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CITY BEAUTIFYING WITH HERBACEOUS PLANTS.

(By A. W. Anderson, N.D.H. (N.Z.), Timaru.)

“God Almighty first planted a garden, and indeed it is the purest of human pleasures, it is the greatest refreshment to the spirits of man, without which buildings and palaces are but gross handyworks; and a man shall ever see that, when ages come to civility and elegance, man comes to build stately sooner than to garden finely as if gardening were the greater perfection.”

—Francis Bacon. “Of Gardens.”

In the three hundred years which have passed since these words were written, a new phase of gardening has come into being. Not only do we labour to improve the surroundings of buildings and palaces, we endeavour to beautify our towns. Therefore, we may add that man comes to adorn his own grounds before he thinks of beautifying his cities. If gardening is one step ahead of building, so beautifying a city is one step ahead of beautifying a home.

Most of us cherish the hope that, in our journey through life, we may be able to leave the world a little better than we found it, and one of the simplest ways of achieving this is by embellishing our towns, so as to improve the environment in which our fellows have to live and work. The surroundings among which they are brought up as children, play a most important part in townspeople's appreciation of natural beauty. All will agree that this appreciation of beauty can best be fostered by thoughtful and attractive planting in our urban areas.

One of the most important phases of such planting is the proper use of colour. No doubt line and form are important but, without colour effects, they are apt to be overlooked. The man in the street is probably not very interested in the various town plots, which he passes daily on his way to work, but if colour be introduced, the most unobservant will pause to look—stop to admire—and no doubt derive a certain amount of pleasure from what he sees.

During these unsettled times it is worth our while to take note of the fact that the horticultural press of Great Britain has, since the beginning of the war, been unanimous in its representations to private gardeners and public bodies to do all they possibly can to lighten these dark days by growing flowers about their homes and cities. All have emphasized the necessity for a balanced

outlook and have endeavoured to prevent a complete change-over from flowers to vegetables. It has been noticed that public gardens and parks are thronged as never before and that the beauty of flowers has done much to take the minds of the people off the dark days in which they are living. This is most encouraging to those of us, who have thought it rather futile to be spending our days growing flowers at a time when the Empire is fighting for its life. It shows that by carrying on with our jobs, by providing beauty and colour in our parks and cities, we are doing something to refresh the spirit of the nation so that the war effort may be conducted with renewed vigour.

BEAUTIFYING TOWN PLOTS.

I have been asked to deal with 'City Beautifying with Herbaceous Plants' and, while this could be used to embrace all the work of a Reserves Department, I have preferred to keep in mind the beautifying of town plots. In Timaru, we use this term to cover all the surroundings of buildings, traffic roundabouts, and odd corners throughout the town, and that is the sense in which I am using it. There can be little doubt that the first and most important matter in the maintenance of these areas is tidiness. No matter how attractive the colour scheme may be, how well thought out the design of the area, or how well grown the plants, the general effect will be completely spoilt if the reserve is not kept in a tidy condition, with the fences in good repair, the grass well mowed, and the edges neat.

Tastes differ. Some people find the greatest pleasure and satisfaction in bright glowing displays of colour suitably arranged, while others prefer the more subtle effects produced by the quiet arrangement of carefully blended colours of the lighter tints. Both can be highly satisfactory much depending on the position, as the environment and nature of adjacent surroundings should determine the character of the planting schemes. Where a colour effect is intended to be bold and bright, a prominent position should be chosen or one where it is possible to get a sudden surprise view, so as to create a first and lasting impression. The more delicate schemes may be arranged in out of the way corners, where they will provide a pleasing and restful change from the bustle of the busy streets.

Naturally, the size of the beds will vary according to the size of the area and the height of the plant or plants which are to be used. Nowadays, it is almost needless to say, beds should be of simple outline or shape whether round, oval, square or oblong. In the neighbourhood of modern buildings, square or oblong beds usually fit in best, while on a lawn isolated from formal surroundings, an oval bed is likely to be very effective.

In formal planting schemes, one of the most important considerations is the necessity of having the immediate setting and surroundings designed so as to harmonize with the formal planting. There can be no more dignified and pleasing foil for colour than a setting of well kept turf. The planting of all formal beds should

be in the mass, and it is usually advisable not to use too many colours or too many kinds of flowers.

The best results are usually obtained by the use of one variety to a bed and the schemes are usually most successful where two, or at most three, different colours or kinds of flowers are used. Of course, everything depends on the situation, size and design of the scheme.

Whereas in a formal design a pattern of some sort is already in existence quite independently of the planting, so in an informal design, the composition depends on the plants themselves. Almost all the most satisfactory compositions require at least some plants of that strong architectural quality, which is to be seen to perfection in *Acanthus mollis*, *Gunnera manicata* or the spire like *verbascums*. Herbaceous borders are perhaps the highest peak of informal grouping, but they are rarely suitable for the types of area we have in mind, although those of us who know Southport will remember the wonderful effect of the herbaceous border at Rotten Row. Fully half a mile long, it is something to be remembered by all who have seen it. Fortunately there are many herbaceous plants which are most effective when planted in large isolated lawn beds. In fact quite a number are only to be seen at their best when grown in this way, for too often their individual grace and charm cannot be appreciated to the full, when they are confined to the crowded quarters of the modern herbaceous border.

The handsome *Boeonia cordata*, the bold grey foliage of the cardoon, are most useful, while in the close proximity to buildings the noble foliage of *Acanthus* is very satisfactory. *Achillea eupatorium*, whose elegant leaves and flat flowerheads are very effective, when associated with the round yellow balls of the common fanny, give a combination which has the merit of remaining in flower over a long period. The numerous varieties of *Kniphofia*, of which the best are probably *Galpinii*, *Border Perfection* and *Royal Standard*; the *heleniums* with *Bronze Queen*, *July Sun*, *Wyndly* and *Moorheim beauty*; the *Helianthus* with *quertifolius*, *decapitatus* and *Newmanni* and the *Rudbeckias* especially *speciosa*, *purpurea*, and *Newmanni*, are amongst the best obtainable for beds of all the tones of bronze, crimson, apricot and gold.

Among the blue tonings we have *Salvia leucantha* with attractive woolly flowerheads, *nemorosa*, which is probably one of the longest flowered of all the hardy herbaceous plants and is delightful if edged with the double flowered *Chrysanthemum Easter Road*; *Verbena bonariensis* and *V. corymbosa*, which are both capable of withstanding drought, and of course the *delphiniums* and *Michaelmas daisies*. The latter are most effective if thinned four or five stems per clump in early summer. Their chief fault in not coming into bloom, until autumn may be overcome by interplanting *delphiniums*. The tall growing varieties, such as *Cloudy Blue*, may be interplanted with *Delphinium Blue Gown*; the medium sorts, such as *Little Boy Blue* with *tatsiense*; and the dwarf kinds, such as *King George* or *Countess of Dudley* with *Blue Butterfly* or *Porcelain*

Blue. This brief list merely gives an indication of the possibilities. It is not my intention to tell you which plants you should grow for the purpose we have in mind, or how they should be grown. I feel that our time would be better spent considering some observations on planting for effect by the use of colour. I am fully aware that all of us have to be guided by the limits of our accommodation and the means of propagation of the various plants we use. Nevertheless, some knowledge of the correct relationship of colours to each other should be helpful, when we think of the vast number of herbaceous plants in use at the present time.

THE IMPORTANCE OF COLOUR.

Colour, form and sweetness! How richly they have been given to us to enjoy in the endless variety of plants at the disposal of the modern landscape gardener. The greatest of these gifts is colour, the very abundance of which should strike a warning note. Taken by themselves as colours, the yellow of some marigolds is too strong, the blue such as that of *Salvia patens* too cold, and the reds such as those of the geraniums, "Jersey Beauty" and "Maxime Kavalisky" too crude and out of harmony with each other. But how can we expect it to be otherwise with plants garnered from all parts of the world, where they have had to adapt themselves to all the vagaries of wind, rain and sunshine.

The skill of the modern plantsman consists just as much in being able to choose out of this inexhaustible store the right materials for his colour schemes as in the cultivation of the plants themselves.

We are becoming more and more aware that the artistic grouping of colours in our bedding schemes is indispensable if we are to achieve the most beautiful and pictorial results. The utmost vigilance is necessary, if we are to avoid clashing of colours. We must aim at building up a harmonious effect or to achieve our purpose of attaining a striking contrast. As a general rule, the quiet tints of spring rarely clash. It is usually later in the year, when the deeper shades of high summer and autumn make their appearance, that the combination of strong colours coming together is apt, like some sharp acid, to set the teeth on edge.

We must not undervalue rich and brilliant colouring because, without that, our effects would be sadly tame and lacking in appeal. Even the difficult magenta tones have their place and can be of great service under suitable conditions.

THE VALUE AND USE OF A COLOUR CHART.

When planting colour schemes, it is necessary to discriminate between the incongruous and obverse, and by far the safest plan is to check the colours with a chart and keep the records in such a manner as to give a perfect understanding of the tints and shades we are dealing with.

The following example shows a number of flowers blooming at Timaru during the third week of September, 1940:—

Week in flower.	Name.	Colour.	Height.	Week finished flowering.
Sept. 3	Anemone pulsatilla	Bishops Violet	34	9"—12" Oct. 2
" "	Mertensia virginiana	Gentian blue	42/1	12" " 3
" "	Anchusa myosotidiflora	French blue	43/2	18"—24" Nov. 3
" "	Doronicum caucasicum	Lemon yellow	4	18"—24" " 1
" "	Adonis vernalis	Canary yellow	2	6"—9" " 4

A record such as this shows the height and colour of the plants and also their flowering period. Of course, it is necessary to consider the best use our plants can be put to. Some make ideal carpet plants, others are best suited for making the main effect or as 'dot' plants, while others again may be used as edgings. Of course, the modern tendency is to do without edgings. At one time it was said that 'a bed without an edge was like a picture without a frame'. To-day we see both and, if anything, prefer the simple effect rather than the flamboyant Victoria one, whether it be our pictures or in our flower beds.

Colour perception is really an individual sensation and the same tones affect people differently. Until comparatively recent years, little has been done to standardize colour values. We have only to consider how the evolution of colour has lagged behind the measurement of sound to realize that there must be a far greater diversity in the perception of colour variation than there is in the faculty of recognizing the variations of sound. It is astonishing how few people understand colour terms and we find that most of them use tone, tint, shade, etc. almost indiscriminately. Not only are the terms interchanged, but we find that the actual colour names are also used in the most haphazard manner. Of the numerous examples which might be given, that of one well known rose 'Betty Uprichard' will suffice.

The following list of colour descriptions has been taken from nurserymen's catalogues:—

ROSE 'BETTY UPRICHARD.'

Colour description.	Nurseryman.
1. Carmine pink.	Dobbie's, Edinburgh.
2. Geranium pink.	Bunyard, Maidstone.
3. Salmon pink to carmine	McGredy, Ireland.
4. Salmon pink, reverse coppery carmine	Bobbinck & Atkins, U.S.A.
5. Salmon pink, reverse orange scarlet	Stinton, Australia.
6. Glowing carmine, coppery orange sheen	Lippiatt, New Zealand.
7. Coppery pink shaded salmon	Poulsen, New Zealand.
8. Orange pink	Andersons', New Zealand.
9. Salmon pink, carmine flushed copper	Mason, New Zealand.

This is just an example taken at random because everybody

knows 'Betty Uprichard.' It is with no little interest that I record that, according to the colour chart, 'Betty Uprichard' is a blend of the various tints of crimson, namely crimson 22, 22/1, 22/2, and 22/3.

The Royal Horticultural Society realizing that "one of the greatest barriers to progress in the teaching and practical use of colour, both commercially and aesthetically, has been the burden of confused terminology" decided to finance the production of a colour chart. It was finally published about two years ago and, as it becomes better known, will be found to be of great use.

In the introduction we are told "In the description of colours careful distinction should be made between commonly mis-used terms" and the following are advised for general use:—

Colours vary in three different ways only and these variations may be referred to as the attributes or dimensions of colour:—

1. **HUE** is that dimension by which one colour is distinguished from another, one that bears a particular colour name but no qualification as to tone or intensity. That is, a colour may vary according to the character of the colour itself, whether it is a red, a blue, or a green, etc.
2. **TONE** is that dimension by virtue of which a colour is perceived by the normal eye as holding a position in a light to dark scale. That is, a colour may vary according to its degree of lightness or darkness. The terms "value" and "luminosity" and "brightness" have also been used for this dimension, but for the purpose of referring to colour sensations influenced by surroundings, the word "tone" is best.
3. **INTENSITY** is that dimension by which the brilliance of a hue is revealed. That is, a colour may vary according to the strength of the colour quality.

Besides these three dimensions there are other terms which are loosely used, which should be, and are here defined:—

FULL HUE.—A pure colour free from the sensations of any degrading factor.

TINT.—A lighter tone of any colour.

SHADE.—A darker tone of any colour.

This term is synonymous with "dark", except that "dark" is an adjective and "shade" a noun. Shade has become widely used as indicating simply a colour whether it is light or dark, pure or dull. Horticulturists are advised to confine the use of the word "shade" to indicate its true meaning, i.e. a darker tone of any colour.

THE CHROMATIC CIRCLE.

The chromatic circle is the spectrum of full hues, yellow-orange-red-crimson-purple-violet-blue-green to yellow again in which the rate of change between the adjacent colours is constant throughout. If we arrange the colours of the chart in a large circle we can see the difference in colour, and how they grade into each other.

An examination of the circle shows that the colours lying opposite each other should harmonize because they form an absolute

contrast. This explains why a mass of orange marigolds may have its aggressive colour toned down by the misty blue of *Heliophila*.

We may note that, besides the opposing colours which harmonize by contrast, there are the neighbouring colours which harmonize by analogy. That is, any three or four colours lying side by side, are bound together by their near relationship with each other, and may be combined with the most pleasing results. For example, a border of *Verbena venosa*—Bishops violet 34.34/1 by itself is too dark but, if lighted up with the variety *lilacina*—violet 35/3—and the tall growing *bonarionsis*—Violet 36—, the result is a delightful harmony in violet tones.

The value of the chromatic circle may be summed up as showing that colours lying at right angles to each other tend to clash; for instance, the bright red of oriental poppy "King George"—Poppy Red 16 and *Potentilla* "Miss Wilmott"—Tyrian Rose 24/2 while those lying opposite tend to harmonize by contrast, but that our most harmonious results may be built up by related colours rather than by combining hues.

MODERN USES OF COLOUR.

At the beginning of the present century a planting scheme had only to be big, bold and bloody with the most vivid tones of the three primary colours, as provided by red geraniums, yellow *calceolarias*, and blue *lobelia*. To-day, a greater proportion of the public requires something more refined, and we prefer to use our most vivid colours for harmony rather than for contrast.

The scarlet, crimson and gold of the modern dahlias suggest vigour and activity; their brilliance stimulates, but if overdone tends to create a restless effect. On the other hand, the pale colours—such as the blues and violets of delphiniums and *Michaelmas daisies*—or the neutral greys—are restful. They create harmony and form a background for the more vivid colours. In addition to being restful, they give the effect of distance. Where stately, dignified effects are demanded, the strong colours may be kept in the foreground with the misty blues and greys fading away at the edges. On the other hand, when paler tints are placed in the foreground, with the more brilliant shades on the outskirts, we get the effect of a well defined boundary, which tends to bring the whole scheme nearer to the eye.

Perhaps the most difficult colours are the mauve and magenta tones, which are best kept by themselves. Pinks are mostly difficult, when used in close proximity to reds or near magentas. It is vitally necessary to keep the orange-pinks away from the blue-pinks. For example both *Lavatera* 'Sutton's Loveliness'—Bengal Rose 25/2, 25/3—and the pink opium poppy—Carmine Rose 621/2 are delightful if massed by themselves, but if grown in close proximity to each other the colours of both appear muddy and unpleasant. The softening effect of foliage or even of white flowers may be used in such cases with great success.

Purity of colour in flowers is not nearly so common as is generally supposed. In a great many cases they include a hint of some other colour, and are frequently a blend of several tints. A collection of white flowers will be found to consist of many grades of colour from the cold blue-whites to the warmest ivory with an equal diversity of texture. White, provided it is not used to excess, is most useful because it will always help us out of difficulties. It may be placed against light tints, where it will tend to brighten them up, or against strong colours, where it will tend to tone them down. If too much is used the colour scheme will look cold and "patchy."

THE VALUE OF CONTRASTS.

The value of contrasts is chiefly in their accent value, but it is worth while bearing in mind that, except under rather exceptional circumstances, a succession of contrasts will not be successful. As a rule this tends to produce a 'spotty' appearance which falls flat with repetition.

Beds and borders of one colour may be exceedingly monotonous or visions of pure delight. It is where the one colour is likely to be tedious that the value of contrast is most obvious. For instance where masses of *Delphinium formosum*-Gentian Blue 42. 42/1 tend to lose their effect, a little yellow such as *Oenothera* 'El Dorado'—Canary Yellow 2/1 will lighten up the whole bed or border.

When planning contrasts, we find that the luminous intensity of some colours, such as yellow, orange, scarlet and magenta are much greater than in the blues and greens and, in consequence, we must be careful in our use of the more aggressive tones because they catch the eye so quickly and are apt, if used too freely, to dominate the scheme at the expense of the more delicate tints.

THE VALUE OF FOLIAGE.

It is important to bear in mind that colour is not only supplied by flowers but also by foliage. There are the bright gold of pyrethrum, the brilliant reds of mountain spinach, the russet crimsons of the fibrous rooted begonias, the purple and maroon of cannas, and *Lobelia cardinalis*, and an infinite variety of felt grey and silvery leaves to mention only a few. Coloured foliage may be used by itself, or if carefully selected, may be of service as a foil to the more brilliant colours, softening their strident notes and giving an air of picturesque harmony to the whole.

Our eyes seem to be adapted to the continuous quiet stimulation of green, probably because of the vast amount of it in nature. In the ordinary circumstances under which our race has developed, we have been surrounded by a verdant countryside, but in towns we are encompassed by an endless repetition of drab colours and so we turn to the green of trees and grass to rest our tired eyes. It is much the same with bright colours. At first, they give a pleasant excitement to the eyes, but this quickly passes into fatigue, and

again we turn to the quiet restful greens for relief. That is a possible explanation, why the quiet beauty of trees and verdant grass has such an appeal, when found in the midst of our city streets.

NOTE:—The foregoing was written as a paper and was delivered by the author at the 1941 Conference of the Association of Directors of Parks and Reserves.

ZEPHYRANTHES.

(By Dr. W. M. Thomson.)

Zephyranthes in America take the place of the crocuses of the old world, but as very few of them are hardy in England, one does not find many references to them in gardening books or magazines. On the question of hardiness Farrer in "The English Rock Garden" says: "Much ink has fiercely flowed in the past over the question as to whether even *Z. candida* is hardy." He considers it the only one that makes a pretence to be hardy. But it is certainly hardy in New Zealand. *Z. rosea* grows in the open at Bulls as do *verecunda*, *Texana* and E. K. Ball's 4146. *Rosea*, *robusta* and *texana* are growing in the open at Stratford but *macrosiphon* does not do well even at Bulls. In New Zealand, *Z. citrina* and *Ajax*, its hybrid with *candida*, *Atamasco* and perhaps *Treatiae* should also be hardy, at any rate in the North Island. The two latter do not seem to be procurable at present but both are described as large flowered and very beautiful. Those which I know to be available are:—*candida*, *Ajax* and *citrina* (also labelled *lutea* and *sulphurea* but neither name is mentioned in Johnson's Dictionary), *texana*, *rosea*, *robusta*, *macrosiphon*, *verecunda* and E.K.B. 4146.

As to culture:—In England, dry and warm conditions are often advocated but for most of them, in their natural sites, considerable moisture seems to be necessary. *Candida* is the swamp lily of Argentina; *Atamasco* grows in damp places in North America and *Treatiae* in even damper conditions in Florida. I grow the plants in pots on an open porch (no overhead cover) for convenience in hybridizing and keeping insect pests at bay. In the border they need a place in full sun, in soil well drained and containing a good proportion of humus.

In colours there are whites, yellows and pinks. The whites include *candida*, *verecunda*, which opens its flowers almost flat in the sun. *Atamasco* and *Treatiae*, both with large flowers. Yellows are *citrina* and *Ajax*; *texana*, which is yellow inside and striped with coppery-yellow outside. This description also applies to *Andersoni* and there are other yellow species. Pinks and reds include *rosea* with large flowers; *macrosiphon*, *robusta* and *carinata*, which needs greenhouse culture; and there are several others in this category. Among species not available at present are *coerulea*, pale blue or lilac; *andicola*, bright violet; and *lilacina*.

My own introduction to *Zephyranthes* took place many years ago through a full page illustration in the "Garden" of *Z. carinata*. It seemed too good to be true, like those impossibly bright

illustrations on the catalogues and seed packets of some of the less reputable Dutch and other dealers. But I believed it and in due time found it no more than the truth. The opportunity to acquire it came unexpectedly through the encyclopaedic catalogue of Haage & Schmidt of Erfurt. We grew it in a little unheated green-house and it flowered satisfactorily. I next came across it in the Andamans, where I was stationed for two years. There had been a small garden laid out beside the bungalow by some unknown predecessor, who had lined the paths with it. Grass had grown over the whole area but the Zephs. came through with the rains and made broad bands of pink nearly a foot wide. There were many flushes of flower during the year, nine or ten, and always odd flowers between whiles. Even in our colder climate, this habit obtains to a lesser extent; I have noted it in *macrosiphon*, *citrina* and *verecunda*. When I came to Hawera I found *candida* in many gardens; *macrosiphon* came from Edinburgh and has been multiplied greatly from seed. *Citrina* and *Ajax* followed, then *rosea* and *carinata*, but the latter has been lost. Since then *texana* and *verecunda* and the E. K. Ball plant have come from Mr. Stevens; the latter has not yet flowered. There is also a pot of seedlings of an unnamed one from the late Mr. Guthrie-Smith. I once got a packet of *andicola* from Dr. Lempérg of Vienna through my keen gardening neighbour, Mrs. O'Callaghan. It germinated and the seedling stood some light frosts and I thought they were safe but a heavy frost came and scuppered them all. Edinburgh sent me seed labelled *Hippeastrum andicolum* when I asked for it but the plants that grew were an *Allium* that was already a serious pest.

Most of the species set seed very freely and the seed germinates rapidly, at least if sown soon after it is collected. I have found seedlings appear in twelve days and germination is often 100 per cent. The exceptions are *candida*, which sets few seed, and *rosea*. The former may be an instance of the partial sterility which seems to affect some plants when grown for many years in gardens and multiplied by offsets. The remedy is to grow a few from seed and the resulting plants usually seed freely, as witness *Lilium candidum* and *Romulea rosea*. *Z. rosea* has not set seed with its own pollen but I have seedlings raised by crossing with *macrosiphon* and these set seed with pollen of *rosea*. The different species seem to cross freely: *Ajax* is a cross between *citrina* and *candida*; *Spofforthiana* is from *carinata* and *tubispatha*, a stove species. I have already flowered the *rosea-macrosiphon* cross and have made many other crosses: *macrosiphon* and *citrina*; *rosea* and *citrina*; *macrosiphon* and *candida*; *macrosiphon* and *verecunda*; the same and *texana* all these reciprocally. In addition, *texana* has been crossed with *citrina* and *candida*, and *candida* with *citrina*. There are numerous seedlings from most of these crosses but no flowers yet; the possibilities are fascinating. *Candida* can contribute hardiness, *rosea* size and handsome shape, *verecunda* opens flatly and *texana* has rich colour but needs to keep its flowers open longer, while one

hopes for an orange flower from the union of citrina with the pinks!

When they are better known, *Zephyranthes* should become popular in New Zealand gardens for they can be grown outside in the warmer places, and elsewhere they are easy plants for the unheated house. They are all beautiful; they seed freely and grow willingly from seed and they offer many interesting combinations to the hybridizer.

THE SOCIAL VALUE OF PUBLIC GARDENS.

Some idea of the contribution of horticulture to the spiritual, intellectual and physical enjoyment and development of the people of New Zealand is obtained from such documents as the Annual Report of the Christchurch Domains Board, for the year ended 31st March, 1941, which has recently been issued.

In this one populous locality and important centre there are, thanks to our public-spirited pioneer ancestors, in close proximity to the city, for the enjoyment and health of the people, men and women, young and old, 31 sports areas prepared and maintained for the playing of Rugby football matches; 16 for hockey contests; 31 for basketball; 4 for baseball; 4 for association football; 28 for cricket matches; 34 tennis courts; 4 grounds for croquet; 2 bowling greens; 1 golf course; and 1 horse-ride, 2 1-8 miles long: all in a readily accessible and pleasing environment.

To enable the public to study the adaptability of nature and its contribution to human needs, there are sections, in the Botanic Gardens of the Christchurch Domains Board, devoted to bog and water plants; an alpine garden; shrub collections; a collection of native trees and plants (totalling 435 species and varieties) named after a citizen botanist of world-wide repute—the “Cockayne Memorial Garden”; a large conservatory where, during recent months, an economic exhibit of living material and the finished products therefrom have created much interest. It includes rubber, sago, rice, sugar-cane, coconut, pepper, arrowroot, tea, coffee, tapioca, liquorice, ginger, etc. Also a large collection of timber and shelter trees of an age which enables one to judge their merits at maturity under local conditions.

The contributions to the spiritual needs of the public are on an equally generous scale. The Townend house is a conservatory which contains a colourful display of blossom even in the depths of winter: at midsummer the rose garden, which is large, modern and well cared for, is a place where one can profitably spend a couple of hours on any fine day. In spring the “daffodil woodland” is a centre of attraction. On Daffodil Sunday—September 22nd—8,000 people visited the woodland and showed their appreciation by contributing £71/16/9 to the funds of the Domains Board.—Contributed,



HERBERT BAILLIE.

At the June meeting of the Dominion Executive of the Royal New Zealand Institute of Horticulture, feeling reference was made to the death, on the 28th of May, of Mr. Herbert Baillie, N.D.H. (N.Z.), of Wellington.

Mr. Baillie was a stalwart of the Institute and one of its foundation members. He was, for many years, a valued member of the Dominion Executive and also of the Institute's Examining Board.

Mr. Baillie was a keen, practical gardener, interested in every phase of horticulture, and particularly in the preservation and cultivation of New Zealand's native flora and in more recent years, in the cultivation and collection of rose species.

He will be greatly missed throughout the Dominion and particularly by his many friends in Wellington to whom he endeared himself by his charming personality.

A resolution of sympathy has been conveyed to his widow and two daughters.

HISTORIC TREES IN NEW ZEALAND.

(By H. H. Allan, Honorary Botanist.)

Since the publication of lists of Historic Trees in the June and September, 1940, issues of the Journal, the following further information has been received:—

152. Norfolk Island Pine (*Araucaria excelsa*): This was the first Norfolk Island Pine planted in New Zealand, by Mr. Gilbert Mair in 1828, at the Wahapu, Bay of Islands. The photograph was taken in 1903, and bears a note by Mr. Robert Mair. "Many years after this tree was planted a boat's crew from one of the naval ships in the Bay of Islands, when out for a holiday, carried away their mast. On arrival at their ship, the officer on watch told them they must replace it, which they did by cutting the upper part of the tree off. This caused it to throw out several leading shoots. In 1900 it was about 80 feet high."

153. Aspen Tree at Tauranga. This is said to be the largest Aspen tree in the Dominion, and has a circumference of 24ft. near the base. Growing near the Post Office, it attracts the attention of all visitors. The Armed Constabulary had their camp at this spot, and the story is that one of the troopers, after the battle of the Gate Pa, stuck his riding switch into the ground, and that this took root and grew into the stately tree we now see.

PLANT RECORDING.

STRAWBERRY "VICTORY," RAISED BY ARTHUR G. SAINSBURY,
MANGERE, VIA OTAHUHU.

RAISER'S DESCRIPTION:—"Raised from seed in two stages. It is a descendant of the English commercial variety "Royal Sovereign."

"Stems light green; stolon and stipule brown; leaves concave, green, many small serrations; flowers perfect, small and numerous, over 100 flowers showing at one time being common; fruit long, round, pointed, uniform and symmetrical, about twice as long as broad. In size, it equals the very large Marguerite. Colour bright scarlet, begins at the point and travels back to the shoulder, where a narrowing neck, usually white, connects with a small calyx. The neck makes hulling easy, in fact, you can hull this variety with gloves on. The flavour is sweet, rich and suggestive of Royal Sovereign. The berry keeps and travels well and does not darken. The mature plant is more upright than Royal Sovereign, rather more bushy, a strong grower and an early cropper, coming in with Marguerite and continuing later. The crop, which is very heavy, is mostly laid just near the edge of the foliage. It is moderately productive of runners,



153. Historic Trees.—Aspen Tree at Tauranga—said to be the largest in New Zealand.



51. Historic Trees.—The famous Chestnut Tree at Brooklands, New Plymouth. This is one of the glories of "Brooklands," the garden of the late Mr. Newton King. It was planted by the late Captain King in 1855, and has now reached a height of 57ft., a spread of 100ft., and a trunk girth of 5ft.

REVIEWS.**THE R.H.S. LILY YEAR-BOOK, 1940.**

Growers of the genus *Lilium* throughout the world look forward with increasing interest to the Royal Horticultural Society's Lily Year-book, which has established itself as the outstanding annual on the subject. It is fortunate that such an influential organization as the R.H.S. sponsors this publication, as its ranks include many of the leading students of the Lily whose researches and opinions are always of particular value.

The 1940 edition, which is just to hand, maintains its high standard despite these turbulent times, and contains much that is new, interesting and practical. Those concerned with the raising of hybrids will be particularly interested in a paper by George L. Slate of Geneva, New York, who makes an important contribution to our knowledge of breeding problems associated with the genus. New Zealand is again represented by B. W. Doak, whose comments on the transplanting of Lilies may cause many of us to revise our opinions on this problem. Mr. Doak has found that "better results are secured when the bulbs were shifted as soon as the foliage died down, than when the shifting was delayed." The opinions of this large-scale grower are always interesting, particularly as his researches are carried out with painstaking accuracy.

An unusual paper by Alwyne Muckley outlines her experiences in starting a nursery in British Columbia for the growing of *Lilium auratum*. Apart from its general interest, it provides many useful suggestions for the successful cultivation of the popular subject. Discussions on hybrids, viruses and personal experiences with various species add to the value and interest of the volume. As is usual, there is an article on the Fritillaries, on this occasion by Miss C. Beck, who writes on their outdoor culture. Many excellent illustrations add to the value of the Year-book.—J. W. Matthews.

THE NEW ZEALAND GARDEN DICTIONARY.

(By J. W. Matthews, F.L.S., Horticultural Editor of
"The Dominion," Wellington.)

In pocket size dictionary form, everything is so easy of reference, that it is surprising no one thought of it before and what a wealth of useful, easily understandable information is here!

"A dictionary of plants in general cultivation in New Zealand, arranged in alphabetical order, giving the cultivation, propagation and peculiarities of annuals, bulbs, herbaceous perennials, native plants, vegetables and fruit trees. Designed for quick and easy reference."

Every conceivable phase of gardening and every flower, vegetable, shrub, fruit tree or other garden product, suitable to New Zealand conditions is included, with all necessary information, under each heading, together with advice on types to sow or plant, preparation of soil, how and when to sow or plant, fertilizers, pests and controls, etc. What may be termed standard or diversified kinds of flowers, e.g. *Iris*, *Lilium*, etc. are dealt with in more detail

as also are general gardening matters. The following are selected at random as interesting and informative subjects:—"Compost Heap, Hotbed, Orchard, Soil Fertility and Plant Health."

Published at 5/- net by A. H. and A. W. Reed, 182 Wakefield Street, Wellington, and Box 330, Dunedin.

OBITUARY: R. M. LAING.

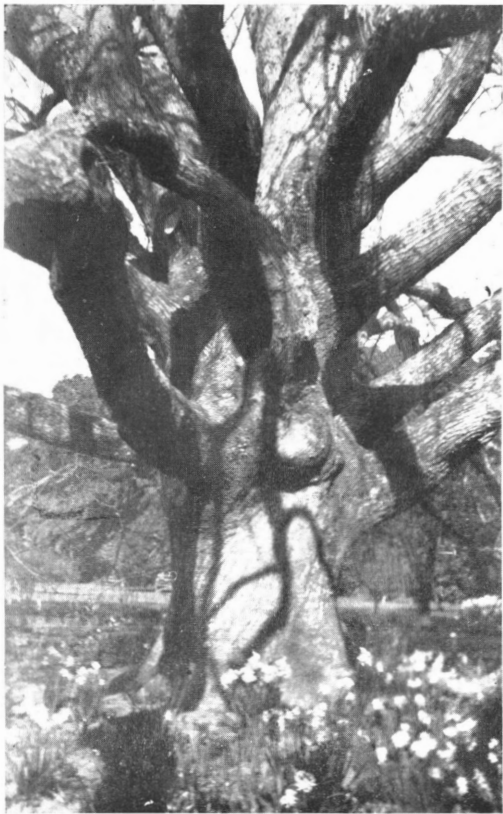
The death of Robert Laing in his seventy-sixth year removes the last of that great band of pioneer botanists who have laid so well the foundations of the botany of New Zealand. He joins his comrades: Kirk, Cheeseman, Petrie, Cockayne. His fame as a botanist chiefly rests on his devoted labours on our seaweeds, a group in which he worked for long years almost alone, leaving, however, to carry on, younger workers who had come under the kindly influence of his personality and enthusiasm for his chosen subject.

He had, also, very wide interests in New Zealand botany in general, and the gift of presenting his knowledge in a way to appeal to the layman and the horticulturist not versed in the jargon of the professional botanist. He shared with his fellow pioneers the desire to help and encourage younger workers, and give them the benefit of hard-won experience. They will not let his memory die.

No publication has done so much to educate and delight the general public interested in our plants than his "Plants of New Zealand." This brightly and accurately written account of our flora reached, before his death, its fourth and "Centennial" edition. To clear accounts of the species, beautifully illustrated, are added commentaries on modern views and researches, written in a way that all can understand. Many generations yet will draw knowledge and interest from the pages of this classic work.

NATIONAL HORTICULTURAL WEEK, 1942.

NATIONAL HORTICULTURAL WEEK, 1942.—The Dominion Secretary reported, at the June Executive meeting, that with Mr. W. K. Dallas, Director of Horticulture, a visit had been made to Hawkes Bay for two or three days from the 10th June. All show accommodation in both Napier and Hastings was viewed and two local meetings at Napier were attended. It was agreed at the final meeting that, as there was no suitable show building available in Napier and adequate show accommodation at Hastings, that National Horticultural Week, 1942, should be offered to Hastings, provided sufficient support is forthcoming from the organizations concerned.



51. Historic Trees.—The "Brooklands" Chestnut showing the bole and branching habit of this splendid example of the Spanish or Sweet Chestnut.



152. Historic Trees.—Norfolk Island Pine (*Araucaria excelsa*) the first to be planted in New Zealand at the Wahapu, Bay of Islands.

EXAMINATION PAPERS, NOVEMBER, 1940.

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.

1. Define the term "fruit" and give a classification of fruits, mentioning, with diagrams, examples of each sort.
2. State briefly what is meant by the terms respiration, transpiration and photosynthesis. Give an account of experiments illustrating any one of these phenomena.
3. In what forms, and in what organs, is food stored up by plants?
4. What are the functions of a green leaf? In what ways are leaves modified to perform other functions?
5. Describe the changes taking place in a seed during germination, up to the stage when the first true leaf is developed.
6. What is the purpose of partially sterilizing soils? Describe one method of partial sterilization.
7. Describe the structure of the flower of any particular garden plant. How would you use this knowledge in attempting to breed a better sort?
8. Describe as fully and as exactly as you can the botanical 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.

1. Compare the life histories of a downy-mildew and powdery-mildew.
2. Differentiate between a moth and a butterfly.
3. Show how the polysulphide content of lime sulphur is used in preparing sprays.
4. Discuss the spread of virus diseases by insects.
5. Outline the various methods employed to destroy seed-borne fungi.
6. What sprays would you employ to combat sucking insects?
7. Explain how certain weeds may carry plant diseases from one season to the next.
8. Describe the steps you would take to eliminate **either** (a) citrus-canker, **or**: (b) fireblight from an infested area.

INTERMEDIATE EXAMINATION (SYLLABUS No. 2.)

PRINCIPLES OF HORTICULTURE.

(Time allowed—Three Hours.)

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

1. What is soil; on what do its character and fertility depend?
2. Insects and fungi living in the soil sometimes destroy or seriously injure plants. Name two of each and describe how they are best prevented from causing serious injury.
3. What are bone dust, rock phosphate, superphosphate, basic superphosphate, and basic slag? What are the respective merits of each?
4. What are the chief precautions necessary in the preparation of humus for application to the land, or mixing in potting composts?
5. Explain the benefits derived from hoeing a crop in summer. Mention a few essential points in the performance of the operation.
6. What are the essential principles in propagation of plants by means of cuttings?
7. What are the objects and advantages of sometimes pruning hardwood plants in summer? Give examples.
8. When growing annual plants for seed, what precautions should be taken to maintain or to improve the strain?

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; also THREE ONLY of the questions on the Special Subject nominated.

1. Write a short essay on the care and attention necessary to keep horticultural implements and tools in good order.
2. Where and how on hard-wood plants are pruning cuts made best? What treatment should be applied to the wounds?
3. Name two kinds each of weeds and insects seriously infesting lawns, and describe suitable methods of control.
4. Owing to the general scarcity of organic manures, it is important to make the most of what material is available. Describe how this is best done as regards preparation and storage of the same.
5. Write an account of the **method** of preparing and mixing the commoner spraying mixtures.
6. What are the main points to be considered when laying down drains for draining wet land?

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."

1. What kinds of plants would you use and how would you arrange the planting of bedding subjects so as to provide in one

- bed or plot a continuity of blooms from December until April? Give at least four examples.
2. Give four subjects (other than bulbous plants) that you consider suitable for spring bedding. Briefly describe their propagation and cultural treatment prior to planting in beds.
 3. Say how and when the following are propagated, other than by division:—*Papaver orientale* (named varieties); *Delphinium* (named varieties); *Lithospermum prostratum*; *Daphne encorum*, *Lilium testaceum*; and *Eryngium* (named varieties).
 4. Give names of the following suitable for cut flowers:—
 - (a) Six hardy annuals that may be sown in the open ground.
 - (b) Six hardy spring, summer, and autumn flowering bulbous plants.
 - (c) Six hardy spring, summer, and autumn flowering herbaceous perennials.
 5. Write a short essay on the cultural treatment of Water Lilies giving details of the most suitable conditions for their well-being.
 6. Say briefly what is meant by subtropical bedding. Name some of the subjects used and describe their cultural treatment.

INTERMEDIATE EXAMINATION (SYLLABUS No. 2.)

Special Subject.—GLASSHOUSE-MANAGEMENT.

(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.”

1. What is meant by the Thermo-Siphon system of hot water heating of glasshouses? Show by diagram how the piping is arranged.
2. How would you proceed to produce a crop of winter-flowering Carnations under glass?
3. What is your method of grafting Conifers? Make special reference to the treatment of stocks prior to grafting.
4. Write fully on the principle of watering pot plants under glass.
5. Describe the procedure you would follow in propagating from spores some fern that you name.
6. What is the length of time required for the germination of the following seeds? *Cyclamen*; *Dianthus*; *Primula obconica*; *Lilium longiflorum*; *Lilium auratum*; *Rhododendron*; *Anemone*; and *Freesia*.

NOTE:—The same paper was used for the Diploma Examination without proviso as to the number of questions.

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.”

1. Name two authorities on Landscape Gardening and briefly comment on some of the books written by them.
2. Show by cross section diagram how you would construct a paved path and give a list of plant suitable for planting this type of path.
3. Give a list of trees suitable for planting a background to a large garden near the sea coast.
4. What would you regard, in selecting a site for a new garden, as a good aspect and give the reasons for your choice?
5. Name and describe four Conifers suitable for planting in the rock garden.
6. What do you understand by balance and proportion in garden design?

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.

1. Enumerate and explain the advantages of comparatively low temperatures in the production of some plants and crops.
2. Write a short essay on horticultural seeds, their purchase, storage and record of their use.
3. What use can be made of the chemical analysis of a soil that one is cropping?
4. Discuss the merits of a motor lawn-mower or implement tractor that you are acquainted with.
5. Fruit-trees and roses are usually budded on to stocks. Discuss the respective merits of the different stocks used for any one kind of each of the plants mentioned.
6. What are the advantages of draining a wet, stiff soil?
7. Write an account of the more important plant pests and diseases that you encountered during the past season, and your experience in combatting them.
8. Write a short essay on glasshouse ventilators and the ventilation of crops under glass.

DIPLOMA EXAMINATION (SYLLABUS No. 3.)

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

(Time allowed—Three Hours.)

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

Question 1 to count as two.

1. Give list of herbaceous perennial subjects suitable for planting a border approximately 9ft. wide and 30ft. long with a northerly aspect, and so as to maintain the maximum display

- of bloom throughout the Spring, Summer, and Autumn months. Draw a diagram of border showing position of each group of plants.
2. What kinds of plants would you use and how would you arrange the planting of bedding subjects so as to provide in one bed or plot a continuity of bloom from December until April? (Give at least four examples.
 3. (Give four subjects (other than bulbous plants) that you consider suitable for spring bedding. Briefly describe their propagation and cultural treatment prior to planting in beds.
 4. Say how and when the following are propagated, other than by division:—*Papaver orientale* (named varieties); *Delphinium* (named varieties); *Lithospermum prostratum*; *Daphne cneorum*; *Lilium testaceum*; and *Eryngium* (named varieties).
 5. Give names of the following suitable for cut flowers:—
 - (a) Six hardy annuals that may be sown in the open ground.
 - (b) Six hardy spring, summer, and autumn flowering bulbous plants.
 - (c) Six hardy spring, summer, and autumn flowering herbaceous perennials.
 6. Give four perennial climbers, other than roses, suitable for:—
 - (a) Pergolas.
 - (b) Trellis fences.
 7. Write a short essay on the cultural treatment of Water Lilies giving details of the most suitable conditions for their well-being.
 8. Say briefly what is meant by subtropical bedding. Name some of the subjects used and describe their cultural treatment.

FOR GLASSHOUSE-MANAGEMENT vide INTERMEDIATE

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.

1. Give the names of some trees most suitable for street planting in cities:—
 - (a) For heavy soils.
 - (b) For light soils.
 - (c) For exposed situations.
 Give important points to be observed when planting streets.
2. Give a list of ornamental shrubs and small trees suitable for providing a succession of colour in a shrubbery border on a light soil in an open situation.
3. How and when should the following be propagated:—

Magnolia conspicua;
Tilia vulgaris;

- Cedrus atlantica glauca*;
Leptospermum Nichollsii;
Rhus typhina and the copper beech.
4. Say how and when the following should be pruned:—
 - Ceanothus Veitchii*;
 - Ceanothus Glorie de Versailles*;
 - Forsythia intermedia*;
 - Spiraea japonica*;
 - Hydrangea paniculata*;
 - Cytisus Burkwoodi*.
 5. Write a short essay on *Ericas* and allied plants suitable for planting in a heath garden.
 6. Give the names of six winter flowering shrubs; briefly describe them and the treatment each should receive in the garden.
 7. What method and precautions would you take to ensure the successful transplanting of:—
 - (a) An evergreen holly approximately 9 feet high.
 - (b) A lime tree (*Tilia*) approximately 25 feet high.
 Draw diagrams explaining procedure.
 8. Give list of:—
 - (a) Shrubs suitable for group planting underneath deciduous trees;
 - (b) Trees and shrubs suitable for waterside planting;
 - (c) Trees and shrubs suitable for seaside planting.
 Name twelve examples in each section.

DIPLOMA EXAMINATION (SYLLABUS No. 3.)

Special Subject.—VEGETABLE GARDENING.

(Time allowed—Three Hours.)

1. Soil, climate and situation are important in commercial cropping of vegetables. Describe those conditions that are most advantageous.
2. To what extent is shelter planting of assistance to these crops of vegetables? Describe that most suitable for any particular locality.
3. Say what you know about six varieties now in general cultivation in the Dominion, of each of the following:—Potatoes, cabbages and peas.
4. What precautions should be taken in using artificial manures on heavy land?
5. For what vegetable crops is it specially desirable to lime an acid soil?
6. Describe the best methods of storage and use of organic materials which are used as manures.

RAILWAY STATIONS GARDEN COMPETITION.

Miss M. Martin, Chairwoman of the Gardening Circle of the Otago Women's Club, Dunedin, wrote under date 10th May:—"On Tuesday week, Lady Ferguson, accompanied by the judges and members of the Otago Women's Club and Mr. R. G. Wilson and Mr. C. D. McKenzie, who represented the Railways, motored to Port Chalmers to present the Cup, miniature cup, and prize-money (£2) to the Stationmaster of Port Chalmers, whose garden gained first prize in the Railway Stations Garden Competition, conducted by the Gardening Circle of the Otago Women's Club.

In the first judging, held in the Spring, twenty-two gardens were judged; in the second judging, nineteen gardens were judged as, owing to the excessive heat, three gardens were unable to enter. We have Large Gardens, Small Gardens, Very Small Gardens and First Year Gardens."

Further information regarding the Competition has since come to hand.

It appears that Lady Ferguson made the original suggestion regarding the competition in 1925 and the first judging took place in 1926. The gardens are judged in Spring and Autumn. The judges for the recent competition were Miss M. Martin, Mrs. A. Lee Smith and Mrs. J. Williams.

Prizes are awarded as follows:—

Large Gardens:—First, Cup to be held for one year, miniature cup (retained) and £2; second £1/5/-; third 15/-.

Small Gardens:—First, Miniature Cup and £2; second £1/5/-; third 15/-.

Very Small and First Year Gardens each:—First £1, second 15/-; third 10/-.

Judging points are:—Good arrangement and general effect, 20; order and neatness, 15; succession, 15; special features, 20.

INSTITUTE NOTES.

PATRONSHIP:—Their Excellencies, Sir Cyril and Lady Newall, have accepted the office of Patrons of the Institute, which has expressed its thanks and deep appreciation of this honour. The Institute has had Vice-Regal Patronship continuously since 1923.

PERSONAL:—Leave until early in September, on account of absence from Wellington, has been granted to Mr. F. S. Pope, President.

DISTRICT COUNCILS:—Auckland—Reports on tree planting at Whenuapai and Hobsonville Aerodrome have been noted with appreciation by the Executive Council, which is pleased to note so much progress and interest in the beautification of aerodromes. Taranaki.—Mr. H. N. Kitchingham, a member of the local District Council has suggested, through the press, trees suitable for plant-

ing in Egmont Reserve. Canterbury.—A satisfactory report was received at the June Executive Council Meeting. Southland.—A conference with other interested bodies, viz. Southland Progress League, Southland Automobile Association and the Southland County Council, was held recently for discussion of Road Beautification in Southland and formation of a Committee for furtherance of this activity.

COCKAYNE GOLD MEDAL for the best student in the Diploma Examination, 1940, has been awarded to Miss K. M. O'Brien, c/o Harrison's, Palmerston North, who is transferring to the Botanic Gardens, Christchurch.

CHRISTCHURCH BOTANIC GARDENS:—Director's Annual Report for the year ended 31st March last mentions provision of a lecture room for trainees, 25 feet by 12 feet, with necessary fittings; lectures in Gardens; particulars of horticultural trainees and of lectures. The report has been read with interest by the Executive Council and is being referred to the Examining Board.

CONGRATULATIONS have been extended to Dr. H. H. Allan, our Honorary Botanist, on the recent award, by the Royal Society of New Zealand, of its Hutton Medal for botanical researches.

J. A. CAMPBELL MEMORIAL AWARD:—The annual interest on the J. A. Campbell Memorial Fund provides an award of approved books to the most successful student each year in the Institute's Intermediate Examination. Mr. G. D. Hyde, the 1940 winner, has selected L. H. Bailey's "The Standard Cyclopaedia of Horticulture" to the cost of which the Institute's trust fund contributes £5/10/-.

CONDOLENCE:—At the June meeting of the Executive Council, a resolution of deepest sympathy was directed to be conveyed to Mr. Hope B. Gibbons, Wellington Executive member, on the loss of his son, on active service.

Royal New Zealand Institute of Horticulture

(INCORPORATED).

Patrons: Their Excellencies SIR CYRIL NEWALL, Governor-General and LADY NEWALL.

Vice-Patron: The Hon. the Minister of Agriculture.

President: F. S. POPE, Esq., Wellington.

Hon. Editor: Dr. H. H. ALLAN, Department of Scientific and Industrial Research, Wellington.

Dominion Secretary: G. S. NICOLL, P.O. Box 1237, Wellington.

Hon. Secretaries of Local District Councils:

Auckland: Noel Cutler, Golf Road, S.W.4.

Taranaki: L. W. Delph, M.A., Frankleigh Park, New Plymouth.

Canterbury: J. N. McLeod, 108 Paparoa Street, Christchurch.

South Canterbury: A. W. Anderson, Box 153, Timaru.

Otago: D. Tannock, 560 Castle Street, Dunedin.

Southland: K. I. Robertson, Box 44, Invercargill.

Membership:

Individuals: 12/6 per annum (including Member's wife).

Juniors under age eighteen: 2/6 per annum.

Societies, Firms, etc.: 21/- per annum.

Journal (quarterly):

To Members: Free.

Examinations:

Examinations are held yearly in November.

Students desiring examination should make early application to

DOMINION SECRETARY,

Royal N.Z. Institute of Horticulture,

P.O. Box 1237, Wellington.