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# **Journal of the New Zealand Institute of Horticulture**

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## **THE OTARI OPEN-AIR NATIVE PLANT MUSEUM.**

By Margaret M. Martin.

Thirty years ago that part of Wellington which has for so long been known as Wilton's Bush, was native land over which sheep and cattle browsed. It was unfenced, without roads or bridges, much of the forest had been damaged and a good number of noxious weeds had taken up their abode there. In 1907 it became a Government Reserve, with the Wellington City Council as part owner. In the year 1918, the City Council bought out the Government, and became the sole owner, and it was not until that date that any appreciable alteration was made in the condition of the property. Paths were cut through the forest and some of the streams were bridged. The part known as the Chapman garden was acquired in the year 1924 and, together with Wilton's Bush proper, makes an area of 143 acres. In the year 1927, at the suggestion of Mr. J. G. MacKenzie, Director of Parks and Reserves, for Wellington, it was set aside as a Reserve for Native Plants. The late Dr. Leonard Cockayne, then Honorary Botanist to the Wellington City Council, conceived the idea of this place becoming, not only a Reserve for native plants, but a Museum in which one might see, not merely dried and dusty specimens, but the living plants, growing, flowering and fruiting as in their natural habitats. He wanted to show, within a small area, pictures of the many types of vegetation of New Zealand, collections to illustrate plant relationships, how to use our plants in gardens as well as to improve and repair the damaged forest already there.

As in every branch of botanical investigation which he followed, he was incredibly quick to realise all the facets of a problem, and once the idea of a Museum of living plants presented itself, a hundred other possibilities became evident. It was with the greatest enthusiasm that he set out to elaborate a plan for its creation, management and maintenance.

In the first place, he determined to grow as many as possible of the plants of the New Zealand Botanical Region from the outlying islands as well as the mainland, from the smallest herbs to the tallest trees, from farthest north, as well as farthest south, from sea shore as well as mountain top. In such a collection, no exotics were to be tolerated. The planting was to be carried out in such a way that, whether there was a systematic arrangement

of genera or species, or a reproduction of a piece of typical vegetation, it should all be done with a due regard for beauty.

Having laid down the main principles which would govern the work, Dr. Cockayne looked far ahead and took immense pains to ensure that the Museum should serve all the purposes for which it was created. Although it might take many years before it reached such a stage, he foresaw the time when it would form a natural adjunct to the Departments of Agriculture and of Education as well as to such institutions as the Plant Research Bureau, the Dominion Museum and the University, as well as to their counterparts in other countries.

No such scheme as this had ever been attempted in any part of the world. Indeed, few people would have had either the courage and enthusiasm, or yet the tenacity of purpose and originality of mind, to visualise and carry out such a gigantic project. This was in 1927. How much of the plan has so far been accomplished?

The original plan for the Museum was outlined by Mr MacKenzie and Dr. Cockayne in an article which appeared in this journal in 1927. In 1932 this was very much elaborated by Dr. Cockayne and was published in the form of a booklet of 28 pages under the title. "A Scheme for the Development and Arrangement of the Otari Open-Air Native Plant Museum." In this booklet, Dr. Cockayne set out in detail all the works accomplished and in hand at that date, together with complete particulars of all the work intended to be done for many years ahead. To realise fully the thoroughness with which the "Scheme" was worked out, it is necessary to read this booklet. Nothing was left to chance, and no pains were spared so that the work would go on even when Dr. Cockayne himself should no longer be there to guide it. He abhorred committees and boards of management, holding that a few people really loving the work would be more successful in carrying out the purposes of the Museum. It was for this reason that, with the approval of the Director of Parks and Reserves, he invited the assistance of Mr. B. C. Aston and myself in the work and management of the Museum. During a number of years we have co-operated with him, as well as with Mr. A. McKay, who was appointed Officer-in-Charge in 1927.

It was early evident that, in carrying out the "Scheme" of the Museum, the main difficulty would be in the collection and supply of plants. There was no regular sum of money available for that purpose and that position still continues. The City Council pays the salaries of the Officer-in-Charge and of the three or four men who are employed under him. There is no money spent on the Museum and the collection of plants is still done by various botanical friends of the late Dr. Cockayne and others who are particularly interested in the work.

I would like to mention the names of such benefactors but the list would be too long for this article. Their labour in pro-

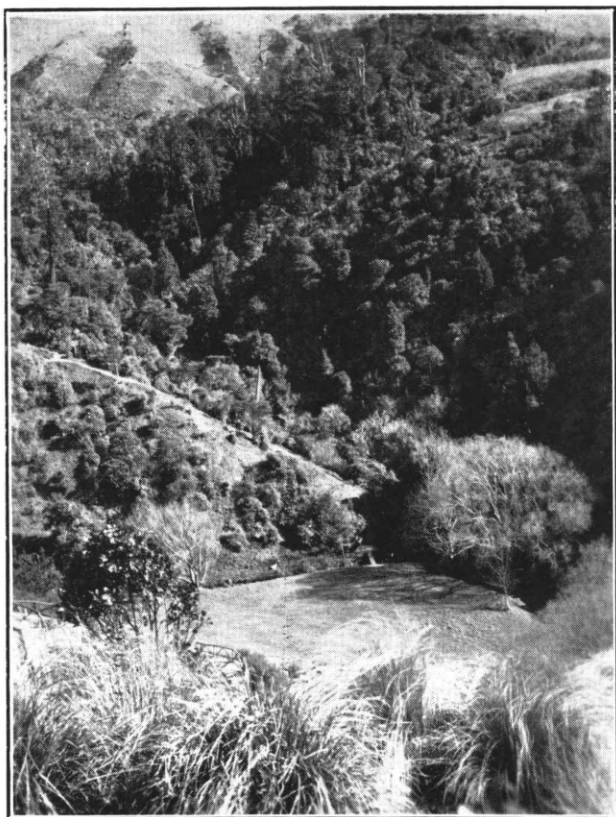
curing plants, often in rough and almost inaccessible country, is deserving of the greatest praise and gratitude. Our need is still of plants and more plants, so may they be encouraged to continue their efforts. Bearing in mind the magnitude of the work visualised, the large area to be maintained and the want of finance, it is satisfactory to review the quite considerable amount of work accomplished, in the ten years since actual planting began.

A topographical plan of the area has been made and on it are marked out the most important features as well as the paths, streams and bridges. The paths, for the most part, have been given the names of those famous in the history of New Zealand botany, from the far-off days of Banks and Solander down to the present day. Besides these, certain places have been named in honour of their Excellencies Sir Charles and Lady Alice Fergusson, Viscount and Lady Bledisloe and the two Mayors of Wellington connected with the establishment of the Museum. Viscount and Lady Bledisloe took a very great interest in the Museum and visited it several times. Their names are commemorated in the Bledisloe Gorge and in the Lady Bledisloe Look-out, where stands the oak seat which was her gift. The plan, showing the place names and the position of the plant collections, is kept at the house of the Officer-in-Charge and may be inspected there.

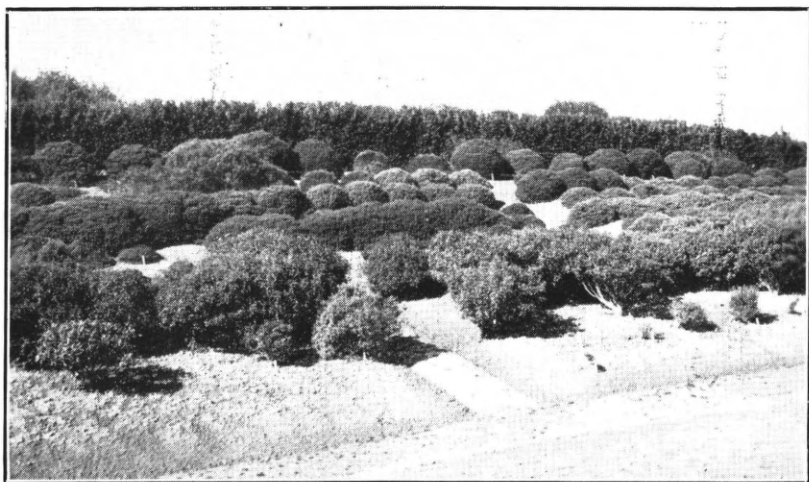
Parts of the Museum were covered with forest and parts were clear, but the clearings were often over-run with noxious weeds—gorse, broom and blackberry being common. These open parts have been cleared and the ground trenched in preparation for planting. A great many extra paths have been cut. The paths and tracks are now about nine miles in length. Every year in early summer, all long grass is cut to lessen the danger from fire and, for the same reason, fire-breaks have been made where necessary.

In order to restore the damaged portions of the forest to something like its original composition, about 50 rimus, *Dacrydium cupressinum*, have been planted. They are now about 5 feet high and growing rapidly.

So that the collections may be protected from wind, various kinds of hedges and shelter belts have been established. These are most interesting from the horticultural as well as the botanical viewpoint, and much valuable knowledge has been obtained in the process. *Griselinia littoralis* and *Leptospermum scoparium* have proved themselves splendid hedge plants—dense quick-growing and beautiful. For proof, one has only to see the truly magnificent walls of these near the Model Garden. Along the Karori boundary, there is a well established belt of flowering shrubs, which also acts as a shelter belt. Inside this, and flanking the Model Garden is an imitation of North Auckland Coastal forest, the larger members of which are now sufficiently well grown to permit of the introduction of the smaller and more delicate plants which belong to that particular association.



View from Lady Bledisloe's Seat.



The Hebe Garden: Otari.

Between the Model Garden and Lady Bledisloe's Look-out there are various systematic collections among which are many species and hybrids of *Hebe*, many of which are as yet unnamed and quite new to cultivation. These are therefore of particular interest to botanists. Near-by are collections of *Olearia*, *Carmichaelia*, *Hymenanthera*, *Pomaderris* and *Senecio*. Below Lady Bledisloe's oak seat and around it are several kinds of plants chosen for beauty of flower or foliage. Crimson manuka stands alongside purple-leaved flax and the autumn-tinted leaves of *Rubus Barkeri* make a beautiful carpet on the ground in front. A collection of grasses occupies the windy slope below while, to the left, there is a good stretch of pohutukawas—*Metrosideros tomentosa*. The Aston Manuka Bank above the children's playing area is a beautiful sight in early summer when various forms of *Leptospermum scoparium*, including many crimson and pink flowered hybrids, are in bloom.

High up on the other side of the stream, below the Cockayne Heights, there is a Kauri forest in foundation. Below this is a Beech forest, which begins to grow in spite of the ravages of hares. Here too are shelter belts of *Pittosporum*, *Phormium*, *Griselinia* and *Myoporum* and between are various collections. One, which is well advanced, is that of small trees and shrubs. Here one may see such little known plants as *Weinmannia sylvicola*, *Ackama rosaefolia*, *Ascarina lucida* and *Pseudopanax crassifolium* var. *trifoliolatum*. Below these is a collection of conifers with several good specimens of the beautiful Monoao—*Dacrydium Kirkii*.

Another important part of the work accomplished is the Alpine Garden at the Wadestown or Solander entrance to the Museum. Here is a collection of alpine plants from all parts of New Zealand, together with some others which would not be grown in this latitude, except under the conditions which this garden provides. Funds for this garden came from two sources—from the Gresley Lukin Bequest and as the result of a grant, made to Dr. H. H. Allan by the Royal Society. While pursuing the botanical investigations financed by this grant, Dr. Allan collected many of the rare and beautiful *Celmisias*, which are such a feature of the garden. Many other collectors also contributed specimens, until there are now over 300 species in the garden. Now that a very effective watering system has been devised, it is hoped to avoid losses which were often sustained in the early stages. For the most part, each plant is labelled with its special number, date of planting and name, together with the place of collection. A record of these, as well as of all plants established in the Museum, is kept by the Officer-in-Charge. Among the many remarkable plants in the Alpine Garden, is one of the extraordinary inter-generic hybrid *Helichrysum depressum* x *Raoulia tenuicaulis*. There are also plants of the beautiful blue-berried *Coprosma Petriei*, the lovely Marlborough bluebell and *Dracophyllum Traversii*.

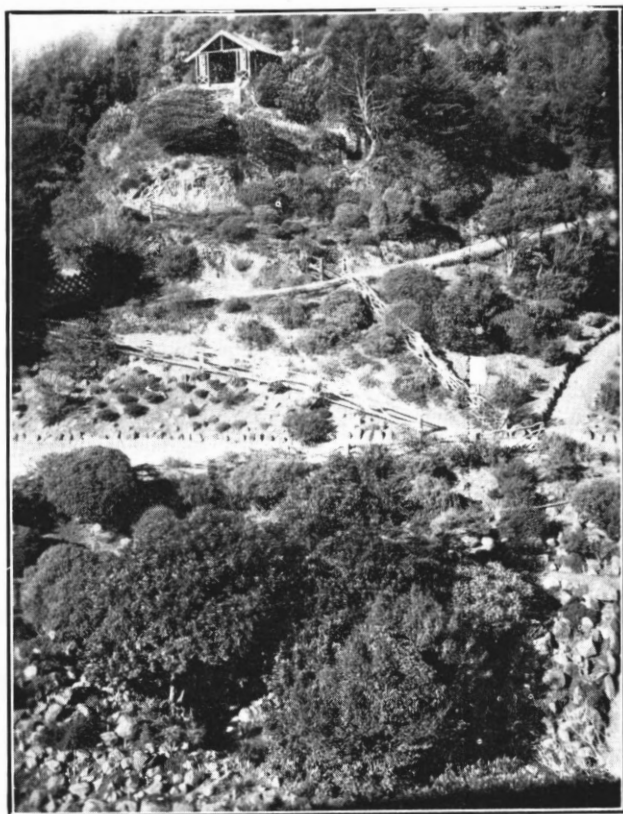
Above the Alpine Garden, there is in the making an imitation of the scrub-forest near the head of Otira Gorge, most of the plants in which actually came from that locality. Just above this is a collection of pines from the Volcanic Plateau. Along the path which leads from the Alpine Garden up to the Chapman Garden, species of *Edwardsia* or *Kowhais*, have been planted. Some have reached the flowering stage and in time will form a splendid avenue. In the Chapman Garden, there are large numbers of exotics, well established at the time the Museum came into existence, and it has been decided to leave these in their present positions. A nursery garden has been established here where plants are raised to increase the supplies and replace the losses in the Museum.

Between the nursery and the house of the Officer-in-Charge, there is a well forested gully, which has been set aside as a special reserve for the ferns of the New Zealand Botanical Region, where numbers of species not found near Wellington have been planted, as well as a fairly large collection of the species and hybrids of the genus *Asplenium*.

Around the house of the Officer-in-Charge, at the Karori or Banks entrance to the Museum, there is a large rockery filled with the smaller shrubs and herbs of lowland and coast. Few of these are common in cultivation. There are many other collections, either in the making or shortly to be begun. Some of these may be of interest to botanists, and others to horticulturists, but many will be a source of pleasure to all lovers of nature. For example, there will be collections of hybrids showing the two parents and their heterogeneous swarm of offspring, of trees so alike that they are easily confused, of species in which the juvenile form is quite distinct from the adult, as well as of specially interesting types of vegetation; such as Hawke's Bay river bank association, fell fields of the Volcanic Plateau and an imitation of a rock association of Eastern Marlborough.

Perhaps the most interesting piece of work outlined in the Scheme is the Model Garden to illustrate the use of native plants in horticulture. This work is in a fairly advanced stage. It occupies a piece of ground near the house of the Officer-in-Charge. The shelter belts around it are composed of various small flowering trees and shrubs, and these have now reached the stage where it becomes possible to plant the more delicate subjects. As time goes on, only the best and showiest plants will be retained. The lawn has been planted with various species of *Cotula*, which are forming a closely interwoven carpet. In the flower beds there are numbers of plants new to cultivation.

At the northern end of the Model Garden, in a small rock-enclosed space are the graves of Dr Leonard Cockayne and his wife. As yet, no headstone marks the spot, but there are twined about its rocky borders some of the beautiful alpine plants of which they were both so fond, and among which they spent so many



Portion of Rock and Subalpine Garden: Otari.

happy years. No monument could be more fitting or more to their liking than that which lies around them—the culmination and fruit of lifetime labour. Nothing would have pleased them more than to see the Otari Open Air Museum flourish and fulfil the many purposes for which it was founded, that it should be a source of information and pleasure to all New Zealanders, unlettered as well as learned; that it should interest not only the specialist in botany or horticulture, but that, most and before all, it should serve the needs of the common man.

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## RAMBLES ON MOUNT MATTHEWS.

By A. D. Beddie.

Becoming acquainted with the late Dr L. Cockayne in 1928, I soon became an eager and enthusiastic pupil. The botanical problems he talked of seemed to me to be very much worth while. The Doctor's age precluded him from strenuous rambles so I collected extensively and he commented freely on my specimens and suggested further excursions. After investigating Wintera hybrids, I tackled *Pittosporum tenuifolium*. Seeds were collected from the different sorts and the resulting plants can be seen in a hedge in "Otari." *Melicope* and *Paratrophis* hybrids were next studied, as well as the *Alseuosmias*, while a large collection of *Gaultherias* was sent to Kew Gardens. This led to a botanical exploration of Mount Matthews, the highest peak in the Rimutakas. All my holidays for the next six years were spent on this job, most of the work being done from the Palliser Bay side, necessitating a tramp of eleven miles from Orongorongo to Muku-Muku hut at the bottom of the hill. Every main ridge and every creek was faithfully covered. I had never climbed a New Zealand mountain before and the high country vegetation was a revelation to me. The lovely *Senecio elaeagnifolius* and *Olearia Colensoi* are prominent shrubs on many acres from ten thousand feet up. Natural rock gardens were found at eighteen hundred and at two thousand seven hundred feet. *Veronicas*, *Hebes*, *Hoherias*, *Senecios*, *Olearias*, *Helichrysums*, *Ourisias*, *Aspleniums*, *Euphrasias*, *Libertias*, *Oleas*, *Pimeleas* and many more were cultivated in my garden and at "Otari." In going over the same ground at different times of the year, I found an amazing number of species to add to my list.

Many visits were paid to the Doctor's home at Ngaio. Sometimes we strolled round his garden and he showed me plants from all over New Zealand. Many were being studied to determine whether they were new species, hybrids, epharmones or what not. This plan I have followed with any puzzling plant ever since, with some success. A question about any one of the eminent men whose photographs formed the "Rogue's Gallery" in his study would bring out a string of entertaining reminiscences.

The *Ourisias* on Mount Matthews vary from plants that flower at one inch high with only one whorl of small-sized flowers, up to plants two feet tall with seven whorls of flowers one inch across. Every possible variation in size and number of flowers can be found, especially on the natural rock gardens, on creek banks and along wet gullies.

*Senecio latifolius* we first saw about fifty feet up an almost perpendicular rock face, and a piece was shot down with a .303 rifle to add to the list.

One gully at the north end of Hinakitaka stream had us beaten for some time. It looked a beautiful place, and as there seemed no practicable way to get to it, I had the idea that it might contain some plant the goats had eaten out elsewhere. We got there eventually by the aid of a rope, with a hook on the end, but nothing remarkable was found after all.

The only mistletoe found, although Beech is common, was the tiny *Korthalsella salicorniodes*, growing on Manuka. Ramarama and Tawa are both missing, though common enough in the "Five-mile" bush and are sparingly present on Tapokapoto.

Dr. Cockayne told me that the native *Calceolaria* (*Jovellana repens*) had not been reported for ten years or more and that it was my job to find it. I managed to do so, and later proved that it is extremely common in places, particularly near the headwaters of Tapokapoto stream. Among the plants growing on Mount Matthews, that are uncommon elsewhere, are a green-flowered form of *Corysanthes rotundifolia*, a bright yellow-flowered variety of *Olearia Colensoi*, a hybrid between *Helichrysum alpinum* and *Gnaphalium Keriense*, and a mountain form of *Poa anceps*. A plant of *Macropiper excelsum* with variegated leaves was found on Big Hill, and a beautifully variegated *Koromiko* (*Hebe salicifolia*) on Mount Tapokapoto.

A number of plants of *Plagianthus divaricatus* were found growing at five hundred feet elevation. This plant is found elsewhere only at sea-level or a few feet above highwater mark. Its presence at five hundred feet is explainable on the theory of its site being an upraised salt marsh, and the plants being able to adapt themselves to the change from saltmarsh to steep dry hill-side.

Mount Matthews is extremely steep in places and rock slides or shingle slips are common. On the steep slides one can sit down on a flat stone and paddle a way down for several hundred feet in a few minutes. Towards the bottom of one or two streams are awkward falls that have to be scrambled round, and the bottom end of one of the main ridges is practically unclimbable. Goats are extremely common, and there are a number of wild pigs. Wherever these latter abound, the speargrass, *Aciphylla squarrosa*, is sure to be dug out and the parsnip-like root eaten. The mountain is bush-clad to the top so that true alpine plants are absent, but subalpine plants are able to flourish in many places where it is too rocky

for trees. The charming *Senecio Greyii*, with bunches of yellow daisy like flowers, occurs near the bottom of the hill, its range being from Pahau River to Cape Palliser. Still to be found are the Nikau palm, the mountain maire, *Olea montana*, and the broad-leaved cabbage tree, *Cordyline indivisa*. Adding their beauty are the scented orchids, *Earina*, three kinds of *Clematis*, including the large white-flowered *C. indivisa*, the Hinau, with its Lily of the Valley like flowers, and the well-known Titoki, Kowhai, Lacebark, Rata, Whitewood, and Wineberry. The Prince of Wales fern is common, and the large handsome grass, *Danthonia Cunninghamii*, is also worthy of mention.

I found a swarm of hybrid *Aspleniums* in which at least four varieties are mixed up, and the Doctor was greatly delighted with them. Later I got hybrid *Uncinias*, rushes, grasses, coprosmas and so on. I also found many swans that turned out to be geese, and "introduced plant" got to be familiar at times in my lists.

Almost all the plants mentioned will grow in the open garden, but one or two, such as the Prince of Wales fern, and the native *Calceolaria* require dense shade. Most of them can be seen at "Otari" in the situations proper to them.

## A COOL GREENHOUSE.

By M. L. G.

Following on the instructive and practical article on Ferneries in December issue, the writer would add the possibilities of Concrete. By experiment, the writer found concrete troughs ideal for growing greenhouse plants and ferns. It is, no doubt, a discovery to find that such are perfectly porous, thus providing the ample drainage which these plants demand. Concrete is also not subject to moss and mildew, the great bane attaching to bricks and wood. The writer used ordinary reinforced concrete, but the new American wire-netting reinforcing should be even better.

Another discovery the writer made, was that glass sides are totally unnecessary in a greenhouse. The light is not affected under a glass roof, while the walls admit of charming draping by climbers, giving a natural bowery appearance not attained in an artificial structure of glass. The temperature is also warmer and more equable. Slot windows for ventilation must be provided at each end of the greenhouse, in each of the four corners, under the rafters, but are quite unnecessary in the roof itself. By closing whichever two happen to be in the track of the wind, gentle ventilation can always be obtained, without draught. A space of about an inch under the glass eaves all round at top of walls, is also a great benefit for ventilation everywhere. This ventilation all round cannot be too much stressed in a country like New Zealand, where mildew is the great enemy to plant life. It makes them small, sickly and colourless, if it does not ultimately rot them off altogether.

The attached bird's-eye view shows such a cool greenhouse as described above, without artificial heat, which will grow to perfection Ferns and small Palms, Fuchsias, Clematis, Hoyia and Cyclamen. The gorgeous Fuchsias, well trimmed as to laterals, trained as climbers around the walls and brought overhead along the rafters, flower in profusion nearly all the year. Clematis, around the pillars, provide a marvellous scene in the Spring, their place being taken by the delicious Hoyia in the Autumn. With Cyclamen coming on after that, Ferns and Asparagus all the time, there is always something to cheer the heart all the year round.

The sketch shows a greenhouse 25ft. long by 15ft. wide, walls under eaves 10ft. At the far end are four concrete troughs, raised in tiers one above the other, rising about 12in. between, and brought around the two top corners to form a semi-circle. The 3in. edges form a transverse tread to each corner and along the middle, for a foothold in planting operations.

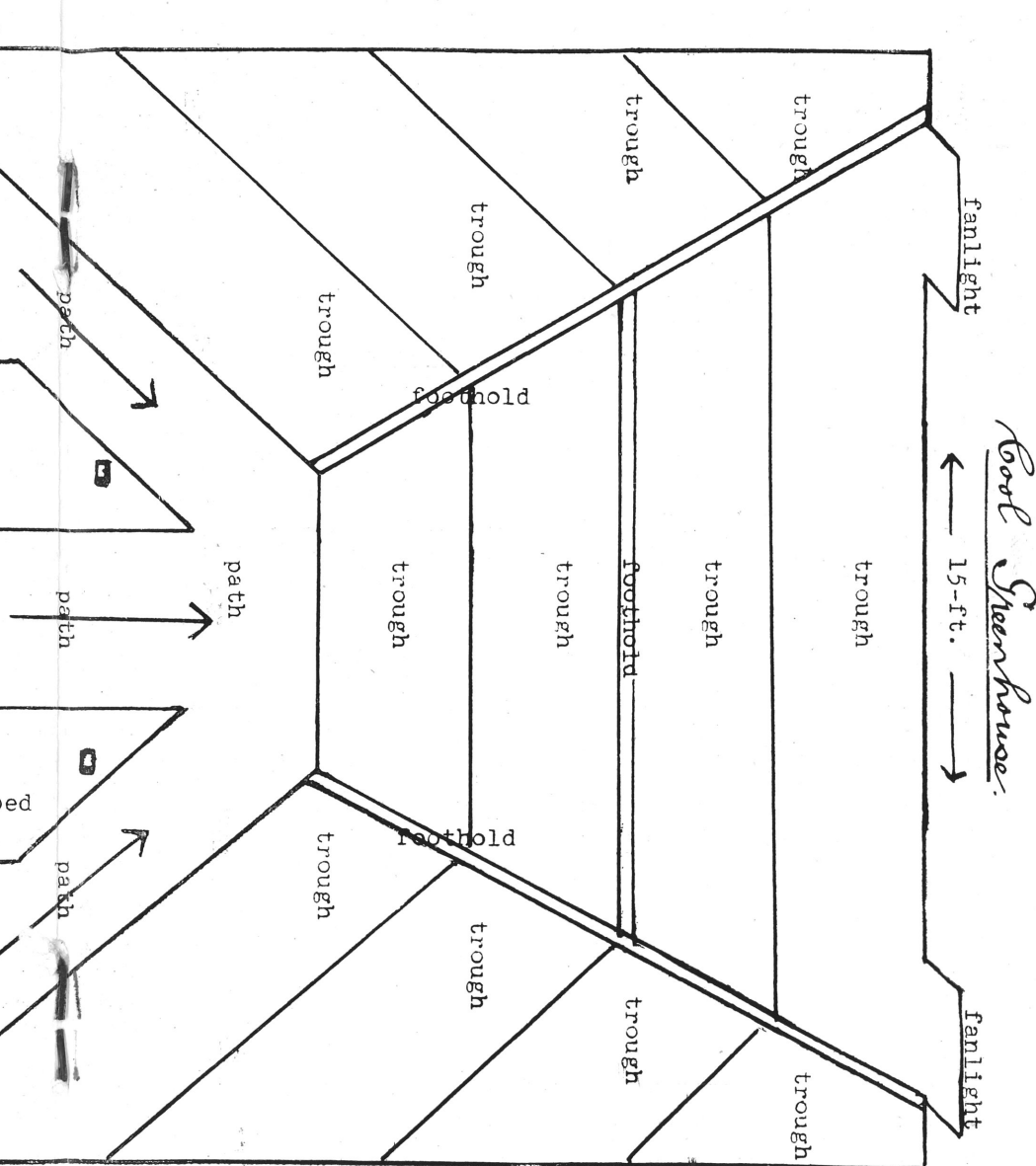
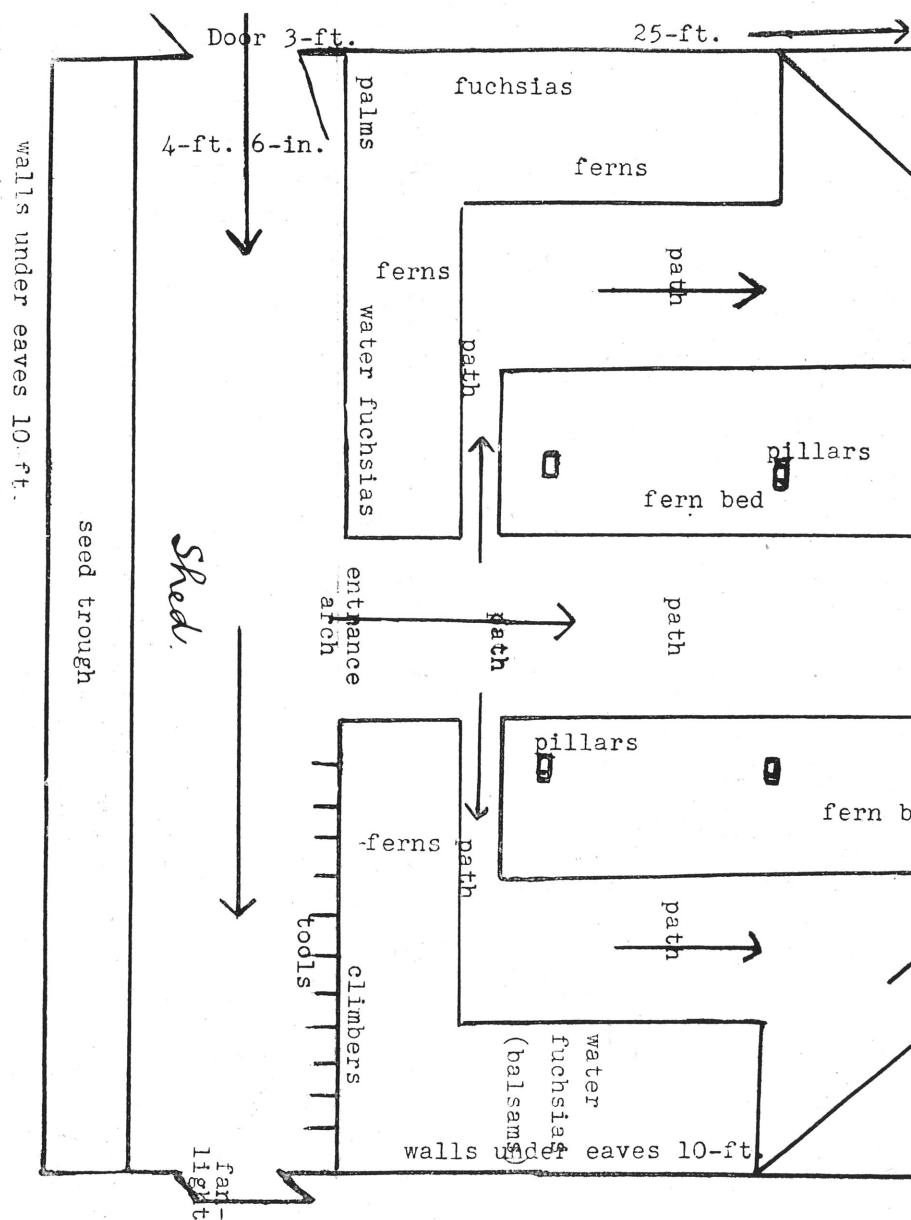
A convenient size for the troughs is 16in. wide, 8in. deep, inside measurement. This allows a sheet of ordinary 18in glass to be laid over anywhere when required for raising seedlings, or nursing delicate cuttings. Thickness of concrete, both for bottoms and sides, 3in. Troughs raised 3ft. about the ground, supported by concrete pillars or building piles, space underneath left open, to provide ventilation and drainage.

The first trough, 3ft. above ground, should be reserved for Cyclamen, with clumps of Lobelia overhanging here and there. The others, for Ferns of all small sorts, the larger ones flanking walls interspersed with small Palms.

There are three pillars supporting ridge of roof on each side of entrance path, around which are trained climbers, such as Asparagus Fern, Clematis, Hoyia and Corria Fuchsias. These rise out of a bed of Ferns. Another bed runs each side of the entrance, planted with Fuchsias and Clematis along the walls, bedded with Ferns in front. The Fuchsias, Asparagus and Clematis can all be trained to run along the rafters, forming a fairy screen overhead, showing off their pendulous blossoms to best advantage. A path from entrance runs right around and down the centre, averaging 2ft. wide, which is quite enough.

It is important that, when laying down the foundations, a fall of 1 in 15 for the floor be allowed to dispose of drainage in watering, such to have vents to outside from the walls. This means that the floor will be slightly uphill on one side, but it is indispensable for comfort.

The sketch shows a lean-to narrow shed attached over entrance, also with a glass roof. This is a great advantage, both for tools and storage, and a valuable breakwind against direct draught. The door being on one side, with entrance arch to greenhouse in the middle, no gale can ever tear through by inadvertence. There is a most useful seed-raising trough running



along the outer wall, about 2ft. under the roof, covered again with loose sheets of glass. This trough may be of hardwood, a convenient size being 16in. wide by 8in. deep, the join between the two 8in boards forming the bottom, providing the necessary drainage. Width of shed 4ft. 6in., door and arch to greenhouse 3ft. wide. Tools may be hung on long nails at the far end, while the brackets under the seed trough serve for storage of garden stakes. It is important that the entrance door be made to open outwards, while on the opposite side, opening inwards, a wire door for use in the summer, protects against cats.

The sketch shows the provision of three fanlight windows, one in each top corner and one at far end of shed. These open outwards on hinges at the top, supported by fanlight stays, and may be conveniently covered on the inside by wire netting to prevent the entrance of cats. A convenient size for openings is 18in. long by 12in wide, and they need not be of glass, but mere wooden ventilators.

For the roof, a fall of one in five is quite sufficient and wears better, while the best size for glass is 24in. by 18in. 21oz. and should be painted white on the inside, with best quality lead and oil paint, and allowed to thoroughly dry and harden before any painting is done. All the other woodwork is better painted than limed or calcimined, as the latter soon crumbles off with the damp atmosphere. White is by far the best colour, as it reflects so much more light.

The rafters should be well painted as each sheet of glass is laid, and only thinly puttied on the inside, as on the outside it soon crumbles off with the heat of the sun. Each sheet is then prevented from slipping by a wedge of lead strip, about  $\frac{1}{2}$ in. wide and 3in. long, bent S-shape and inserted near each bottom corner between that and the next sheet. A couple of one-in. nails driven in on top sides of glass horizontally in the middle of each sheet, are also necessary for additional security.

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## ARBOR DAY, 1938.

By Mrs. Knox Gilmer.

(Broadcast from 2YA, Wellington)

Arbor Day is with us once more, and it is encouraging to notice evidence of past endeavour on the slopes of the hills, in the valleys, and along the road, where there are sudden patches of green, where once all was bare and unlovely. These give witness to the energy and good work of many ardent tree-planters in earlier years. Fine results have been achieved, and remind us that we must continue the good work and keep alight the flame of our enthusiasm.

It would seem that the people of our Dominion are realising more fully each year that this is a day of the utmost importance, a special and outstanding occasion, which will leave lasting and important results on the beauty and well-being of our country, and will play a great part in fostering the health and happiness of its people.

As we all know, Arbor Day has been set apart in New Zealand in order that the planting and tending of trees should be encouraged. It has been gazetted by the Government, which recognised the paramount need of concerted effort in this direction, and the wisdom and necessity of strenuous and systematic planting and cultivation by every possible means.

Few will disagree with me when I state that it is right and fitting that this one day in the year should be dedicated to tree planting by every citizen, young or old, who is capable of holding a spade!

This is a very vital subject to all the inhabitants of our country. It affects our health, our wealth, and our happiness. I want every New Zealander who is strong enough—and very little strength is sufficient—to put his hand to the spade, and use his best effort to achieve the laudable results which are our aim and objective.

In the schools particularly, enthusiasm should be created and encouraged. Girls and boys can be shown the best method of planting a tree or a shrub. Discussions can be instituted and essays written on the value and beauty of our forest trees, and of their value to the community.

The spirit inspiring our efforts on this Arbor Day, should be a deep affection for trees, an affection that understands both their beauty and their utility. It is not solely because the landscape is made more lovely by a multiplication of trees and plants. Arbor Day brings an insistent message that we should think of the generations to come. It fosters a love of our country and of our fellow-countrymen. The earth and its beauty are on loan to us for our lifetime. We must remember that it is a great heritage to be bequeathed to those who come after. They too

are entitled to their share, and we have no right to despoil and render useless, any benefit or beauty that is in our power to conserve.

Much of the bewitching and mysterious loveliness of our native bush has been destroyed. The bird songs have been silenced, the Tuis and the Bellbirds have flown to kinder shelters. Our trees have been laid low. The Kauri monarchs of the green silences have been hacked and slaughtered, which is manifestly wicked and unwise, whether one looks at it from an aesthetic or a utility point of view.

A community of human beings, who are not tree-conscious, are apt to be destructive in their tendencies, and to lack the finer sensibilities and the call of spiritual versus material things; but surely, in our own case, a love of the bush and the magical loveliness of native plants must be a strong instinct in the descendants of our pioneers.

It rests with us at the present time, to decide whether our trees are to be retained and replaced, or to perish through our apathy and lack of initiative. Putting other factors aside, on the commercial ground alone our forests and trees are an important asset to the Dominion's scenic attractions. There is still time to check vandalism in the future, though unfortunately, in past years, it has done enormous harm; and it is now a pressing and paramount duty to do our best to restore something of that pristine perfection.

Long before now, the present generation should have been well versed in the duty and delight of conserving our native bush and flora and in the best methods of tree cultivation.

It is a right and fitting thing that every man who is able, every woman who is willing, every child with a child's instinctive affection for growing things, should wield a spade to good advantage on at least one day in the year, taking part in this good and pleasant duty of tree planting at the special time set apart for this most desirable object.

Must New Zealanders be reminded that the old-time Maoris were much more enlightened and more intelligent than the majority of British settlers in this matter of safeguarding a sufficiency of Nature's generous capital—the great asset of our forests and bush and birds.

We have had disastrous floods—Nature's vengeance for the destruction of protective forests above the sources of the rivers. What is the good of planning for posterity if the productive surface of the country is to be scoured away in some localities and overwhelmed with silt in others? This surely is a factor that will tend to strengthen us in our fight against the widespread destruction that has gone on in the past.

I would like to see very drastic restraint put upon those who destroy wild flowers and native plants; who filch them from their

native soil and attempt to acclimatise them in a small suburban garden. Alas, in this war against beauty, the casualties have been heavy. Stupid destruction has taken place wholesale, and it is extremely difficult to control this widespread raiding before a lamentable extermination of certain species has been effected. When one sees drooping masses of yellow or white blossoms torn from their surroundings, to make a New Zealand holiday, one reflects that the day of the Goth and Vandal has not yet reached its close.

There are thousands of nature-lovers who realise that the situation is acute, and desire wholeheartedly to help to restore the forest land that is lying idle, and reinstate the native trees that are part of our goodly heritage.

We have the finest bush in the world, a precious natural wealth. The horticultural possibilities of this country are well-nigh illimitable, and its conditions ideal for tree-planting. We must not fail, and we must not lose heart, for our reward is waiting for us if we play our part.

Arbor Day is an opportunity—an occasion on which we can prove that we are able and willing to cherish and beautify our native country. Trees must be planted on vacant spaces. The ugly clay patches and barren tracks and declivities must no longer depress us. Let us be up and doing, and acquit ourselves to the best of our power in this work that is essential to our country's beauty and well-being. Every New Zealand city may become a garden city. That is an ideal that is worthy of our best endeavours, and with patience, patriotism and co-operation it is not impossible of fulfilment.

We cannot blot out the mistakes of the past, but we can plan for the future, by developing a National Tree Sense, which will bring in its train an appreciation of the advantages that nature has showered upon us, and a determination to conserve them to the best of our collective power.

LET US BE PRACTICAL PATRIOTS  
AND PLANT FOR POSTERITY!

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## ROSE THOUGHTS.

By G. S. Nicoll.

The following article is reprinted from the "Australian Rose Annual, 1938," with the exception of the list at the end.

**SEASON NOTES:**—Last season on the whole was fairly good, but a mild winter, with heavy rains and warm conditions from the spring onwards, made for an early show season. The blooms were fair, but hardly as good as in a normal year.

The outstanding variety in the Wellington provincial area was Earl Haig, which won the championship at Otaki, Palmerston North, Lower Hutt, Miramar and Karori, the latter from a new tree planted in May, which produced three perfect first blooms for the last show of the season. Other champions were McGredy's Yellow at Wellington, William Orr at Khandallah and Lemon Pillar at Northland, a nice, clean bloom.

It was intended last season, instead of applying an artificial fertiliser after pruning, to remove as much soil as possible from around the plants and to apply somewhat turfy and fairly virgin soil from a handy compost heap. Not only was it impossible, through illness, to carry out this plan, but the major portion of the pruning and feeding had to be omitted. The usual early pruning, however, of late blooming varieties produced excellent results for the last two shows.

Planting also was delayed and had perforce to be carried out, although the beds were sodden. It was found, however, that, when the soil from the compost heap was used entirely for filling up the holes, there was no occasion for further delay in planting, and the results certainly justified the departure from the maxim of "heeling in."

**BUD SELECTION:**—The writer is a firm believer in bud selection. Some years ago we were supplied with much better Rose trees of many varieties than can be procured to-day. The reason appears to be that all the buds, however weak, are being used. Mrs. Harold Blocklebank and Souvenir de Madam Boulet are outstanding examples. A nurseryman in Hawke's Bay supplied wonderful plants of these, of which the writer still has several—old, but vigorous. Two trees of the latter variety produced over three dozen blooms for the 1936 shows. These varieties have, however, gone out of favour with other growers through poor growth from more recent plants.

Mrs. Charles Lamplough, from another source, gave excellent blooms from vigorous plants, and a tree from a cutting obtained a championship for its first bloom. Wonderful flowers from a vigorous strain of Mrs. A. R. Barraclough have to be covered at from five to six feet, yet it is to-day considered here a weak grower and a dieback.

It might be mentioned that two trees of Earl Haig, which were originally planted in 1926, were shifted to another bed last season and produced several outstanding blooms for the show bench.

**CLIMBERS:**—It is an axiom that climbing varieties require a fence, pergola or some support of that nature. It is found, however, that such plants, grown away from the regular beds, tend to become neglected. It is recommended, therefore, that certain climbers should be grown adjacent to or in a bed, and should be pegged down, but not to the extent that the tip of the shoot is below the meridian of the sap, otherwise dieback will ensue. Excellent results have been obtained in this way with climbing Mrs. Henry Morse, Lemon Pillar and Souvenir de Madame Bouleat is again under trial. Princess of Orange and Shot Silk, alongside exhibition beds, have made a fine showing. Several ladies have accepted this suggestion, as their Rose-minded husbands will be forced to attend to such neighbours.

**FOLIAGE CLASS:**—About ten years ago it was the practice of exhibitors in Wellington to tie separate Rose foliage stems at the back of each bloom. These had the effect of supporting the flower and of obscuring faulty petals. No length of stem was needed, as the bloom, aided by its supports, rested on the rim of the vase. Own foliage was not stipulated, and that of Gloire de Chedane Guinoisseau was most favoured, plants being grown specially for that purpose.

The inclusion in the Karori Horticultural Society's schedule of a class for six Roses, three in a vase, "to be judged for foliage as well as quality of bloom," was so successful that it was followed by an offer of a trophy from a local Rose enthusiast. The donor favoured garden Roses, and stipulated that the class should read: "Six Roses, any varieties, to be staged three in a vase, as cut from the plant, no added foliage allowed. To be judged for decorative effect as well as quality of bloom; wire supports optional."

The writer was unavoidably absent from the meeting at which the donor arranged the above conditions, otherwise he would have opposed the "decorative effect" as being out of place in a class for exhibition Roses. The result was that highly coloured Roses, lacking exhibition form and assisted by artistic feminine wiring, won the trophy, which should have been allocated in the first place to the decorative section.

The winner was so obsessed with this class that he donated a trophy to his own society for a similar section, which now reads: "To be judged for decorative effect of foliage as well as quality of bloom." This evidently transferred the decorative effect from the blooms to the foliage, and made confusion worse confounded.

Although neither society made a stipulation as to the length of stem, and the second trophy had been under competition for several years, the 1936-37 schedule appeared with the following addition: "Stems not less than nine inches above vase." This followed on a clear cut win by an outside exhibitor who had complied in every respect, with the then conditions, usually deemed unalterable during currency of a trophy.

Practically every society of note in the Wellington area now has a foliage class with this wording: "Six Roses, one in a vase, varieties optional, with own foliage not detached, to be judged for foliage equally with quality of bloom." A trophy recently donated to the main society was, on the writer's suggestion, allocated to this class, and elicited six entries at the last Rose show. The exhibits, on long stems with fine blooms and outstanding foliage, made an arresting display, and this competition can be heartily recommended for inclusion in any horticultural society's schedule.

**SHOW HINTS:**—In the early stages of exhibiting Roses and other flowers in season, the house would be littered with pickle bottles, jam jars, etc., but a long bench and old tables, in a cool, roomy basement with cheap reject vases, have made it easier for everyone. Selecting and packing can be carried out without family criticism or neighbourly search for probably non-existent perfume. This reminds one that a class for "one Rose, to be judged for perfume only," is well supported and evokes just as many inquests as the exhibition classes.

By the way, one of our oldest and most successful exhibitors recommends the carriage of Roses, in pickle bottles with water, and standing in boxes—obtained from the grocer—measuring about 18 x 15 x 8 inches. Newspaper is used for packing between the bottles, and transport is by motor.

A recent country visitor to a show asked the points for judging Roses. On being briefly enlightened, he commented: "Why, it's just like judging horses!" A casual visitor to the garden remarked: "Your hobby is different from mine." "What's yours?" "I compete in waltzing." I said, "Oh, we're not fit for much of that at the end of the season."

**TIMING BLOOMS:**—It is helpful, for pruning purposes, to have advice of the habit of growth such as is given by the National Rose Society of England. This, however, may have to be modified for one's own country and also for local conditions. A grower, however, soon learns with experience to prune each individual tree on its then appearance, without reference to printed advice.

It is more difficult to decide the time of pruning, especially for exhibition. An important factor is that of locality, with varying climatic and atmospheric conditions, and seasons may vary in the same district by some weeks. This is certainly the case in Wellington.

Whilst pruning time may differ in adjacent localities, varieties have to be classified for very early, early, midseason and late pruning, in order to catch the various shows.

The grower with 400 or 500 plants should have ample blooms for all purposes; but the small grower, who has no assistance, is unable to grow more than about 150 plants, and must time his buds in order to make the best use of his restricted stock.

When pruning, therefore, a note should be kept of the exact pruning date of each tree, but this is not so difficult as it would appear. The first prunings of late blooming varieties might be made in, say, the beginning and middle of July respectively, and might continue over two or three weeks, according to the number of each variety. The next pruning, of midseason blooming varieties, might be made, say, about the first of August, extending over two or three weeks, and the final pruning, of early blooming varieties, about the middle of August, also extending over two or three weeks.

One has then a note of the pruning date of each tree, compiled over eight to twelve weeks, and the record is completed at blooming time by the insertion of the date of the second bloom out, as the first very often does not come right. The difference in these dates gives the number of days taken by the bud to reach maturity, and adjustment can be made with the show date desired.

In the appended list, arranged approximately to colour, the pruning abbreviation, after each rose, has the following meanings:—

V.E. Very Early.  
E. Early.  
M. Midseason.  
L. Late.

#### White or Nearly White.

Exhibition—Caledonia (M), Elizabeth Arden (M), Frau Karl Druschki (M), McGredy's Ivory (M), Mrs. Chas. Lamplough (V.E.), Mrs. H. Stevens (L), Swansdown (M).  
Garden —Clarice Goodacre (L), Westfield Star (L).

#### Light Yellow and Cream.

Exhibition—Feu Pernet Ducher (M), Fontanelle (L), Mme. Jules Guerin (M), Mrs. Frank Verden (M), Oswald Sieper (M), Sir H. Seagrave (M), Lemon Pillar (M).  
Garden —Ville de Paris (M), Mrs. Beckwith (M).

#### Daffodil Yellow.

Exhibition—Julien Potin (E), Mabel Morse (M), McGredy's Yellow (M).  
Garden —Golden Gleam (M), Mrs. Wemyss Quinn (M), Joanna Hill (L).

#### Golden Yellow.

Exhibition—Frances Gaunt (L), Frau Weigand (M), Golden Dawn (L), Golden Emblem (M), Margaret Dickson Hamill (M),  
Garden —Florence L. Izzard (M), Golden Ophelia (L), Lady Hillingdon (L), Roselandia (L).

#### Buff or Yellow Brown.

Exhibition—Barbara Richards (M), Melanie Soupert (M).  
Garden —Ladylove (L), Wm. F. Drzer (M).

#### Orange, Apricot and Copper.

Exhibition—Dr. E. Deacon (M), Max Krause (M), Souv. de H. A. Verschuren (L), Souv. de Mme. Bouillet (L), Mrs. G. A. van Rossem (M), Trigo (M).  
Garden —Condesa de Sastago (M), Duchess of Atholl (M), Emma Wright (M), Lamia (M), Lady Roundway (M), Luis Brinas (L).

**Flame and Flame Pink.**

Garden —Angele Pernet (M), Cuba (M), Mme. E. Herriot (L), Irish Fireflame (M).

**Light Pink.**

Exhibition—Leading Lady (E), Columbia (M), Lady Ashtown (L), McGredy's Pink (M), Polly (L).

Garden —Amami (M), Else Poulsen (M), Ivy May (L), Mme. Butterfly (L), Oliver Mee (M).

**Deep Pink.**

Exhibition—Lady Barnby (L), Mrs. H. Morse (L), Mrs. H. Bowles (L), Queensland Beauty (L).

Garden —Rapture (L), Lady Sylvia (L), Rose Marie (M), McGredy's Triumph (M).

**Salmon Pink.**

Exhibition—Admiration (L), Dorina Neave (M), Gorgeous (L), Mabel Turner (L), May Wettern (M), Portadown Fragrance (L), President Macia (L).

Garden —Dainty Bess (M), Irish Elegance (L), Los Angeles (L), Mme. Abel Chatenay (M), Shot Silk (L).

**Coppery Pink.**

Exhibition—Mrs. Sam McGredy (L), Comtesse Vandal (M), President H. Hoover (M).

Garden —Isobel (M), Lady Pirrie (L).

**Pale Rose and Cerise.**

Exhibition—Dame Edith Helen (V.E.), Empire Queen (L), Ethel Somerset (L), Maud Cumming (M), Mrs. Geo. Geary (M), Rosa Gallart (L), Una Wallace (L), William Moore (M), Editor McFarland (M).

**Deep Rose to Vermilion.**

Exhibition—Lady Inchiquin (M), Mrs. A. R. Barraclough (M), Souv. de Georges Pernet (M), Wm. E. Nickerson (L).

Garden —Betty Uprichard (L), Chas. P. Kilham (L), Edith N. Perkins (L), Elizabeth of York (L), Flamingo (L).

**Bright Red and Scarlet Red.**

Exhibition—Anne (L), Catherine Kordes (L), Earl Haig (M), Kurt Scholz (M), Mrs. H. Winnett (L), The General (M), W. E. Chaplin (M), Gloire de Chedane (M), M. Chambard (M).

Garden —General McArthur (M), K. of K. (M), Kirsten Poulsen (M), Red Letter Day (L).

**Dark Crimson to Blackish Crimson.**

Exhibition—Colonel Sharman Crawford (M), Crimson Glory (M), Holt Hewitt (M), J. G. Glassford (M), Geo. Dickson (L), Malar Ros (L), Portadown (L), Rouge Mallerin (L), William Orr (L).

Garden —Covent Garden (M), Etoile de Hollande (M), Florence H. Veitch (M), Hawlmark Crimson (L).

## INSTITUTE NOTES.

CONGRATULATIONS have been conveyed to Mr. W. S. La Trobe, now of Auckland, formerly a member of the Examining Board, on his Honour of C.B.E.

PERSONAL:—The sympathy of the Institute has been expressed to Messrs. T. Horton and G. H. Huthnance, New Plymouth, on their most unpleasant and painful experience of Rhus poisoning.

Mr. F. C. Renyard, Superintendent of Technical Education, has been appointed to represent the Education Department on the Institute's Examining Board in succession to Mr. La Trobe.

FOREST PRESERVATION:—Following on a remit from last Conference, the Permanent Head of the Public Works Department has advised that, where any work such as roading, etc., is being carried out through or adjacent to Scenic Reserves, endeavour should be made as far as possible to fall in with the views of the Institute against the planting of willows and other exotics.

The Executive Council resolved, at its August meeting, to support the Forest and Bird Protection Society's protest against the further liberation of opossums.

THE COOPER'S TROPHY:—The firm of F. Cooper Ltd., Wellington, has forwarded to the Institute a sum of £115/10/- for the provision of an annual trophy, to be selected by the winner, for the most meritorious exhibit in any branch of horticulture at each National Flower Show. The combined judges at each Show will decide the award.

Thanks have been conveyed to the firm for its generous donation and the amount has been permanently invested for the foregoing purpose.

CONDOLENCE:—The Institute has extended its sympathy on the death of John Frederick Bailey, of Brisbane, an Honorary (Overseas) member and formerly Director of the Brisbane and Adelaide Botanic Gardens who had also held the position of Government Botanist of Queensland.

Reference to Mr. J. A. Campbell's death, which is announced as we go to press, will be made in next issue.

**NATIONAL HORTICULTURAL WEEK, 1939.**

The Permanent (Joint) Committee has agreed that New Plymouth shall be the venue of National Horticultural Week, 1939. This will commence on Tuesday, 31st January, 1939, with the following programme:—

Tuesday afternoon:—Official opening of National Conferences and National Flower Show.

Wednesday, all day and evening:—Annual Conference of the New Zealand Horticultural Trades Association; Continuation of National Flower Show; Annual Conference of the Association of Directors of Parks and Reserves, all day.

Thursday, morning and afternoon:—Annual Conference of the New Zealand Institute of Horticulture; Evening, Banks, Lecture.

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# New Zealand Institute of Horticulture

(INCORPORATED).

**Patrons:** Their Excellencies VISCOUNT GALWAY, Governor-General and LADY GALWAY.

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

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Otago: Dennis H. Leigh, Botanic Gardens, Dunedin.

Southland: B. P. Mansfield, Box 58, Invercargill.

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

## *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,

N.Z. Institute of Horticulture,

P.O. Box 1237, Wellington.