previous year’s wood and not on that of the current year as stated. *Ceanothus Gloire de Versailles* flowers on the current season’s wood and should not be pruned back after flowering but in the winter time.”

Question 7. “Golden scale on oak trees is controlled by the introduction of a parasite *Habrolepis Dallii*. Scale on evergreen shrubs is best kept in check by the use of a white oil. Black Leaf 40 is an insecticide and would have little or no effect in combating rust on roses which is a fungoid disease.”

Question 8. “*Ilex aquifolium* is not a medium sized shrub. *Solanum capsicastrum* is not generally hardy throughout New

Zealand. *Berberis Thunbergii* var. *purpurea*, while excellent for its foliage effect, is not so conspicuous for its fruits as some other members of the genus."

A LOVER OF TREES.

The following letter, dated the 26th July, 1944, has been forwarded by Mr. Percy Thomson, Stratford, a keen member of the Institute and a Past President of its Taranaki District Council as well as was the late Dr. W. Malcolm Thomson of Hawera:—

"I am enclosing herewith an advertisement regarding a ceremony recently held at Dunedin, and also the Dunedin Evening Star's report of the ceremony in connection with the work of my father in the beautification of Dunedin by tree planting. It would be very much appreciated if this report appeared in the Institute's Journal, and it would also place it on permanent record. May I suggest that it is worthy of reproduction in connection with one of the aims of our Institute's work in New Zealand.

My father is a younger brother of the late Honourable G. M. Thomson, and is also uncle of my late cousin, Dr. W. Malcolm Thomson of Hawera, who was one of our Vice-Presidents."

The advertisement referred to reads:—

TREE PLANTING IN DUNEDIN.

ALL INTERESTED ARE INVITED TO ATTEND A SHORT CEREMONY TO BE HELD AT THEOMIN'S CORNER (QUEEN'S DRIVE) NEXT SATURDAY MORNING, 17TH INSTANT, AT 11.45 A.M., TO MARK THE PLACING IN POSITION OF A BRONZE PLAQUE IN APPRECIATION OF THE OUTSTANDING CONTRIBUTION TO THE BEAUTY OF THIS CITY MADE BY MR WM. THOMSON (NOW IN HIS NINETY-SECOND YEAR).

Some 50-60 years ago, as a labour of love, Mr. Thomson planted several hundred English trees. Those at Theomin's Corner, the Lombardy poplars and other trees in Duchess avenue, and many of the trees in Jubilee Park and elsewhere were planted by Mr. Thomson or by working bees organised by him. To-day these trees are admired by thousands of our citizens.

His Worship the Mayor (D. C. Cameron, Esq.) and the President of this Society (Mr. Crosby Morris) will be the speakers.

A. C. CAMERON,

Hon. Secretary, Dunedin Amenities Society.

The Dunedin "Evening Star" of the 17th June, 1944, published the following account of the ceremony:—

"Appreciation of the civic-minded attitude of Mr. William Thomson, who, some 50 to 60 years ago, and purely as a labour of love, planted several hundred trees in and around the city, was expressed this morning, when at a gathering, sponsored by the Dunedin Amenities Society (of which Mr. Thomson was a foundation member), at Theomin's corner, Queen's Drive), was performed,

the ceremony of placing in position a bronze plate, the inscription upon which reads: "The trees in this vicinity, also those in Duchess Avenue, and many of those in Jubilee Park, were planted by William Thomson, a great lover of trees and an enthusiastic member of the committee of the Dunedin Amenities Society from 1888 to 1923."

The gathering of about one hundred, included several of the older generation, as well as representatives of organisations connected with civic life. Ex-mayors and councillors were there, as well as the present occupant of the chair (Mr. D. C. Cameron), Cr. D. C. Jolly (chairman of the Reserves Committee), and others. Mr. Thomson, who is in his ninety-second year, and in failing health, was unable to be present, but he was represented by his daughter, Mrs. E. Hayman.

Mr. Crosby Morris said that Mr. Thomson's activities were an outstanding contribution to the beauty of Dunedin. The speaker also paid a tribute to the late Mr. A. Bathgate, Mr. Thos. Brown, and Mr. A. S. Paterson in connection with the work of the Amenities Society.

The Mayor expressed the city's deep appreciation of the work being carried out by the Amenities Society, and added that no greater tribute could be paid to anyone than that paid to Mr. Thomson—that he was a lover of trees. What he would say to everyone was: "Love trees; plant trees, and protect trees," and particularly to protect them against vandalism, of which, unfortunately, there had been numbers of instances.

Mr. G. Stuart Thomson, a nephew of Mr. W. Thomson, conveyed thanks on behalf of the Thomson family, and Mrs. Hayman on behalf of her father."

TREE PLANTING AT NEW PLYMOUTH.

The following extract from a letter, dated 21st July, 1944, has been received from Mr. J. C. McDowall, B.Sc., President of the Institute's Taranaki District Council, who is on the staff of the New Plymouth Boys' High School:—

"We had the happiest of ceremonies at the School last Sunday morning as shown by the cutting. The visitors arrived at 8 a.m. and left again at 8.45. Each man placed a card with the kauri he planted and all details were attended to, even basins, water and towels for washing hands."

The newspaper cutting referred to is from the "Taranaki Herald" of the 17th July and reads:—

"A pleasing ceremony, in ideal tree-planting weather, was carried out by the visiting Empire delegation at the New Plymouth Boys' High School yesterday. The party motored to the north-east corner of the cricket ground and a kauri tree each was planted by

Lieutenant-Colonel E. T. R. Wickham, M.V.O, Mr. J. G. Ross, the Earl of Listowel, and Mr. J. H. Harris. The Under-Secretary of Internal Affairs, Mr J. W. Heenan, also planted a kauri. Mr. J. G. McNaught, headmaster, thanked the delegation for performing the ceremony and Mr. J. W. Heenan for his co-operation in arranging it. He said that in thirty years' time the trees would be fifty feet high and over four feet in circumference, and they would keep on growing for one thousand years, or more.

Lieutenant-Colonel Wickham stated that he and his delegation were very pleased to take part in the ceremony and that, even when these trees reached maturity, the British Commonwealth of Nations would still continue to grow and flourish. He suggested that the occasion merited the granting of a half-holiday by the headmaster.

The area for planting had been prepared by the boys of the School on the advice of the Superintendent of Parks and Reserves, Mr. T. Horton, and under the supervision of Mr. J. C. McDowall.

Mr. E. P. Aderman, M.P., and the Chairman of the High Schools' Board, Mr. H. R. Billing, attended the ceremony."

DIG FOR VICTORY CAMPAIGN, 1944-1945.

At the September Monthly Meeting of the Institute's Executive Council, receipt of particulars from the Department of Agriculture regarding the Dig for Victory Campaign was reported—objects, functions, radio and press publicity, posters, window display stickers, film strips for schools, formation of District Councils with their functions, objectives, suggested programme for local action and schedules of classes and prizes for vegetables at Horticultural Societies Midsummer Shows.

Mr. Dallas, Director of the Horticulture Division, explained the scheme in detail and that last year's Campaign was being continued. Last year the scheme had only covered the Auckland and Wellington Metropolitan Areas. The scheme now covers both Islands.

Radio talks of 15 minutes would be one of the main appeals, also 25 word radio announcements, newspaper advertising as to what to plant and Mr. D. K. Pritchard's book on "Vegetable Growing in the Home Garden" would be specially featured.

One hundred each of three different film strips will be prepared and handed to the Education Department for use in schools through its Agricultural Instructors.

The Executive Council expressed the Institute's whole-hearted desire to operate in the Campaign and to give assistance in every direction, also through its District Councils and affiliated bodies.

BASIS OF MARKING A THESIS.

The following Basis of Marking a Thesis for the Institute's Diploma in Horticulture has been adopted by the Examining Board of the Institute:—

1. The marks are to be allotted under the General Headings of (a) Matter and (b) Method in the proportion of 80 to matter and 20 to Method.

2. The term "Matter" is to be interpreted to include such as the following:—

(a) Subject matter, i.e. the writer's main contribution to the subject of the thesis—a qualitative estimate.

(b) Scope covered, i.e. the comprehensiveness (or depth) of the treatment. A quantitative estimate.

(c) Originality, i.e. evidence of original research or observations or work, rather than mere compilation from the work of others.

(d) The use of diagrams and/or photographs, which are relevant to the discussion, and help to make the points more clear.

(e) Bibliography, or other evidence that the literature, if any, has been consulted.

3. The term "Method" is to be interpreted to include such as the following:—

(a) General Presentation—Headings, Summary, Index.

(b) Conciseness, i.e. absence of padding.

(c) Composition, i.e. clear expression, correct grammar and spelling.

It might be mentioned that each thesis is examined by two examiners and that each examiner marks independently of the other.

EXAMINATION PAPERS, NOVEMBER, 1943.

JUNIOR EXAMINATION (SYLLABUS No. 1).

HORTICULTURAL BOTANY.

(Time allowed—Three Hours.)

NOTE.—SIX ONLY of the following questions are to be answered, including No. 8, which is compulsory.

Use diagrams to illustrate your answers when you can do so.

All questions are of equal value unless otherwise stated.

1. Define the terms: corm, bulb, rhizome and stolon. What are the functions of these organs? Name for each organ a garden plant bearing it.
2. Give an account of the process of respiration in plants.
3. How do leguminous plants obtain nitrogen? What do they do with it?
4. Describe some ways in which cross pollination is affected by plants growing in a garden.

5. How would you distinguish between a conifer, a monocotyledonous plant and a dicotyledonous plant (a) by the vegetative parts, (b) by the flowers, (c) by the fruits?
6. How would you attempt to isolate from a mixed group of Iceland poppies, a strain breeding true for white petals?
7. Give a general account of any two of these families, and name three plants belonging to each, giving the name of the genus if possible; Liliaceae, Ranunculaceae, Myrtaceae, Geraniaceae, Solanaceae.
8. Describe as fully and exactly as you can the specimen supplied by the supervisor.

JUNIOR EXAMINATION (SYLLABUS No. 1).

PRINCIPLES OF PLANT PROTECTION.

(Time allowed—Three Hours.)

NOTE.—SIX ONLY of the following questions are to be answered, Use diagrams where these illustrate your remarks.

All questions are of equal value unless otherwise stated.

1. Detail the developmental cycle of a rust fungus.
2. Describe the action of:—
 - (a) A cyclone type spray nozzle.
 - (b) That of a bordeaux type.
3. What are the main differences between summer and winter petroleum oils?
4. Outline the life cycle of **either** white butterfly **or** dicky rice weevil, Calandra oryzae.
5. How are virus diseases of plants carried over from season to season?
6. Describe the three common methods of soil disinfection.
7. Detail the preparation of bordeaux mixture.
8. What sprays would you employ to combat chewing insects?

INTERMEDIATE EXAMINATION (SYLLABUS No. 2).

PRINCIPLES OF HORTICULTURE.

(Time allowed—Three Hours.)

NOTE.—SIX ONLY of the following questions are to be answered, All questions are of equal value unless otherwise stated.

1. For what classes of plants, and under what circumstances, is pruning an advantage? When is it a disadvantage—or at least a waste of time?
2. What are the principal factors in the successful propagation of plants by means of cuttings?
3. In what way are weeds introduced into a garden? How may one economise in the labour of control? When is a good growth of weeds an advantage? When may they be ignored?
4. Write a short essay on the vitality and germination of seeds.
5. Describe a locality as regards climate, soil and aspect; and a comprehensive garden plant association most suitable for it, including trees, shrubs and herbaceous plants.

6. Write a short essay on shelter planting in the garden.
7. What are the respective merits of a light, and a heavy soil and also of a high and low water table?
8. How are animal manures best stored and cured for use in the garden?

INTERMEDIATE EXAMINATION (SYLLABUS No. 2).

PRACTICE OF HORTICULTURE.

(Time allowed—Three hours, including Special Subject).

NOTE.—THREE ONLY of the following questions are to be answered, including question 1, which is compulsory, also THREE ONLY of the questions on the Special Subject nominated. All questions are of equal value unless otherwise stated.

1. What instruments are required to survey a half-acre section of land, and locate buildings etc., thereon? How would you proceed with the work?
2. Write a short essay on surface levels in a garden.
3. Outline the method of growing bulbous plants for the bulb market. Describe in detail that best suited to one kind in particular.
4. Write a short essay on the selection and arrangement of shrubs in a garden for shelter, colour and fragrance at various seasons.
5. Describe in detail your method of breaking up grassland for cropping, mentioning the season when it is best accomplished, and including both large and small areas.
6. Write a short essay on the care of motor implements used in the garden.

INTERMEDIATE EXAMINATION (SYLLABUS No. 2).

Special Subject—FRUITGROWING.

(Time allowed—Three Hours, including "Practice of Horticulture").

NOTE.—THREE ONLY of the following questions are to be answered, also THREE ONLY from the paper on "Practice of Horticulture."

All questions are of equal value unless otherwise stated.

1. Describe a soil and climate best suited to the production of sweet cherries. Give a list of varieties suitable for commercial cropping.
2. Discuss the merits of the different kinds of stocks used for cherries, peaches and plums.
3. What varieties of cherries and plums are to a great extent self-fertile?
4. Write a short essay on orchard implements and cultivation. Under what circumstance is an orchard better sown down in grass, etc.?
5. Describe, with sketches, the principal features of an effective packing and storage shed for fruit,

6. Describe the soil and climate suited to the production of raspberries, loganberries, strawberries, black currants, passion fruit, Chinese gooseberries, foijoas, loquats, avocados, oranges and grape-vines. Also the method of production of any one of these crops in a specified locality.

INTERMEDIATE EXAMINATION (SYLLABUS No. 2).

Special Subject:—THE FLOWER GARDEN IN ALL ITS ASPECTS.

(Time allowed—Three Hours, including “Practice of Horticulture”).
NOTE.—THREE ONLY of the following questions are to be answered, also THREE ONLY from the paper on “Practice of Horticulture.”

All questions are of equal value unless otherwise stated.

In all cases in specifying the names of plants, students should give only those which are generally hardy throughout New Zealand. Where possible, explanatory diagrams should be used.

1. Give the names of fifteen herbaceous perennials that would provide a succession of bloom from August until May. State in which respective month each kind would be expected to flower in your district. Bulbous plants are to be excluded.
2. Give the names of twelve hardy annuals suitable to yield cut flowers. State when each kind should be sown so as to provide a succession of bloom throughout the major part of the year.
3. Give a list of subjects that you would consider suitable for spring bedding purposes, and say what associations (if any), you would use to provide a good display.
4. Briefly describe what method you would employ for the raising and growing of the following:—

Wallflower

Myosotis

Polyanthus primroses.

5. What bedding plants would you use to provide a display of bloom during the autumn months, i.e. from February to April, inclusive?
6. Describe how and when you would propagate the following:—
Violas, Pentstemons, Heliotrope, Zonal pelargoniums (geraniums), and Carnations.

INTERMEDIATE EXAMINATION (SYLLABUS No. 2).

Special Subject:—TREES AND SHRUBS TOGETHER WITH THEIR PROPAGATION AND USE IN HORTICULTURE.

(Time allowed—Three Hours, including “Practice of Horticulture”).
NOTE.—THREE ONLY of the following questions are to be answered, also THREE ONLY from the paper on “Practice of Horticulture.”

All questions are of equal value unless otherwise stated.

In all cases in specifying the names of plants, students

should give only those which are generally hardy throughout New Zealand. Where possible, explanatory diagrams should be used.

1. Name twelve shrubs (separate genera) that may be economically propagated from hardwood cuttings.
2. Name six evergreen trees or large shrubs suitable for an exposed position that would provide both shelter and attractiveness.
3. Describe the type of soil and situation you would consider most suitable for deciduous Azaleas.
4. State what general precautions you would take and what preparations you would make in providing a border for Rhododendrons. Give the names of at least six Rhododendrons that you would consider sufficiently hardy for general cultivation.
5. Describe the most economical method of propagating the following:—

Platanus orientalis
Pyrus malus purpureus
Fagus sylvatica
Picea Nordmanniana
Tilia vulgaris
Prunus Pissardii

6. Give the names of six shrubs suitable for planting as ornamental hedges.
Describe by means of diagrams how a hedge should be trimmed to provide density and a good appearance. When should hedge trimming be carried out. Give reasons.

INTERMEDIATE EXAMINATION (SYLLABUS No. 2).

Special Subject:—LANDSCAPE GARDENING.

(Time allowed—Three Hours, including “Practice of Horticulture”)

NOTE.—THREE ONLY of the following questions are to be answered, also THREE ONLY from the paper on “Practice of Horticulture.”

Question No. 1 is compulsory and carries double the marks awarded to each of the other two questions selected.

All questions are of equal value unless otherwise stated.

1. Prepare a plan to scale of a section (up to half an acre in size) and locate thereon position of buildings and general lay out of garden and specifications of same.
2. Give a list of twelve desirable herbaceous flowering plants with brief notes on each—state time of flowering.
3. Give a list of plants suitable for planting on dry banks or terraces.
4. Show by diagrams, both plan and elevation, your idea of Rock-work construction in landscape work.
5. Discuss the relative merits of concrete, asphalt and gravel for

path construction in landscape work.

6. What do you understand by "Natural" and "Architectural" styles of designing? Give notable examples of each.

DIPLOMA EXAMINATION (SYLLABUS No. 3).

PRINCIPLES AND PRACTICE OF HORTICULTURE.

(Time allowed—Three Hours.)

NOTE.—SIX ONLY of the following questions are to be answered,
All questions are of equal value unless otherwise stated.

1. "Should light land be dug annually"—for intensive cropping purposes—has been widely debated in recent literature. What is your opinion?
2. Write a short essay on the time and placement of artificial fertilizers, when used for vegetable and flower crops.
3. Describe a garden plant association of good quality suited to sandhill country by the coast—including trees, shrubs and herbaceous plants.
4. Discuss the merits and conditions of different kinds of timber used here for the construction of glasshouses.
5. Describe the method of pruning espalier-trained apple and pear trees.
6. Discuss the respective merits of high and low level flow pipes, in heating glasshouses with hot water.
7. Plan and specify a farm orchard of about 24 trees where little or no cultivation could be done.
8. Design a plantation of about six rows in width, for major shelter purposes on a farm, in a locality to be named.

DIPLOMA EXAMINATION (SYLLABUS No. 3).

Special Subject:—TREES AND SHRUBS TOGETHER WITH THEIR PROPAGATION AND USE IN HORTICULTURE.

(Time allowed—Three Hours.)

NOTE.—SIX ONLY of the following questions are to be answered,
All questions are of equal value unless otherwise stated.

In all cases, in specifying the names of plants, students should give only those which are generally hardy throughout New Zealand. Where possible, explanatory diagrams should be used.

1. Name six coniferous trees, six deciduous trees and six trees with conspicuous flowers suitable for planting as single specimens on spacious lawns. No name may appear in two lists. Average height of trees when fully grown not to be less than 30 feet. Poplars and willows to be excluded.
2. Describe the most economical method of propagating the following:—

Aesculus hippocastanum var. *briottii*

Romneya Coulteri

Ilex aquifolium var. *Golden Queen*

Populus serotina aurea
Pyrus Parkmanii
Tilia vulgaris
Ligustrum ovalifolium aureum.

The stock used, the method of propagation and the time to perform the operation must be stated.

3. Give the names of twelve dwarf or prostrate flowering shrubs suitable for the rock garden.
4. Give a list of ornamental shrubs suitable for planting in a heavy soil which is inclined to waterlog during wet periods.
5. Describe by means of diagram how you would shift and transplant a large weeping elm tree with a trunk not less than 6 inches in diameter.
6. When and how would you prune the following trees and shrubs. Give your reasons for so doing.
 - Ceanothus Gloire de Versailles*
 - Olearia stellulata*
 - Cytisus Lord Lambourne*
 - Rhododendron fragrantissima*
 - Buddleia variabilis*
 - Erica cruenta*
 - Cydonia japonica.*
7. How would you combat the following diseases:—golden oak scale on oak trees; scale on evergreen shrubs; leaf slug on cherries; mildew on *Pyrus*; leaf-eating beetles on trees and shrubs; and rust on roses.
8. Give six medium sized shrubs conspicuous for their fruits during the winter months.

DIPLOMA EXAMINATION (SYLLABUS No. 3).

Special Subject:—VEGETABLE GARDENING.

(Time allowed—Three Hours.)

NOTE.—All questions are of equal value unless otherwise stated.

1. Write a short essay on vegetable seed supply and storage for rather a large garden and crops of high quality.
2. Draw a sketch plan of a vegetable garden of five acres, laid off in a way which provides shelter, and facilities for the use of motor implements. Scale one chain to the inch.
3. Describe in detail the best method of growing a supply of winter lettuce in your locality.
4. Describe in detail the storage of root crops in considerable quantity including potato seed.
5. Write an essay on the production of cabbage and cauliflower for spring use.
6. What are the principal diseases attacking tomato crops in your locality? Describe your method of dealing with them.

DIPLOMA EXAMINATION (SYLLABUS No. 3).

Special Subject:—NURSERY MANAGEMENT.

(Time allowed—Three Hours).

NOTE.—SIX ONLY of the following questions are to be answered,

All questions are of equal value unless otherwise stated.

1. Describe your method of filing and tabulating inward orders.
2. Taking the months from May to September inclusive, what flowers would you cut in quantity from your glasshouses? State the flowers for each month.
3. In a tree and shrub nursery, with a total planted area of five acres, how much further land would it be desirable to acquire for economical management? State your reasons.
4. State the constituents and quantities of a general purpose manure mixture.
5. Show by diagram how labelling is done in (say) a field of bulbs, where they are planted in rows and varieties are numerous.
6. How and when are evergreens, e.g. Rhododendrons grafted?
7. What do you understand by the term "Stratification" of Seeds? Give a list of six kinds of seeds that should be so treated.
8. How are the following kinds of grafting or budding stocks raised—Apples, Peaches, Plums, Azaleas and Camellias?

THE SECRETARY'S NOTE BOOK.

The following are extracts from the June, 1944, News Letter, New Zealand Alpine and Rock Garden Society, written by the Secretary, Miss Erica Baillie, N.D.H. (N.Z.), Wellington:—

LIST OF BOOKS available for loan to members:—

"Rock Gardening for Amateurs," H. H. Thomas; "The Encyclopaedia of Gardening," T. W. Sanders; "Cacti and other Succulents," W. T. Neale; "Rock Gardening in New Zealand," D. Tan-nock; "The Rock Garden" and "The English Rock Garden," Volumes 1 and 2, Reginald Farrer; "Simple Rock Gardening," A. J. Macself; "Rock Gardens. How to Plan and Plant Them," A. E. Edwards; "Natural Rock Gardening," B. H. B. Symons-Jeune and "Alpine Plants in Colour," Manfield.

ROCK GARDEN CONSTRUCTION:—Twice in recent weeks, I have been asked to speak on "Rock Garden Construction," and, as I have been looking up information, the idea came to me that perhaps some of you may be considering altering an existing rock garden or constructing a new one, and some of the information I have collected may be of interest to you. We all know that the primary reason for constructing a rock garden is to provide a suitable home for the "little people of the hills" as Farrer aptly calls Alpine and Rock plants. A home away from the big rampant plants that belong to the herbaceous borders, and also from the

rapid growers of the Annual type that, although they are beautiful, need constant attention in the matter of planting, removing and, more important still, in the necessity of replacing spent soil.

Another reason for constructing rock gardens, and rock walls, is that it is an excellent method of treating difficult banks. Having decided that a rock garden is to be constructed, the first important step is the preparation of the site. One of our most active members, Mrs. Walker of Te Horo, can show the foundations of a splendid one, yet to be built. Mrs. Walker decided to grow Primulas for which she excavated, what she termed, a ditch to grow them in. The soil having been excavated, she moved to the other side of the garden where shortly she hopes to commence building her rock garden. I will tell you more about the ditch at a later date. It is a great piece of work and many rock plants, as well as the original primulas, are flourishing there. The garden is fairly fiat country and filling of some kind was needed to give height to the proposed rock garden, so the construction of that ditch served a double purpose. Building in this manner will ensure good drainage on the higher spots, and the edges, if drainage is needed, can be attended to when the actual building is under way, for thorough drainage is one of the most essential things in the successful growing of Alpines. That can be readily understood when one considers how these plants grow naturally—high up on mountain slopes and natural screes, where water does not linger. It is advisable, if a new rock garden is to be built on flat country, to excavate to a depth of three feet, fill one foot with broken stone, bricks etc., and then fill with soil—good soil—that from a good well worked vegetable garden is excellent.

Having disposed of the drainage and for the time being the soil, the next question is Rock. Here in New Zeland we do not have much choice of rock, but if possible, select rocks as large as possible, and weather worn. Those with lichen growing upon them have a smooth mellow look that gives a most desirable impression of age. It is possible to mellow newly hewn rock by painting the surface with milk. I have not tried that recipe myself, but I believe it is correct. Do not use rounded, water worn rock, if it can be avoided. The placing of the rock is an interesting job. There are two main English schools of thought about this important work, and we cannot go wrong on following one of these schemes. New Zealand rock gardens are far too inclined to be just a collection of rock and plants with no thought out arrangement at all.

That reminds me of an article on flower arrangement. The writer's friend contended that several flowers in a vase constituted an arrangement. She said, "No, I have several articles in my bureau drawer, but I would not call that an arrangement!" The same could be said of rocks and a rock garden. One type of English garden, usually the more expensive, and when I say expensive,

I am told that some or these cost several thousand pounds to construct, is to copy a natural outcrop, sometimes to move an outcrop *holus bolus*. The rock faces, the natural cracks and splits, are carefully studied and the whole thing produced, as exactly as possible. Then the planting is carefully considered and the whole is a picture, a balanced picture, of rock and living plants.

(To be continued.)

CAWTHRON INSTITUTE REPORT 1943-44. The following are extracts from the Cawthron Institute's interesting report:—

“Further information has been secured concerning the incidence of “cloud” and “hard core” in Nelson tomatoes. “Cloud” incidence appears to be associated with climatic conditions and its incidence is increased by heavy watering of the plants. “Hard core” in outside tomatoes shows little effect from the use of different fertilizer treatments, but is markedly reduced in amount by steam sterilization of the soil and to a less extent by formalin treatment of the soil.

“A small scale commercial plant has been erected and used to extract nicotine from waste tobacco. Over 90 per cent. of the nicotine present has been recovered. Some alteration of the plant is required, and when this has been done, continuous running of the plant will be undertaken to obtain more information concerning the cost of production of nicotine sulphate.

“The breeding and liberation of the gorse-seed weevil is being continued in districts where so far it has not been established.

“Observations made during the past season show that the gorse-seed weevil has a wide distribution in many parts of New Zealand and attacks an increasingly large percentage of the seed-pods. It has considerable power of natural migration and in certain cases appears to have spread to farms located 20 miles from the point of original liberation.”

“Considerable time has been devoted to the revision of Dr. Miller's monograph on “Garden Pests in New Zealand,” which will be reprinted in an enlarged edition.”

“A comprehensive investigation has been inaugurated into the grass-grub problem in New Zealand. The biology, ecology and systematics of the species are being studied as a preliminary to developing means of control by cultural methods (if possible), and by parasites. So far the only parasites in New Zealand are certain species of tachinid flies, but steps have been taken to ascertain what species of Australian parasites, of types not present in New Zealand, could be of service to the solution of our problem.”

“A useful adjunct to the (Cawthron Institute) museum is the plantation of native and exotic trees and shrubs in the grounds surrounding the main Institute building, the latest addition being a group of the New Zealand Beeches and their congeners the Notho-

fagi of Chile and Tasmania. The trees should provide interesting data as to rates of growth in years to come.

NEWSPAPER CLIPPINGS.—We are again indebted to Mrs. Knox Gilmer for further clippings from the London "Daily Mail," received from her sister, Mrs. Seddon Woods. The first clipping is "Lilac Blooms Again" on 31st August, Thursday and covers an illustration of a Lilac Tree in full bloom with the caption:—"This tree was blighted by the pestilence Doodle-Bug Tyrranicus (discovered in Southern England, June 1944.) The leaves were blown off and the trunk almost wrenched from the ground when the houses in the background were wrecked. But that was four weeks ago. Now it is lilac time again in this Southern England garden, approaching Autumn, yet blast has brought a new Spring." Underneath a smaller illustration of part of the tree appears:—"Bomb bloom on the lilac. The stripped branches are green with leaf again and the tree has grown a new profusion of flowers."

The second clipping reads:—

"Gardening experts and botanists are puzzled by the second spring which flying bombs have brought to one area of Southern England.

Blast and the havoc the doodle-bugs cause have, in effect, started trees growing again, and promise to produce autumn fruit in the depth of winter.

In the gardens of wrecked houses in one devastated area yesterday I saw trees which had been almost uprooted when the buildings were destroyed.

An apple tree which when the bomb fell a month ago was laden with ripening fruit lay bent across what had once been a vegetable garden.

A lilac tree was straggling over an Anderson shelter.

Both trees had been stripped of all their leaves and the apples scattered. To-day the trees are decked in spring blossom.

There is abundant white lilac, which usually grows in April and May but has never been recorded in August in England. There is leaf and pink and white blossom on the crazily-tilted apple tree.

Horticulturists cannot explain this strange blast effect. The Royal Botanic Society are considering an investigation of the phenomena.

An official of the Royal Horticultural Society had to be convinced by the photographs. "All I can say is that it is extremely interesting," he said. "So far as I know, such a thing has never happened before."

The only theory on this rebirth of the trees is that the effect of the blast is in some way akin to the "summer pruning" of fruit trees.

A gardening expert said that there are two forms of sap in trees—"fruit" and "foliage."

His explanation is that when the trees lost their leaves the fruit sap became operative and produced the blossom on the apple tree.

At the same time the sap which produces the flowers on the lilac tree was also stirred to activity."

INSTITUTE NOTES.

PERSONAL:—At the August Meeting, the President extended a welcome to Mr. J. A. McPherson, Director of the Botanic Gardens, Christchurch.

The Dominion Secretary reported at the August Meeting that he had received advice from Mr. F. S. Pope, Past President, that his wife and himself were staying at the seaside place of Whangaparoa, Auckland, but hope to be visiting Wellington in October.

DISTRICT COUNCILS:—Auckland—Annual Meeting dealt with Chairman's Report—Planting etc. at Aerodromes, "Dig for Victory" Campaign, Rehabilitation etc., Treasurer's Report, Election of Officers and Report on Waitakere Centennial Park Board.

Taranaki:—R.H.S. Colour Chart (2 volumes), donated by the local Council, have been bound and are now in the New Plymouth Public Library, together with the Colour Dictionary of the British Colour Council.

Canterbury, Otago and Southland:—Advice of new membership received.

WELLINGTON HORTICULTURAL SOCIETY. Advice was received from the Society that Mr. J. A. McPherson was delivering an Address on the 25th August entitled "National Aspect of Horticulture," illustrated with many lantern slides and touching all classes of horticulture in New Zealand including camping grounds, school gardens, national parks, roadside beautification, horticultural education, the plan of beautifying societies, etc.

SCREE GARDENING. At the August Meeting of the Executive Council, Mr. J. A. McPherson, Director of the Botanic Gardens, Christchurch, mentioned the interest in Canterbury in Scree Gardens in which the choicest gems in exotics and alpinines can be grown. Scree is being increased in the Native Plants Section. All credit is due to Mr. W. B. Broekie who has been very successful with *C. Dallii* and *Ranunculus paucifolius* etc. in limestone scree; some of these had fourteen leaves instead of three. There is no difficulty in having the area of 2½ acres, where the latter is growing, preserved as a National Park.

CONDOLENCE:—It was reported at the August Meeting of the Executive Council, that a letter of condolence had been forwarded to the relatives of the late W. T. Benefield, a Past President of the New Zealand Horticultural Trades Association, who was ninety-three at the time of his death.

NATIONAL DAFFODIL SOCIETY OF NEW ZEALAND.

It was mentioned at the September Monthly Meeting of the Executive Council of the Institute, that the North Island Daffodil Show, in conjunction with the Wellington Horticultural Society, had been held at the Town Hall, Wellington, on Wednesday and Thursday, the 20th and 21st September, 1944, and that it had been a wonderful display with a fine attendance.

This was the first Flower Show staged in the Wellington Town Hall following on its renovation and exhibitors, both national and local and the public, appreciated the improved conditions. The Show itself was well up to standard especially in the National Open Classes where good blooms and fine colour predominated.

The Annual Meeting of the National Daffodil Society was held on Thursday, 21st September, when there was a good attendance of delegates with Mr. J. H. Braithwaite, Auckland, in the Chair.

It was decided that the Annual Exhibitions of Daffodils for 1945 should be held at Dunedin and New Plymouth respectively.

A hearty vote of thanks was passed to the Wellington Horticultural Society for its assistance with the Show, facilities for staging and the hospitality extended to delegates. A special vote of thanks was extended to the Ladies' Tea Room Committee who served a welcome morning tea at the Annual Meeting.

The Chairman mentioned that, on his arrival from Auckland on the Tuesday afternoon, he was able immediately on his arrival at the Town Hall, to place his blooms in vases already provided.

NARCISSUS CLASSIFICATION.

Mr. Herbert J. Poole, Secretary of the National Daffodil Society of New Zealand, reported that, in connection with the proposed revision of Classification of Daffodils, the Secretary, Narcissus and Tulip Committee, Royal Horticultural Society, London, had written under date, 11th May, 1944:—

“Tentative Scheme No. 2 crystallizes the views reached by the Classification Sub-Committee at its third meeting on April 19, 1944, but does not necessarily represent its final views, for it has not yet had any communications from New Zealand or Victoria, Australia.

It is hoped that before long the Sub-Committee may receive the opinions of correspondents in New Zealand and Victoria, Australia, and that all members of the Narcissus and Tulip Committee will let the Secretary have any further suggestions which they desire to make after consideration of the Sub-Committee's Interim Report. In the light of the above-mentioned correspondence and suggestions the Sub-Committee will then submit a further report to the Narcissus and Tulip Committee, and if that report is adopted, both by the Committee and the Council, it is proposed that it should form the basis of a memorandum which could be sent to Holland as soon as

hostilities cease in order to ascertain the views of the General Bulb-Growers Society of Haarlem.

It is not proposed to alter the present Classification until after the views of our Dutch friends have been received and considered.

The objects of the proposed changes are:

- (a) To make the Classification more logical and, consequently, easier to understand and apply; and
- (b) To make provision for the evolution of the flower which has already taken place or which may be foreseen.

Tentative Scheme No. 2 proposes the following changes from the present Classification:

- (a) To abolish the Leedsii Division and to transfer the varieties concerned to the Incomparabilis and Barrii Divisions.
- (b) To provide in the Incomparabilis and Barrii Divisions a third Sub-Division, lettered (c) for varieties which are wholly white or whitish and at present classified as Leedsii varieties; and to re-arrange the Trumpet Division so that the Sub-Division for varieties which are wholly white or whitish is lettered (c) instead of (b) as at present.
- (c) To provide in the Trumpet, Incomparabilis and Barrii Divisions a fourth Sub-Division, lettered (d), for any colour combination, such as "reversed colours," not falling into Sub-Divisions (a), (b) or (c).
- (d) To amend the specifications of the "yellow" and "bicolour" Sub-Divisions of the Trumpet, Incomparabilis and Barrii Divisions so as to allow of the corona being any colour other than white, thus providing places for the existing pink-cupped varieties and the red-trumpeted varieties of the future.
- (e) To transpose the Double-flowered Division so that it becomes Division IV and fills the gap left by the abolition of the Leedsii Division.
- (f) To transfer to the Species Division such species and wild or reputedly wild forms of species as are at present included in other Divisions (e.g. the wild forms of *Narcissus poeticus*) and to re-number the Division so that it becomes Division X, thus replacing the Double-flowered Division which, as mentioned under (e), becomes Division IV.
- (g) To sub-divide the Cyclamineous and Jonquilla Divisions in the same way as the Triandrus Division.
- (h) To create a new Division, numbered XI, for Miscellaneous Narcissi not falling into any of the Divisions I to X.
- (i) To rename Divisions II and III by replacing the terms Incomparabilis and Barrii by words which, if possible, convey a general idea of the type of flower to which they relate. The provisional new names, "Large-cupped" and "Small-cupped," are given very tentatively, no member of the Sub-Committee regarding them as ideal. Suggestions for new names would be welcomed."

The following Explanatory Notes, which accompanied the foregoing letter should prove of interest to Daffodil enthusiasts:—

“The Narcissus Classification Sub-Committee of this Society's Narcissus and Tulip Committee has now prepared an Interim Report, embodying “Tentative Scheme No. 2,” which crystallizes the views reached by the Sub-Committee at its last meeting, held on April 19, 1944, but does not necessarily represent its final views, for it is still awaiting replies from some overseas correspondents and is still prepared to consider suggestions and comments from any quarter. I am directed to send you the enclosed copy of the Interim Report and should be grateful if you would kindly let me know your Society's views upon it at your earliest convenience.”

A resolution of unanimous agreement with the R.H.S. Narcissus Classification Sub-Committee's Report was passed by the Annual Meeting of the Daffodil Society of New Zealand.



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