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NEW ZEALAND PLANTS AND GARDENS

THE JOURNAL OF THE ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURE

(INCORPORATED)

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The Official Journal of the Royal New Zealand Institute of Horticulture (Inc.)

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Christmas Greetings

It is always a pleasure and a privilege to send greetings and best wishes to old friends and new. It therefore gives me particular pleasure to send this seasonal greeting to all members resident in so many parts of the country.

I have certainly met many of you during the past year, but circumstances do not make it possible to contact as many as one would like.

Naturally this has been a good year for the Institute, with a number of projects being completed or nearing completion. Horticulture will certainly be the better for the considerable time and thought given by some of our members to make these projects possible. Most of us receive much satisfaction from our personal horticultural activities. May you also feel some satisfaction in the fact that through your membership you contiue to help the Institute play an important part in guiding horticultural development in the Dominion.

Christmas is the time of the year when we remember Him who came to show us the way in which to live and conduct our lives. He was willing to sacrifice so much for us and it is gratifying to find so many of our members willing to give of their knowledge and time to help others.

Let me conclude by sending to you the best wishes of the members of the Dominion Council, our Secretary and myself. May you have a happy Christmas and may the year ahead prove an interesting and prosperous one.

J. F. LIVING,

Dominion President.

ACKNOWLEDGEMENT

The Dominion Council acknowledges with sincere appreciation the grant of £200 received from the J. R. McKenzie Trust Board distribution of funds for 1965.

The receipt of this grant is very encouraging and will provide distinct financial assistance to the Institute.

The J. R. McKenzie Trust is the major shareholder in McKenzies (N.Z.) Ltd. — this results in 30% of the distributed profits of McKenzie's being available to New Zealand under the splendid Trusts established by the founder, the late Sir John McKenzie.

NEW ZEALAND'S FIRST NATIONAL PLANT AWARD

A very important step forward has been taken by the Dominion Council in giving their benison to the newly created Award of Garden Excellence, which will, in future be known as the A.G.E.

Unlike the Plant Raiser's Award, the A.G.E. is an award given to the plant itself. It is designed to distinguish plants that have been under cultivation for some years and are considered to be of outstanding merit as garden plants. Its object is to provide gardeners with a list of plants from which they can make a safe choice of genera, species and cultivars for planting in their garden schemes.

The A.G.E. is the first step of a national character to be taken in New Zealand Horticulture to grant a hallmark of quality to plants of outstanding merit. If this receives the support necessary for it to fulfil its intended service, it is to be hoped that its scope will be enlarged to recognise the merits of new introductions of conspicuous promise as well.

G. A. R. PHILLIPS,
Editor.

THE R.N.Z.I.H. AWARD OF GARDEN EXCELLENCE

The R.N.Z.I.H. has initiated the 'Award of Garden Excellence' with the object of bringing before the gardening public of New Zealand plants of approved garden excellence. A number of awards will be made each year. District Councils, public gardens, horticultural departments of the Agricultural Colleges and trade associations are asked to make recommendations on the basis of their knowledge of the plants over at least a period of 5 years. At present the Award is under the administration of a sub-commitee convened by Mr J. A. Hunter. It is given to plants which are outstanding for garden use, i.e. they are pleasing, do not need any special garden care to give a good display and are relatively easy to obtain.

The rules of procedure in the functioning of the Award are:—

1. The award is made on behalf of the Dominion Council by the Award of Garden Excellence award committee.
2. The lists of names of plants considered to be suitable for the award by District Councils, public gardens, agricultural colleges and trades associations should reach the Award Committee not later than the 31st May.
3. These lists will be carefully examined by the A.G.E. Committee and from them a selected list chosen. This list will then be circulated to district councils for their comments.
4. These comments from the District Council must reach the Award Committee not later than 31st August.
5. The Committee will, after the consent of the Dominion Council, authorise the publication of an annotated list of plants to receive the A.G.E. for that year in the December issue of *New Zealand Plants and Gardens*. The annotation will be extremely brief but will contain recommendation as to the suitability of the selected plants for cultivation in different parts of New Zealand.

THE AWARD OF GARDEN EXCELLENCE FOR 1965

As intimated at the 1965 Dominion Conference of the R.N.Z.I.H. held in Hamilton, the Institute is awarding for the first time the 'Award of Garden Excellence'.

The small response to the committee's invitation sent out in April 1965 to District Councils and other interested bodies to nominate plants suitable for the award has resulted in the committee preparing this short list of plants; they sincerely hope that the response in 1966 will be such that it will warrant at least fifty further awards.

As New Zealand has such a variable climate, plants which are 'good doers' throughout the country are extremely limited. In this present list plants are included which will grow well in the warmer temperate climates in the north and those that will grow best in the colder climates. It is hoped that the recommendations qualifying each plant when it is given the Award will be observed when recommending these plants for growing in the different parts of New Zealand.

1. Shrubs or small trees

Acer palmatum

The hardiest of the Japanese maples; an excellent shrub or small tree growing up to 20 ft. It is suitable for planting throughout New Zealand but it must be planted in a sheltered position to obtain good autumn foliage. It will not grow in areas near the sea coast; in North Auckland a cool situation must be chosen.

Camellia x williamsii 'Donation'

This camellia forms a well shaped shrub up to 5 ft. high with large pink flowers produced early in the season. The flowers are self grooming and weather resistant. As in Britain this camellia has proved itself to be hardy and free flowering in most parts of this country. It needs some shelter from heavy frosts.

Ceanothus papillosus var. *roweanus*

A dense growing evergreen shrub, up to 8 ft., spring flowering, flowers freely produced of a brilliant blue colour. It is hardy throughout New Zealand. In Auckland it is perhaps too robust and needs regular pruning. It may be susceptible to lemon tree borer.

Forsythia 'Beatrix Farrand'

An upright form of this popular spring flowering shrub growing 6-8 ft. high. It has larger flowers of deeper gold colour than *F. intermedia* 'Spectabilis' and therefore makes a more brilliant display. No *Forsythia* will make a good display in North Auckland.

Hibiscus rosa-sinensis 'Agnes Gault'

One of the hardiest and most free flowering varieties of *H. rosa-sinensis;* it grows up to 8 ft. high with large single carmine pink flowers. In the frost free areas especially in Auckland and North Auckland it flourishes and gives a good garden display; when given some protection it can be grown successfully in places further south but it is reported that this plant is unsuitable for Canterbury.

Leptospermum scoparium 'Martinii'

This horticultural variety of the New Zealand species was raised as a seedling in Wanganui. It grows up to 8 ft. high and produces deep pink to carmine flowers early in the winter continuing into the spring. As with all tea trees in an area where manuka blight has become established it needs the protection of suitable sprays such as the combination of lindane and white oil.

Malus 'Profusion'

A crab apple belonging to the *M. niedzwetzkyana* hybrids; it grows up to 10 ft. high; it is free flowering, the deep pink flowers are produced even when it is a young tree; it has been reported as not a robust grower in the south.

Malus 'Jack Humm'

In this crab apple the white flowers are not so conspicuous. This New Zealand raised variety grows up to 8-15 ft. high; as brightly coloured fruits remain on the trees throughout the winter it is a very popular variety in the south.

Pittosporum eugenioides 'Variegatum'

This cultivar of the New Zealand species forms a round headed shrub from 8-12 ft. high; it is extremely hardy and will grow well in most situations; it will stand continuous pruning; is suitable as a tub plant.

Prunus persica 'Iceberg'

A double white flowering peach which grows up to 18 ft. high; it is one of the most successful spring flowering *Prunus* sp. in the northern regions of New Zealand; in some areas it is prone to leaf curl disease.

Rhododendron 'Cornubia'

This popular *Rhododendron* recognised as among the best red, is a *R. arboreum* 'Rubrum' x *R. shilsonii* hybrid; its large red trusses usually apear early in the rhododendron season. Under a wide range of conditions it is a good grower and will ultimately reach 12-15 ft. Because of its early flowering habit it requires protection from spring frosts.

Viburnum opulus 'Roseum'

One of the oldest and best known garden forms of *Viburnum;* it will grow throughout New Zealand in any situation and on any soil type to form a robust shrub of up to 12 ft. high. Even in North Auckland it will give autumn tints as well as producing profuse creamy white flower heads in spring. It is known locally as the snowball tree.

2. Climbers

Wisteria sinensis

This well known vigorous climber flourishes throughout New Zealand. The award is given to the mauve flowered form as it is particularly free flowering. It is not particular as to where it is grown and can be trained on a wall, a pergola, as a standard or up a tree; it will stand hard pruning.

3. Herbaceous plants

Campanula poscharskyana

This vigorous low growing perennial *Campanula* species is suitable as a rock plant, on a wall, or as a ground cover; flowering stalks are up to 12 inches high; its pale mauve flowers are produced over a long period.

Dianthus 'Mars'

A rock garden hybrid dianthus with sweetly scented dark carmine flowers produced on flowering stalks up to 6 inches high. It is free flowering throughout the year. It prefers a sunny position and a well drained soil.

Helianthus orgyalis 'Autumn Glory'

A late autumn flowering perennial; flower stalks up to 4-5 ft. high. It is a very free flowering golden yellow perennial which will grow well in open situations on any soil types — it is resistant to droughts. As it is late flowering it is frost tender.

Kniphofia zululandia 'Winter Cheer'

A herbaceous plant with flowering stems up to 4 ft. high; it is a winter flowering variety and is free flowering in the north in any situation and in any soil. As it is winter flowering it is frost tender and is recom-

mended for warmer positions in the south. In the north it is recommended as a winter bedding plant. It should be used with caution in Canterbury, S. Canterbury and Invercargill.

Phormium tenax 'Rubrum'

A dwarf cultivar of the New Zealand flax growing no more than 4 ft. high. It is hardy throughout New Zealand and is excellent for foliage contrast in a shrub border; it makes a good tub plant.

4. Bulbous plants

Lilium regale

The award has been given to the species rather than to a particular variety. If raised from seed it will give a good garden display within eighteen months from sowing. It will do well in most soils. It may be damaged by late frosts if not given some protection.

Sternbergia lutea

An early autumn golden yellow flowering bulb, flower stalks 4-6 inches tall, commonly known as autumn crocuses. It is hardy throughout New Zealand. Being native of the Mediterranean region it needs a dry position and in the sun.

Award of Garden Excellence sub-Commitee

J. M. Dingley
J. A. McPherson
H. B. Redgrove
J. A. Hunter

Acknowledgement: The Award of Garden Excellence Sub-Committee gratefully acknowledges the services of Mr A. J. Healy, Assistant Director of Botany Division, Department of Scientific and Industrial Research, Lincoln, in checking the names of plants given this Award in 1965.

THE BOTANIC GARDENS, WELLINGTON

(Continued)

NOTEWORTHY PLANTS

R. H. MOLE (Curator, Otari Native Plant Museum)

In the previous issue of this Journal (September, 1965, Vol. VI, No. IV) a brief summary was given of the history of the Wellington Botanic Gardens up to 1947, followed by notes relative to the gradual development of the gardens over the last eighteen years. Each phase of recent development, be it of roses, rhododendrons or rock gardens, etc., has created a wider field of plant material which, apart from its aesthetic appeal, may be said to have added also to botanical interest in the gardens.

Several outstanding specimen trees and shrubs were mentioned in the previous article. To describe further plants of merit, growing within the gardens' 64 acres, is the purpose of this article.

These notes are being compiled in mid-October and wtih the gradual rise of average day temperatures, coupled with many sunny days over the last 6 weeks or so, one has tended to forget more readily the dull and often wet days of winter 1965. However, in retrospect, I wish to begin these remarks from mid-winter's day — 21st June. From this date to 31st August the Weather Office, situated within the precincts of the gardens, recorded 18.57 ins. of rain. In fact rain fell on 53 out of those 72 days — in all a most depressing winter period. On the credit side it is fortunate that little frost was recorded in the same period — indeed, in most winters, heavy frosts are rare in the vcinity of the gardens.

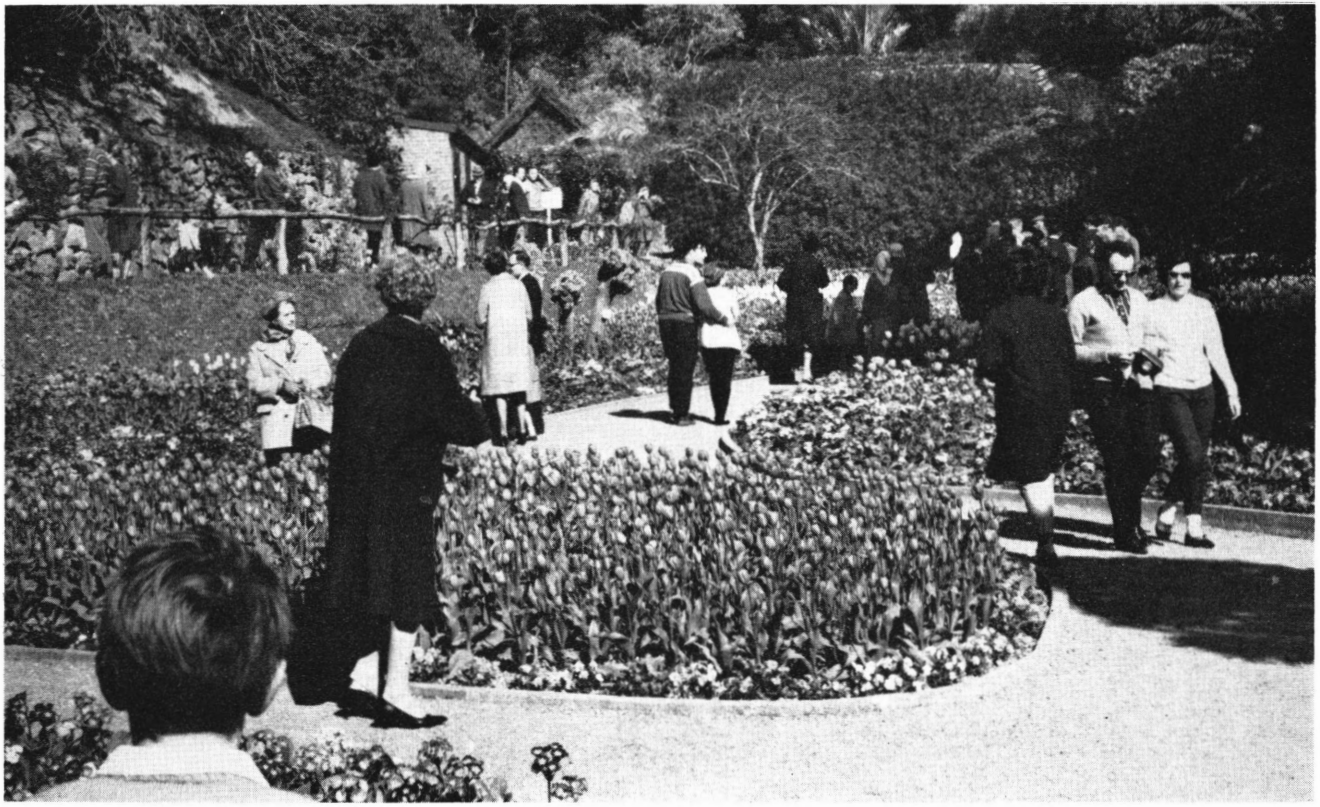
Which plants then come to mind as having brightened many a dull winter's day? Long established, as well as more recent plantings of *Camellia* species, varieties and hybrids provided a pleasing display of bloom, as did specimens of flowering quince *(Chaenomeles japonica* varieties). The white tipped, pink tubular flowers of *Erica* x *wilmorei* did not seem to mind the inclement weather, the blooms being evident for many weeks, whilst the bright pink five-petalled flowers of *Coleonema pulchrum,* present in their hundreds, were always a delight to see. The South African evergreen *Polygala myrtifolia* 'Grandiflora' seemed oblivious to wind and rain as they produced their winter trusses of rich purple, pea-like, flowers.

As the days gradually began to lengthen, so the white to pink flowers of *Thryptomene calycina* began to unfold themselves in masses together with the pale rose coloured form *T. saxicola* 'Rosea'.

Shades of yellow flowers are not difficult to find for garden use but *Hypericum leschenaultii* is certainly worthy of mention since its rich golden coloured saucer-shaped blooms, up to about 3 in. diameter, I thought most attracive. It flowers in winter and, indeed, throughout the year.

Sheltering under trees near the main drive *Luculia gratissima* is truly a fine winter-flowering shrub for frost free areas. Its terminal clusters of rosy pink blooms are sweetly scented, and if cut for indoor use, soon fill a room with their fragrance.

The foregoing is but a short list of some of the flowering plants which helped to dispel the winter gloom. However, mention must be made of one other winter flowering subject which many will acclaim as the pride of the Gardens — I refer to *Magnolia campbellii,* a noteworthy species from the more temperate regions of the Himalayas. Now about 30 years old this harbinger of spring in Wellington rarely, if ever, fails to merit high praise from its numerous, wide-eyed viewers. Who indeed could fail to be impressed by the 6-10 in. wide deep-rose fragrant flowers, produced in quantity on leafless branches to about 30 ft. high?



Tulips in bloom in the Sunken Garden, Wellington Botanic Gardens. (see page 209)
—Photograph: Wellington City Corporation.

As the flowers of this magnificent specimen faded, so the season moved slowly on to the opposite (eastern) side of the main drive where several wide-spreading trees of *Magnolia* x *soulangeana* took over the eye catching display of flowering trees. *M.* x *soulangeana (M. denudata* x *M. liliflora)* is well suited to local conditions, whilst many forms of this original hybrid are seen in New Zealand gardens today.

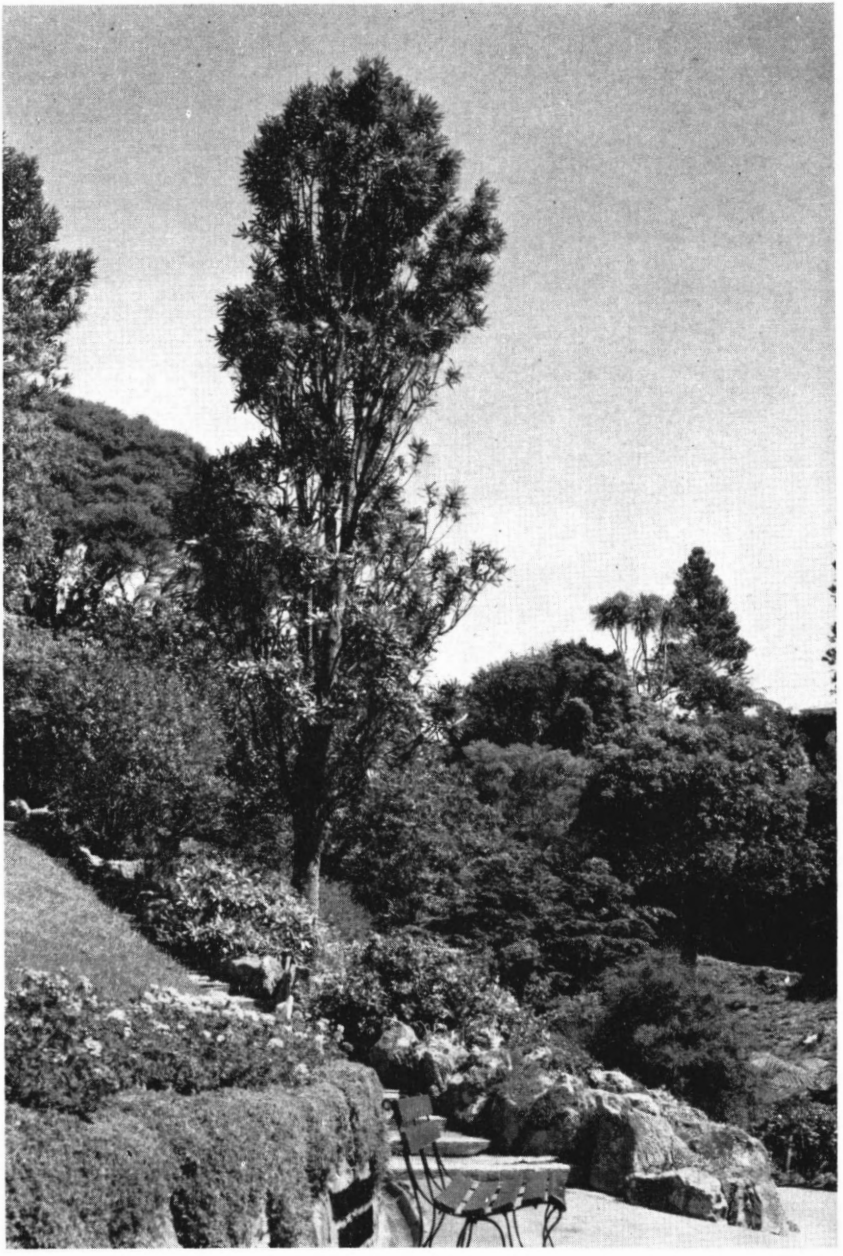
With the passing of the white to purplish flowers of *Magnolia* x *soulangeana,* so the first leaves of *M. campbellii* gradually unfold. Spring can be said to have arrived.

By this time the eyes of the many thousands of people, now visiting the gardens, are directed mainly downwards, there to perceive the splendour of about 30,000 flowering tulips ranging in colour from the creamy-white 'Nivea' to the flaming red of the new (but rather early) variety 'Eisenhower'. Of note also, is the fiery red 'Apeldoorn' and the large golden-yellow flowers of 'Mrs J. Scheepers'. 'Blue Parrot', another new variety under trial, is a double-flowered type with large light-purple petals, each bloom carried well above the foliage on sturdy stems.

The tulips are positioned in formal beds as well as in scattered drifts set amongst the well-known forget-me-not *(Myosotis scorpioides),* cinerarias, calendulas and wallflowers. In the sunken garden a most appealing effect has been produced in their juxtaposition with thousands of multi-coloured polyanthus. At the north-western exit from the sunken garden a stately 50 ft. high kauri *(Agathis australis)* stands, as if on guard over this massed array of colour — ever changing as the season moves on. Above the sunken garden and towering above the rockery is a fine specimen of a long established *Knightia excelsa* (rewarewa or honeysuckle tree).

On passing the kauri it is but a short distance to regain the main drive. To proceed towards the large Swan Pond one passes en route a fine recently flowered specimen of *Prunus yedoensis* whilst a little further along I have observed many a visitor of late admiring the floriferous display provided by a large kowhai *(Sophora tetraptera).* I wonder, though, how many people noticed the climbing plant making its way towards the light over the lower branches of this kowhai? Now about 20 ft. from ground level *Tecomanthe speciosa (Bignoniaceae)* seems to relish life in Wellington compared to its island home on Great Island of the Three Kings group. The splendid growth made by this woody liane augurs well for its ultimate production, in the years ahead, of the winter borne creamy-white, flushed pale green, tubular flowers, each up to about 2 in. long.

Of aesthetic value and certainly of botanic interest a 25 ft. tall specimen of *Ginkgo biloba (Ginkgoaceae)* is located a short distance (north-west) from *Tecomanthe speciosa.* Thought to be extinct in a wild state, morphological and genetical features of this tree make it a truly unique species.



Wellington Botanic Gardens. General view of one section above sunken garden and rockery, showing specimen of rewarewa (Knightia excelsa). (see page 209)

—Photograph: Wellington City Corporation.

A tendency for the seasons to be transposed in one's mind can be forgiven as one gazes on the young, and matured, foliage of the copper beech *(Fagus sylvatica* 'Cuprea'). This majestic tree growing near the main path, south-west of the Swan Pond, gives an overall effect akin to autumn colour as now, in the spring, the reddish-bronze leaves make their attractive appearance.

Amongst various members of the ornamental *Prunus* tribe growing in different parts of the gardens are several young standard trees of a pendulous form. Positioned alongside the path in the higher, Glenmore Street section, the weeping branches of *Prunus subhirtella* 'Pendula', profusely covered with double pink flower clusters, create a pleasing diversion (in tree form) as one meanders through this area.

Within the spacious lawn area in the same locality the fresh soft green leaves are beginning to clothe the pyramidal form of a sturdy, 20 ft. high, shui-sa *(Metasequoia glyptostroboides)*. Said to be of less ancient lineage than the Maidenhair Tree, the Shui-sa nevertheless was a plant very much in the news when living plants of this fossil genus were first discovered in Central China in 1945.

A path nearby leads gradually upwards to the broad plateau of closely mown grass known as Magpie Lawn. En route to this area several fiery red coloured patches earmark the presence of *Photinia glabra* varieties. These plants, whether used as specimen shrubs or for hedges, are certainly outstanding for their highly coloured young leaves.

In a small border at one end of Magpie Lawn are growing a few plants of *Lithospermum diffusum* (syn. *L. prostratum)*. Varieties of this useful perennial are to be found in other parts of the Gardens too. In fact there are several specimens positioned in the rock gardens — locations well suited to growing this softly hairy leaved spreading plant with its deep blue, velvet textured flowers.

Beyond Magpie Lawn, paths lead into the hills and valleys of natural bush areas — an unique feature of the Wellington Botanic Gardens.

Signposts within the bush areas help to guide the way, whilst the acquisition of a Guide Map of the Gardens is most useful to visitors in saving time and energy to locate any special plant or place of interest.

Alongside a small path leading westwards opposite the Garden of Remembrance are specimens of *Quercus robur* (Cork Oak). The same species is to be found also to the east of the Swan Pond. The main trunk, as well as some of the older lateral branches of these trees, is well encased with wads of corky bark tissue which readily enable the viewer to realize the tree's commercial value.

From the elevated position of the Garden of Remembrance paths, leading mainly downhill in a northerly direction, connect with what is today the focal point of the gardens. I refer to the Lady Norwood Rose Garden and the large glasshouse unit nearby called the Norwood Begonia House.

Wellington Botanic Gardens. Interior of the Sir Robert Norwood Begonia House. (see page 213)

—Photograph: Wellington City Corporation.

Begonias are a special feature under glass, when in season, but, in addition, many other genera are also represented. On average about 5,000 plants are on show, embracing some 300 or so species.

From the 'foyer' separate doors lead to each half of the glasshouse. In recent weeks one section (I will call it the eastern half) has been earmarked for the presentation of large groups in variety of *Cyclamen,* cinerarias, primulas, calceolarias, *Schizanthus* and so on. Plants of aesthetic value and botanic interest occupy mainly the centre island beds.

Vying for first place to reach the roof is the variegated pale yellow and green stemmed *Bambusa multiplex* 'Alphone Karr' and *Ficus elastica.*

Regular visitors to the Begonia House will have no doubt observed the rapid growth over the last two years of the Colombian climber *Passiflora antioquiensis* (syn. *Tacsonia van volxemii).* This young plant, from top to toe, is now over 20 ft. long, with other numerous flowering tentacles not much less in extent. The slender branches trained along wires above the main pathway enables the pendant crimson coloured flowers — many about 5in. diameter — to be seen with good effect. Suspended on stalks about 12 in. long, the fertilised blooms gradually evolve into banana-like fruits up to about 6 in. long, which become edible as they change from green to yellow.

On transference to the other (western) side of the house a higher temperature and humidity is encountered. Also, whereas in the past many plants were merely repeats of what had already been witnessed in the other section, today the picture tells a different story. Here, at the moment, are hundreds of plants grown for their foliage appeal; others that will interest the plant connoisseur with weird leaf and flower forms, plus a sprinkling of well-known, but worthy plants, all of which enjoy the more tropical atmosphere.

Begonias need not, and in fact are not, omitted from this section since varieties of *Begonia rex* are most useful for leaf appeal. Well grown specimens of popular plants (to name a few) include *Aphelandra squarrosa, Cordyline terminalis* (a plant once used by the Maoris for its edible roots), marantas and philodendrons in wide variety, alocasias and *Monstera deliciosa* (Ceriman). The last named, a noble epiphytic climber from Mexico, produces edible fruit with a pineapple flavour. However, beware all ye who sample this fruit (which might take up to one year to ripen) — it may produce uncomfortable itching in the throat.

Of the genus *Nepenthes,* the insectivorous pitcher plants are also represented. The form of a plant's adaptation to its environment is often the source of much interesting study. In this instance theory has it that the pitchers have evolved in nature in order that nitrogen, the product of the decayed bodies of the insects, drowned in the pitchers, may be assimilated by the plant. Why? Because nitrogen is said to be lacking in the natural habitats of *Nepenthes* species — for example in the bogs of the jungle in Malaya and Borneo.

From the intriguing to the intrinsic value of *Columnea* species for inclusion in the warm section. Growing happily in hanging baskets, the bright red, yellow-throated flowers of *Columnea gloriosa* are most attractive, showing up well against the dark green leaves from the pendulous growths.

Positioned in the centre island beds at varying angles good use has been made of tree fern trunks upon which many epiphytic plants are growing, permitting easy viewing by the public. Many aroids, bromeliads, climbing ferns and so on adorn these stems plus several epiphytic orchids. One is accustomed to seeing cymbidiums grown as terrestrial specimens. Indeed there are, at the moment, many fine spikes of hybrid cymbidiums to be seen in the other cooler section growing in pots. However, as if to prove that all orchids in this genus are not necessarily terrestrial, *C. lowianum* has produced a lengthy flower spike perched on one of the tree ferns.

Upon leaving the large Begonia House an amphitheatre containing some 3,000 roses lies before you. Strong, healthy shoots bear promise of the first flush of blooms which will fill this area soon with fragrance and colour. This delightful spectacle will continue throughout summer. It will still be there with the approach of autumn when the leaves of the Smoke Bush *(Cotinus coggygria* 'Folius Purpureus') deepen their rich purple and when the berries begin to ripen on the stranvaesias, and pyracanthas and the large fruits of the puriri *(Vitex lucens)* turn a rich red — in fact, this precious panorama will continue to give colour to mid-winter's day.

A HORTICULTURAL JOURNEY TO WESTERN AUSTRALIA

IX (Conclusion)

W. R. STEVENS (Wanganui)

Although it was early October, the nights were almost balmy, and the days were quite warm, making travelling very pleasant.

The next day, after driving north for a couple of hours, we turned directly westward as it was our intention to cut right across the sandplains until we reached the coast north of Perth. For the first few miles, the road was very dusty and the flora on either side was not particularly interesting, being for the most part plants with which we had already become familiar. Suddenly a large emu burst on to the road in front of us. We were not travelling very fast, and this large bird decided to lead us for a while. We accelerated a little and found the emu could keep up 30 miles an hour very comfortably. This was most entertaining as we all had a grandstand view for about half a mile before it left the road.

Some time later, Harry called out 'stop!' While we were slowing down he explained that he had seen a shrub in flower that looked interesting. We all got out and wandered back along the road until Harry found the plant. It certainly was a sight, covered with tiny pink flowers from top to bottom, and for a moment we could not place it. Then it dawned on all of us that it was a manuka, *Leptospermum,* but completely different from any species we previously had seen. The plant was an upright grower with very fine ericoid foliage, and small lavender pink flowers about half the size of our New Zealand *Leptospermum scoparium.* We hunted all over that shrub looking for seed capsules, but could not find even one. We pressed specimens of the flowers, and it was later identified as a particularly good form of *L. roei.* In a case like this, to get that good form into our gardens, it would have to be propagated vegetatively. In any flora that is at all unstable or undergoing evolutionary changes, it is always advisable to select the best forms from which to propagate. Because a plant comes true from seed does not mean there is no variation in the species. This diversity may apply to form, size, colour of flowers, adaptability, or a dozen other things, so it is always wise to be observant when seedlings are flowering for the first time. In the case of this particular plant, there was nothing we could do at the moment and we left it with regret. The only way to ensure bringing this form into our gardens would be to take particular note of its location and return to it when the wood was ready for taking as cuttings. As this would be impossible for us, the best we could do was to hope that some other enthusiast would find the bush and take steps to propagate it into cultivation.

Later on we came across several fine specimens of the quandong, *Santalum acuminatum,* bearing their highly decorative fruits. These fruits are a brilliant red, their skins shining smooth and reflecting the light like enamel. Rather like a small plum in appearance, they are

about ¾ inch in diameter, but unlike a plum, the fruit consists mainly of a hard stone-like nut with a thin covering of hard flesh. They are edible and some of the early settlers used to make a dessert jelly from them. The emu is particularly fond of the quandong, and there is no doubt it has been instrumental in spreading it. It is a parasitic plant, and belongs to the *Santalaceae*. It is not, however, very fussy about what host it grows on, and these hosts must often be low-growing and comparatively insignificant, for as in the case of the *Nuytsia*, specimens often give the appearance of standing alone and one is not conscious that the trees one sees are, in fact, parasites. The trees we saw were about 10ft high, but we heard later that many had been found up to 20 feet.

Towards evening we saw an old deserted quarry off the road, so we decided to camp. The plants here consisted of various *Hakea*, *Grevillea* and *Acacia*, some of which were in flower. It was a lovely warm evening, and the flies must have gone to bed early, for were able to sit outside in comfort.

Next morning, before breakfast, Noel had a hunt around and returned with a nice bunch of assorted flowers, which brightened up our breakfast table. We spent the breakfast session trying to name some of them, but although we were easily able to identify most of them as to genus, we found we were not able to make many sure specific determinations. However, studying the flowers at leisure during this morning meal gave us such pleasure that we urged Noel to carry on with the idea every morning, which he did.

This quarry camp was at a place called Balidu on the main north-south sealed highway from Geraldton to Perth, and was only a few hours drive north of Wongan Hills, a small town in the centre of an extra fine wild flower area. So we decided to turn south, and follow the bitumen as far as Wongan Hills. It was a Sunday morning, a clear sunny, windless day, but although this was a wide sealed highway there was not one other vehicle to be seen, for hours on end. It was farmland on either side, but no sign of stock or of human habitation. Then halfway through the morning, we saw something ahead, right in the centre of the long straight road, coming to meet us. As we drew closer, we saw it was a large white sow, still holding the dead centre of the road. We pulled to a stop, but the sow came on, then went the round of our car and caravan, rubbing up against them with obvious pleasure that she had found company. Harry got out and took a photo to prove when we got home that one at least of the tales of our adventures was true! We said goodbye to the lonely animal and resumed our way.

Many *Acacia* grew along the roadside, and some were in flower, but none appealed to us so much as *Acacia cyanophylla*, which occurs so much around Perth and further south. It is a tall, graceful shrub or small tree, with a drooping habit, and the leaves are slightly glaucous. Its masses of bright yellow blossoms contrast very harmoniously with its long curved foliage. In a small depression, a spot of colour caught our attention and we pulled up. It proved to be a climbing plant which was

scrambling over a *Hakea* species, and was literally smothered with flowers. This was *Marianthus erubescens,* a member of *Pittosporaceae,* and had clusters of small red flowers about an inch long. In cultivation in New Zealand it has proved to be easily grown, and flowers extremely freely over a long period. Strange to say, one of the plants which we raised from seed had yellow flowers, a colour that we had not heard to have been recorded.

Towards evening, we arrived at Wongan Hills, a small inland township, and decided to camp there. The flora in that area proved to be so interesting that we stayed there all next day and another night. Unhooking the car from the caravan, we made short trips around the countryside in all directions, returning to the caravan, parked in a motor camp, for meals. On one such trip, when passing through a sandy area, we saw a long line of tall shrubs, blue grey with red flowers, some chains away from the road. So we left the car and investigated. To our surprise, these tall shrubs proved to be *Eucalyptus macrocarpa,* a species generally recognised as having the largest flowers of the genus. Fully 12 feet in height, and well clothed with branches, they were flowering freely. The colour varied slightly but in the main they were deep crimson, about 3 inches across. In New Zealand I had not seen any specimens taller than 4 or 5 feet, but the specimens near Wongan Hills were nearly all over 12 feet high. Lovely at a short distance; close to, the whole effect was spoilt by the fact that all the foliage was chewed and ravaged by insects. Incidentally this is one of the species which survives a fire which destroys all the branches above ground level. It will shoot into growth again from the base, a fact which I myself proved on a hillside in Wanganui, when a fire swept through a planting of Australian natives some years ago. In the spring following the fire, which burnt the tree to ground level, vigorous new growths appeared, and eventually made a better specimen than it was, previous to the fire. But however well it grows in New Zealand, it does not flower half as freely as it does in the sand plains of Western Australia.

From Wongan Hills we again turned west, through Gingin East towards the coast. In this area we found some very attractive *Drosera* species, one particularly lovely one having glistening salmon growths up to 1 foot in height, with the dew be-sprinkled effect so typical of this genus of insect catchers. Also to be seen in Gingin was the lovely 'Rabbits' Tails', *Trichinium manglesii,* the only area in which we encountered the species.

Travelling west towards the sea, we entered the dry, hungry, sand coastal belt in which *Banksia* species appeared to predominate. The commonest species appeared to be *Banksia menziesii,* though *B. ilicifolia* was also present. Pasture as such was composed of weeds, and there was no doubt there were soil deficiencies. We heard later that the area was deficient in cobalt, boron and copper.

After driving a few miles, some gaunt trees in a paddock aroused our interest and we wondered what they were. Suddenly Harry said 'One of them is in flower'. So we stopped and climbed over the fence.

Sure enough there were flowers on one specimen, and we had no difficulty in recognizing the famous Christmas tree of Western Australia, *Nuytsia floribunda.* We were extremely fortunate in finding this in flower so early in the season as normally its flowering season occurs in December and January. The flowers are a bright orange, and a tree in full flower is an unforgettable sight. It is a parasite, and in its early growth will be satisfied with a wide range of plants as hosts, such as banksias, hakeas and even couch grass. The number of gardeners who have tried to grow it in their gardens must be very high but very few have succeeded. The only plant I have seen in cultivation was in the once famous Burdett garden in the Lofty Ranges of South Australia. This cultivated plant was about 12 feet high and over 20 years old, but still it had not flowered. It belongs to the natural order, *Loranthaceae,* and is quite easily raised from seed, but from then on it never seems, in cultivation, to be very enthusiastic about growing!

A few miles on, and we drove off the road to camp for the night. Although the soil was so poverty stricken, we found several very interesting plants. One of these was *Hypocalymma angustifolium,* which forms a low mounded bush up to 3 feet high, and as much across. The dainty ivory flowers were clustered on every twig, and Noel found that it kept well after cutting. We were intensely interested to find a lovely pink form, but at this time of the year there was no seed left on the plants. It is, moreover, probable that it would not come true to colour from seed. Another attractive small shrub was *Petrophila linearis,* and quite a number of specimens were in flower. The flowers were lavender pink, with dark grey tips, and covered with silky hairs. We decided it was a shrub worth growing, and collected a few seed heads. However, in cultivation here it has proved disappointing, and although it has flowered quite well, I think it must need the loose, humus-starved sand of its native habitat. Incidentally, the tilth of this narrow coastal strip down which we were now travelling, is very different from the more inland sand plains. In the sand plains the sand packs down hard, but in the coastal sand, it is loose and does not pack down at all

Also numerous were the 'Blackboys', *Xanthorrhoea preissii,* an ancient type of plant belonging to *Liliaceae.* It is *very* slow growing, usually only an inch or less a year, so it can be worked out how old the plant would be when it reached the height of from 10 to 18 feet. It was also surprising to find an epacrid growing on the side of the road. This was *Conostephium pendulum,* sometimes referred to as 'Pink-tipped Pearl', because the pendant, waxy white flowers are tipped with deep pink.

During the night a boisterous wind sprang up and the caravan swayed a bit during heavy gusts. By morning the wind had died down, and we moved off south in calm, fine weather. For several miles the flora on either side of the road consisted mainly of *Banksia menziesii* and *Banksia ilicifolia.* Here and there odd flowers showed up on the old, gnarled trees which were loaded with the seed cones of previous years. Out of curiosity we examined many seed capsules and found all of them riddled by weevils. We could not, in fact, find one single uneaten seed.

It makes one wonder how any seeds escape to propagate the species. Dryandras also are subject to this wholesale destruction of the seed by weevils. Presently we saw the lovely upright growth of a *Dryandra* species, with every branch smothered with 2 inch, shaggy, bright yellow flowers, greatly resembling *Dryandra polycephala,* but with larger, looser flower heads.

As we travelled south, we left the *Banksia* country, and although the soil to each side of the road was still sandy, it was not so impoverished, and low scrub and larger acacias appeared. Wandering amongst one of these lightly wooded areas, we found the ground simply carpeted with *Anigozanthos humilis* in every imaginable variation of colour, from yellow to a deep rust red, and in height from 6 inches to 15 inches.

The country was by now assuming more of a rolling character, and some efforts had been made to bring it into cultivation. One such slope which had been cleared the previous year had gone back into low scrub. Here we pulled into the side of the road and climbed through a fence to examine a large colony of *Anigozanthos manglesii.* There must have been hundreds of them in various stages of flowering, and we just feasted on this glorious contrast of red and green. In places they were waist high. On our return to the car we found that our caravan had settled rather deeply into the sand, and refused to budge. It was a case of all hands pushing while Noel did his best at the wheel. There was a sigh of relief when eventually we got it to move, as it was rather a desolate spot in which to be stuck.

Late in the afternoon we arrived at Yanchep Park, which is run by the Government Tourist Department. A very fine hotel has been built, and excellent gardens laid out. The enthusiastic curator was very keen on native plants, and under tall eucalypts he had established numerous beds of some of the most colourful endemic plants. Here we saw beds of *Anigozanthos* growing superbly, particularly *A. rufa* and *A. manglesii,* also *Macropidia fuliginosa.* At one end of the park was a large bed of 'Geraldton Waxflower', *Chamaelaucium uncinatum,* all in flower, with a wide range in colour, from pure white to crimson.

We were so interested in seeing this collection of plants that we decided to camp overnight. This enabled us to give the beds a thorough inspection — particularly the collections of *Verticordia* and *Calythrix.* Here also there was a superb bed of *Diplolaena angustifolia,* with neat bushes up to 3 feet in height. This unlikely looking member of the *Rutaceae* has flower heads 2 inches in diameter which consist of a rounded cluster of tightly packed apricot flowers with prominent yellow anthers surrounded by petal-like bracts.

Another very interesting bed was made up of a collection of various *Leschenaultia* species. Every afternoon a bus load of tourists was brought to the park and a conducted tour of the gardens made, the conductor having a considerable knowledge of the flora. Fenced off areas containing koala bears, kangaroos and emus are also a feature of this attractive park. Close to the hotel and completely surrounded by bush in its native

state was a large fresh water lake, a rarity in West Australia, on which boating was indulged in. A motor camp set amongst tall eucalypts, a restaurant and general store added to the amenities of this worthwhile tourist attraction. The natural bush surrounding the park was much more luxuriant than is generally typical of the West Australian bush and was thickly festooned with *Hardenbergia comptoniana.* In the gardens were many species which we knew from experience, and also from various interested gardeners, were very difficult to raise from seed. Items such as *Macropidia fuliginosa, Verticordia grandis,* various *Leschenautlia* species, and the diplolaenas, while not rare in nature are very rarely seen in gardens by reason of their being extremely difficult to germinate seeds. We therefore enquired of the curator how it was that Yanchep Park had such an excellent planting of these subjects. We were told they had been brought in from the wild as plants. The procedure was to go out into the wilds after rain and sink tins, from which the bottoms had been removed, around smallish plants of the species it was wished to obtain. These tins were forced down to their rims around the plants, and left until the following season, after which they were dug up with the tins, and transferred to the planted areas of the gardens. Losses were surprisingly few. Yanchep has a good overhead sprinkling system with water drawn from the fresh water lake, thus lessening the shock of transplanting.

It was interesting to realise that this forcing of tins down around the plants in the wild had substantially the effect of the procedure of the so-called 'wrenching', though it did not cut tap roots, if present. In fact, I would be *very* doubtful if this method of transplanting plants would be successful with any tap rooted subjects.

It was with some reluctance that we set out for Perth, only some 30 miles distant, the following morning, as we realised that we were thus bringing our wonderfully enjoyable and interesting trip to a close. But we had travelled some 5,000 miles through an ever varying flora, and had learnt something of the wide difference of soil and climate under which this unique flora established and perpetuated itself. We were greatly fortunate to have seen as much as we did, as year by year many of the 'problem' soils which support this spectacular flora are being bulldozed clear of the native vegetation, treated and brought into cultivation. It is tragic to realise how much this 'progress' will cost in the loss of flowering plants, and the extinction of many whose habitat is restricted so often to one small district or even one localised area.

OPOSSUM CONTROL

At a recent meeting of the Dominion Council a letter was read from Mr R. G. Gerard, Minister of Forests, to Mr R. C. Nelson, President, Royal Forest and Bird Protection Society, Wellington. The following are the main points contained in this letter:

To date 140 rabbit boards have been elected to undertake opossum destruction work on the same basis as that applying for rabbit destruction. Money obtained from rates, subsidies and grants has been available to finance control. In November 1964 were constituted counties or parts thereof, not already covered by rabbit boards, as rabbit districts. Together with the Forest Service, which has responsibility for opossum control on Crown lands not included in rabbit board districts, these organisations provide complete coverage of all areas where large scale opossum control is deemed necessary.

Last year the Forest Service poisoned indigenous forest areas in both islands, including the aerial sowing of 450 tons of poisoned bait over forested regions of the Taramakau and Itira catchments of the Arthur's Pass National Park and the neighbouring Taipo catchment.

Research on the natural history, distribution, control methods, etc., of the opossum is in progress. An officer of the Forest Service is in Australia studying habitat requirements and natural controls to population growth.

Recommended methods of control include spotlight shooting and dogging, or pole snaring. Full details of the latter method is available from the Forest Service.

Members Can Assist!

Rabbit Boards are responsible for controlling opossums in the area of their administration, and the Forest Service for Crown Land not covered by Rabbit Boards. County Councils have authority to control opossums where they are a menace. In general, however, urban areas are not well served for an understanding of the problem, nor for the control of the menace.

Members of the Royal New Zealand Institute of Horticulture can help in a very practical way by providing information about opossums in their areas which will help those in authority to understand and grapple with the problems in greater detail.

The following facts will be of value in gaining a better understanding of the problems of control and eradication of opossums. Members are invited to observe the opossums in their localities and to collate details as follows.

1. The first appearance of opossums.
2. The known liberation points.
3. In what type of growth are opossums found.
4. The colour — black or brown: grey — representing two different types of opossums.
5. The food being eaten; fruit, leaves or flowers of the main species.
6. Whether opossums are feeding in daylight hours; whether in poor condition and slow to move.
7. Any other habits or characteristics observed.

Send information to—

Mr. L. Pracey,
New Zealand Forest Service,
Private Bag,
Wellington,
who will appreciate receiving your help.

Mr. Pracey will thus have more contacts in city and fringe areas, and will be in a position to meet members to discus the opossum problem at the time of the next Dominion-wide survey on opossums, planned for 1972. Two Dominion surveys have been completed and the information gained from them has already helped considerably in understanding opossum populations and in organising efficient control methods.

THE FENCING AMENDMENT ACT 1955

The remit from the Annual Conference recommending that an endeavour should be made to have public reserves omitted from the provisions of the Fencing Amendment Act 1955 came before the Dominion Council for consideration at its meeting on the 15th September. On the recommendation of the Committee appointed to consider the remit, it was decided to take no action. The report was to the following effect.

The power of a Magistrate to order trees to be removed or trimmed where they injuriously affect a neighbour's land used for residential purposes was introduced by an amendment to the Fencing Act enacted in 1955 and now incorporated in the Act as Section 26 A.

There has always been power at common law to cut back trees or roots which encroach upon a land-owner's property and also to recover damages where it can be proved that trees growing on a neighbour's land caused actual loss. The amendment simplifies the procedure by enabling the remedy to be pursued in the Magistrate's Court. The complainant has to prove that he is "injuriously affected" but not necessarily that he has suffered actual loss. The Fencing Act does not bind the Crown but the amendment specifically provides that it shall apply to all land including Maori land, Crown land and public reserves. It might be mentioned that the Public Works Act contains wide powers to require the removal of trees overshadowing or obscuring roads, with an appeal to a Magistrate against any order to do so, his decision to be final.

It's application to Crown land, Maori land and public reserves must have been deliberate and fully considered by Parliament and it is considered that there would be no possibiliy at the present time of having its application to public reserves repealed. The Crown, Local Authority or Board affected must be served with any proceedings and be a party to any action taken and it must be assumed that the merits of the claim for relief would be thoroughly gone into and the Magistrate would not lightly order the trimming or removal of trees.

1966 ANNUAL DOMINION CONFERENCE

of the

Royal New Zealand Institute of Horticulture (Inc.)

FORTY-THIRD ANNUAL MEETING AND CONFERENCE OF DELEGATES

NOTICE IS HEREBY GIVEN that the Forty-Third Annual Meeting and Conference of Delegates of the Royal New Zealand Institute of Horticulture (Inc.) will be held in NEW PLYMOUTH, on February 17th, 1966, commencing at 9 a.m.

The 1966 Banks Lecture will be delivered at 8 p.m. on 17th February by Mr. D. A. Watkins, of New Plymouth, and will be entitled 'Industry and Horticulture — Partners in Progress.'

Members of the Institute and delegates from affiliated organisations are specially invited to attend the Dominion Conference and the Banks Lecture. Other activities are being planned by the North Taranaki District Council for the benefit of visitors.

It is recommended that those attending the Conference make early hotel reservations.

K. J. LEMMON,
Dominion Secretary.

NEW SCENIC RESERVE ON STEWART ISLAND

A valuable new scenic reserve and bird sanctuary on Stewart Island will result from the gift of 19½ acres in the Golden Bay-Halfmoon Bay area, the Minister of Lands, Mr. Gerard, announced recently.

The land, containing a fine stand of native bush, has been offered by Mr. G. H. Turner, formerly of Stewart Island and now living at Nelson, who has asked that the area be known as Raroa Scenic Reserve. Raroa means 'Long Sun', and is the name of Mr. Turner's residence on the island.

'Mr Turner's public-spirited gesture will be widely appreciated', Mr. Gerard said. 'Mr. Turner has devoted many years of care to the property and has always readily given entry to nature lovers. His gift is a most welcome addition to the substantial forest areas at Stewart Island already set aside as public reserves'.

NOTES FROM THE CHRISTCHURCH BOTANIC GARDENS

(OCTOBER 1965)

L. J. METCALFE, N.D.H.(N.Z) (Assistant Curator)

Although it is almost November and we have had some very pleasant spring weather at times, conditions generally are still rather cool and growth is not always as advanced as might be expected. August brought to a close the worst winter for 20 years, but since then there have been a number of snow and sleet showers which have all helped to retard conditions for gardening. There have been a few late frosts recently, fortunately none of them very damaging, but the indications are that this is a season for caution when planting half hardy plants.

After the excessive and prolonged rains of the winter months, the rainfall has levelled-off, and at present stands at 23.75 inches for the year which is just about normal. It is one of the features of Canterbury weather that there are few years of extreme rainfall, and no matter how wet, or dry the first half of the year may be, the yearly total is nearly always very close to average.

One of the most interesting developments over the the past few years has been the gradual incorporation of the Woodland area into the Botanic Gardens. This area situated on the southern side of the Gardens, between the Avon River and Riccarton Avenue, has been well enough known for many years for the several acres of daffodils which provide a glorious display every spring. However the 5 acres of daffodils only constitute a part of the Woodland; the whole area being a little over 15 acres in extent. Up until 1955 the remainder of this area was almost completely undeveloped. Then extensive renovations required, following a large floral exhibition in part of the area, prompted a start to be made with developing it as part of the Gardens.

A portion of the banks of a small unnamed creek was graded down to form a large depression and the Primula Garden commenced. Work on this proceeded over 2 years and today the first plantings are now assuming a certain amount of maturity. While mainly intended for various species of *Primula,* other plants such as *Rhododendron* species, *Lilium, Meconopsis,* and other similar plants have been used to provide interest the year round. The accent has been on preserving a rather natural appearance so that the atmosphere of the Woodland is maintained. Particularly during the later spring months the Primula Garden is a delightful but little known part of the Gardens. As yet many people are unaware of its existence, but as further development takes place in the Woodland more are discovering this new part of the Gardens.

Another large area of the Woodland is known as Harman's Grove. This was named after R. J. S. Harman, a member of one of the early Domains Boards. It is planted mainly with oaks *(Quercus robur* and *Q. cerris)* which have developed into tall stately trees with very fine trunks. The area is ideal for the establishment of a woodland garden and its development as such is part of a long term plan. For several

years now some of the larger growing species of Rhododendron such as *R. macabeanum, R. sinogrande, R. giganteum* and others have been planted with the idea that in years to come they will be sufficeintly large to stand out among later but quicker growing plants. Initially growth of these plants was slow, but they are now becoming established and improved watering facilities have resulted in much better growth. Group plantings of species such as *Rhododendron luteum, R. mucronulatum* and *R. yunnanense* are being put out in beds, but once established the grass will be allowed to cover around the edge of the group so that a more natural appearance is preserved.

The most significant happening in the development of the Woodland area was the transplanting of some 30 large camellias late this last winter. These camellias were all taken from the border near the administration block, where they were becoming badly overcrowded and some form of thinning had become necessary. There was no further room within the main part of the Gardens and so it was decided to transplant them to the Woodland. As most of them were from 6 to 10 feet in height, and some had a spread of up to 10 feet, this was no mean task. Firstly large holes had to be prepared and to facilitate things a tractor mounted post-hole digger was used. Approximately eight holes in a group were drilled, and then it was a comparatively simple job to hand-dig the holes to the required diameter and depth. These holes were 6 to 7 feet across by 3 feet deep, and cow manure and leafmould were worked into the bottom.

Preparing the camellias for lifting was not easy, as each had to be lifted with as large a ball of soil on the roots as possible. No advanced wrenching was undertaken, reliance being placed upon being able to secure a fairly complete root system, and adequate after-care. Once the plants were sitting free in their holes they were lifted on to a truck with the minimum of handling. Any undue handling would cause most of the light, sandy soil to fall from the roots. The method adopted was to loop a chain around the suitably protected trunk near the point of equilibrium, and by using a front-end loader as a crane they could be gently placed on the truck. So successful was this method that only three of the camellias lost much of the soil from their roots. The same method was employed to lift them from the truck into the prepared holes.

As the soil was being filled in around the root-ball leafmould and manure were worked in so that when new roots were put forth they would quickly take hold. For several weeks after planting we were very fortunate to have cool weather and frequent showers, and by the early spring they were well settled into place. Subsequent maintenance has consisted of watering to ensure that the soil does not dry out, and spraying twice daily over the foliage. In Christchurch's dry climate this latter is most important and should be kept up for from 2 to 3 months. With the exception of the three which lost most of their root-ball all have settled in very well and new growth is just commencing.

As these camellias were to be planted under the protection of large deciduous trees, the varieties chosen were, where possible, those which had flowers easily damaged by weather. Some of the whites in particular were very prone to weather damage. *Camellia japonica* 'Gauntlettii' seldom used to produce a good unmarked flower, but after being transplanted to the Woodland the quality of the flowers showed a marked improvement. The success of this operation gives rise to the thought that it is almost worthwhile overplanting borders in order to provide a continuing supply of advanced specimens for landscape planting.

SOME UNUSUAL PLANTS

A. W. ANDERSON, A.H.R.I.H.(N.Z.) (Timaru)

There are fashions in our garden plants, just as there are in cars, houses and garden design. The ever-changing taste means that many interesting species and varieties, which at one time or another were to be seen in every other garden, have fallen from favour and are seldom met with nowadays. This is inevitable, of course, but many are plants of great beauty and they still have an important contribution to make, because their colour or habit of growth can be of very real value in the form and texture of our flower borders.

I think it may be worth while to look back over the flower borders of bygone years and single out a few of the more outstanding plants that are as worthy as ever, although they may have to compete with a very different race of perennials. The mainstays of the modern flower border are still the day lilies *(Hemerocallis)*, the tradescantias, lupins and delphiniums, but they are very different from the old varieties that filled the borders of 50 years ago.

I am going to discuss some of my own favourites, although I must confess that I don't know, and never have known, what it is about a plant that makes me take a liking for one and an aversion to another which to the unprejudiced eye looks just as worthy of admiration. I have always admired *Macleaya cordata*, better known to the older generation of gardeners as *Bocconia cordata*, which is often listed as the plume poppy. I have never heard anyone call it that, and indeed there must be few members of *Papaveraceae* that look less like poppies than those feathery, buff-coloured plumes. But they are of only secondary importance. *Macleaya* is grown for the sake of its foliage, the handsome, roundish, heart-shaped leaves beautifully lobed, with prominent veins, and silvery white on the underside. It likes a deep, well-drained soil where it can send up its close-set stems up to 8ft high and provide a bold mass that blends perfectly with the tall things at the back of a flower border or in a shrubbery among azaleas or rhododendrons.

Tall Strangers

Very different is the tall *Centaurea babylonica* which, as its name implies, comes from the Levant. Like the *Macleaya* it deserves mention more on account of its aristocratic bearing and pleasing foliage than for the beauty of its flowers, although they are not unattractive. Imagine a

plant that gives you great mounds of leaves that are similar in both size and shape to those of well-grown docks, but are so silvery white that they appear to be made of aluminium and light up the whole border the summer through. Then the long slender flower stems appear, only an inch or two in thickness and, clad in white cotton, they tower away up to about 12ft or so. All through the summer they decorate themselves at intervals with the lemon-yellow flowers that look like those of a small sweet sultan. These flowers open in succession to keep up the interest over a long period.

The Chimney Bellflower, *Campanula pyramidalis,* may seldom reach half the height of the *Centaurea* but it is a worthy companion, the blue form going very nicely with the silver and yellow. It is not so elegant but is much more showy with its blue or white flowers close-set around the thick fleshy main stem and growing in such profusion as to hide it completely. Growing in a cool moist place *C. pyramidalis* lasts for weeks as its flowers open and make way for a fresh crop. If you give it conditions that it likes it may come up for several years, later growing only about 4ft high, but to get the best of it the plants should be treated as biennials and grown from seed every year.

While we are thinking of tall biennials we should not overlook the giant *Echium pinanina* from the Canary Islands, which is surely the tallest and lustiest of them all. It grows easily from seed and if these are sown in late summer it can do no more than form tufts of dark, strap-like leaves about 3in broad and 20in long. It will grow to 3 or 4 feet the following year, with a stem as thick as your forearm, and a healthy crop of foliage right down to the ground. Even at this stage it merits more than a second glance. As soon as the weather warms up the following spring it will shoot away and by October reach 16ft or even 20ft in height and produce thousands of small pinkish flowers. They are not at all showy, but the sight of this tall plant with its close-set masses of blossom all the way to the tip never fails to attract attention.

Some Smaller Kinds

We tend to think of the gentians as a race of small plants whose real home is in the rock garden, but there are some taller sorts that are worth growing in the flower border. The best is *Gentiana asclepiadea.* There are dwarf forms growing only about 6in high, but the best are about 2ft with arching stems that are well furnished with pale green, prominently-veined leaves. The flowers are of the conventional family pattern, blue bells, azure-blue wtih paler stripes and spotted on the inside with purple; they are borne in the axils of the upper leaves, up to a dozen or more to each stem. I am not very keen on white flowers but to my mind the white variety 'Alba', although smaller than the coloured form, is the more desirable, and a splendid plant for the front of the border.

Who grows the double White Rocket, *Hesperis matronalis* 'Flore Plena' nowadays? I haven't seen it for many years and yet it was one of the great favourites of my youth. The names 'violet' or ' matrons' herb ' have a long history in gardens. It was used by Roman matrons in some way to increase the flow of milk in the slave foster-mothers of their

Ostrowskia magnifica (see page 232)

offspring. The single kind, white or purple, is but a poor-looking single stock and has long since disappeared from gardens. There used to be double forms of both colours. The tall white, which could reach 2ft, was a lovely thing, giving off its fragrance in the cool of a summer evening. It lasted well and turned a nice flesh pink with age. I have heard of a smaller white, but have never seen it. There were also two forms of the double purple and, strangely enough, it was the smaller one, which we used to call 'Compacty', that was most attractive, with larger and better coloured flowers. Unfortunately the double rockets mean too much work for most modern gardeners because the massive spikes of blossom demanded a great deal of nourishment and the plants soon deteriorated unless they were carefully looked after. Nature had her own way of providing for the future with the double rockets which were unable to bear seed. She produced tufts of young growth at the base of the flowering stem which were a good source of cuttings that could be rooted and grown on for the next year.

Another old favourite that I haven't seen for many years is the Balm of Gilead, *Cedronella triphylla,* which was frequently seen in New Zealand gardens between the wars. It is a low shrub with pale wrinkled leaves and a profusion of purple flowers — one of those indulgent plants which emit a pleasing fragrance when bruised. How it came by its common name I know not. It is a native of the Canary Islands and can have had nothing to do with the Palestine of biblical times.

Sea of Glowing Flame

That is the description of a large bed of *Lychnis chalcedonica* in full flower and I can think of nothing else that gives the same overwhelming wash of colour, with the single exception of a mass of the oriental poppy, *Papaver orientale. L. chalcedonica,* the Jerusalem Cross, was already growing in almost every London garden in the days of Queen Elizabeth I when Gerard referred to its colour as that of 'red lead or orange-tawny'. This yard-high perennial is certainly worthy of more attention than it gets at present, and the double flowered form is especially good because the flowers last for several weeks, even in our dry Canterbury gardens.

The fact that the *Umbelliferae* play a very insignificant part in our flower gardens is a reminder that most of its 1500 members are poor and weedy. So many of them remind you of hemlock, or carrots running to seed, that their airy grace tends to be ignored. I have always liked the huge *Heracleum giganteum* on account of its large, pale-green spreading leaves and towering flower-stems that may reach 9ft and are surmounted by great lacy, compound umbels of white blossom, umbels about the size of an old-fashioned umbrella. It is out of place in the ordinary flower border, just because it is so big and so unlike anything else, but grow it in a shrubbery where it can do no harm, or by the side of stream or pond and its unique appearance can lift a featureless scene into something worth remembering.

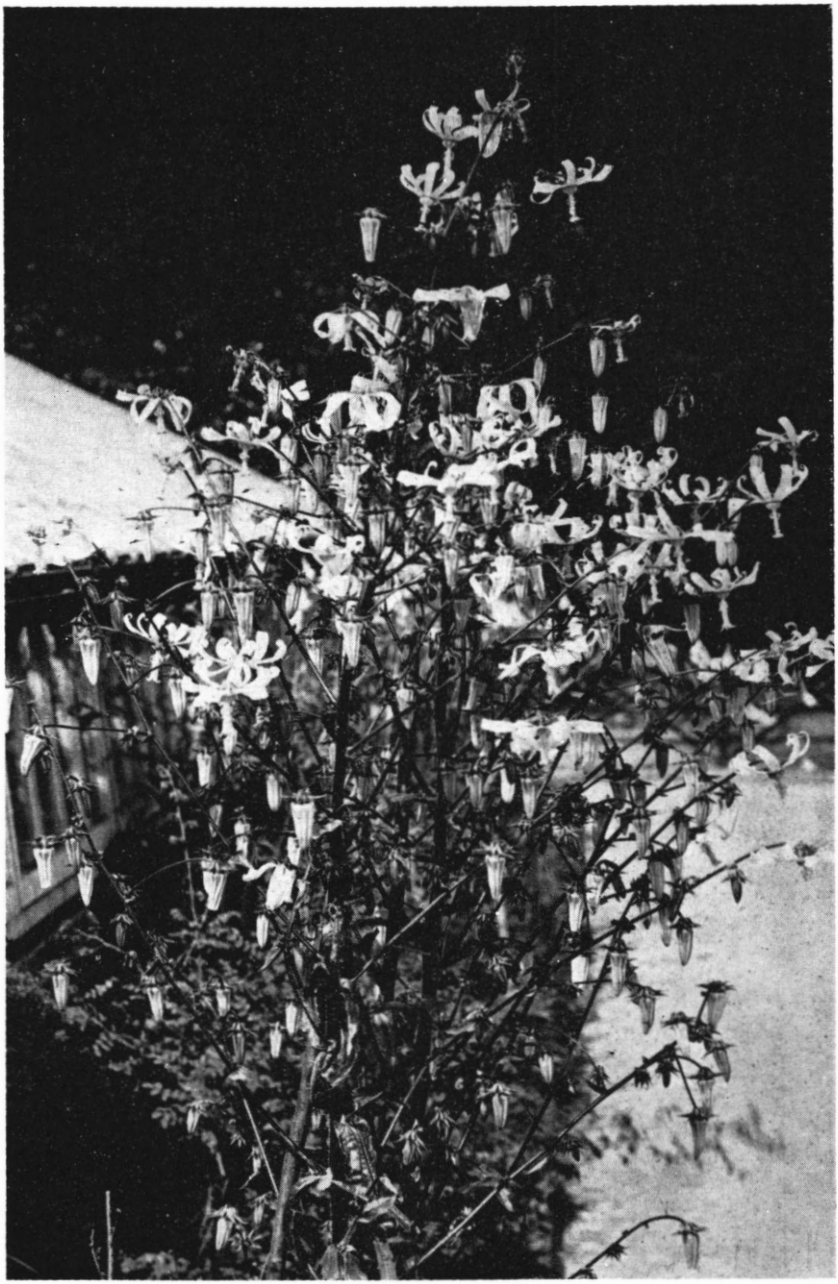
Another member of the family that deserves more attention than it gets at present is *Astrantia major*, ideal for a cool shady border where it will flourish with a minimum of attention. So far as I know there is nothing in our gardens that is quite like the pleasant 5-lobed foliage and its halo of blossom. Although rarely more than 2ft or so, the ornamental flower-heads with their collars of leafy green phillaries are full of interest. *Astrantia* should be raised from seed because there is always considerable variation in the colour of the flowers and, in my opinion, a mixture of white, various shades of pink and rose-red is much more attractive than any of these colours by themselves. It does seem a pity that when the species went in for a smell of some sort it should have lighted on one that reminds you of sour milk.

A Remarkable Pair

Seldom do we come across two plants belonging to different genera that are so similar that they are difficult to tell apart. As their names suggest, *Michauxia campanuloides* and *Campanula michauxioides* might be twins instead of distant cousins. The first is undoubtedly the better garden plant but the second is easier to grow and to keep, the *Michauxia* being 6 to 8ft high and the *Campanula* just about half that stature. In both the flowers are white or light blue with the corolla cut back so that the segments are reflexed like those of many lilies. They are distributed along the stems and branches and hang down to give a beautiful elegance to the plants.

Both do best in cool, semi-shady places but *Michauxia* has the same tiresome habit as the blue poppy, *Meconopsis betonicifolia*, of living two, three, or even four years, but gradually dwindling away all the time. It is best treated as a biennial and grown from seed every year. The *Campanula* is a true perennial, however. As I have said, the two are so similar that you have to look twice to know which is which, but *Michauxia* can, in fact, be recognised at a glance if you look for the appendages on the lobes of the calyx. When we grew the two I used to get much quiet amusement asking people why the two should belong to different genera.

The loveliest plant that ever came out of the Caucasus Mountains is *Ostrowskia magnifica* which would always be chosen as one of the leading members of a 'world's best' dozen. It, too, belongs to *Campanulaceae* and differs from *Michauxia* in the absence of sepal appendages and from *Campanula*, mainly in the pores of the seed capsules. Likened to a giant *Platycodon* with flowers 4 to 6ins across, it grows about 3ft high and the stems are furnished with attractive whorls. *Ostrowskia* is not an easy plant. It likes a warm, well-drained soil that is fairly moist during the growing season but dries up in winter. The reason is that the long tuberous roots cannot abide too much moisture. They will go down 2ft and are very brittle, rotting easily when injured, and so the plants, when once established, should be left severely alone.



Michauxia campanuloides (see page 232)

LUCULIAS IN NEW ZEALAND

W. R. SYKES (Christchurch)

The small genus *Luculia* has four species, two of which are grown fairly commonly in this country. As with a number of other cultivated shrubs belonging to the family *Rubiaceae,* the flowers are very fragrant. One has only to think of *Rondeletia, Bouvardia,* and *Gardenia,* to name but a few of the most well-known genera.

Luculia is a Sino-Himalayan genus and both our cultivated species are Himalayan. *Luculia gratissima* has been known for a very long time, 1816 being the date of introduction according to the *R.H.S. Dictionary of Gardening.* It is native to a large area of the central Himalaya, from Nepal to Bhutan. Because it grows in almost sub-tropical conditions, it will not thrive in the cold parts of New Zealand. It is grown in districts which do not experience severe frost, and the furthest south I have seen it growing is on Banks Peninsula, although it is reported from Timaru and possibly Dunedin.

The large heads of showy tubular pink flowers make it a very desirable plant. Recently cultivars with flowers of a deeper pink than normal have appeared. The *R.H.S. Dictionary of Gardening* says that it is deciduous, but in frost-free areas it is unlikely to shed all its leaves. Luculias generally must never suffer from waterlogging in the water, since in their natural habitat this is the dry season, the monsoon bringing the moisture in the summer.

Our second species is *Luculia grandifolia,* but this is seemingly always grown under the name of *Luculia tsetensis.* It was discovered in East Bhutan in 1933 by Messrs. Ludlow and Sherriff. A specimen of this plant appeared in the Palace Garden at Gangtok, the capital of the small neighbouring state of Sikkim. The secretary, or private secretary, to the Maharajah of Sikkim was a man named Tseten Tashi. He was interested in plants although not a trained botanist. He realised that this was a new, undescribed species, so he commendably sent samples of seeds to a number of countries, presumably as a goodwill gesture. He attached his own name to the seeds, hence the specific epithet "tset/ensis", although this name has no status because it was never connected with a botanical description. This was shortly before the Indian botanist B. N. Ghose formally described it as *Luculia grandifolia,* but the rules of botanical nomenclature say that the latter name is the valid one.

Ludlow and Sherriff introduced seed to England in 1950, but it is obvious from the size and appearance of some of the New Zealand specimens I have seen that seed must have come to this country before the early 1950s. I therefore feel that this is a further pointer to the fact that material came here a few years earlier, i.e. from Tseten Tashi in Gangtok.

Turning to the features of the plant itself, we find that it is in many ways a bigger version of *L. gratissima.* Ludlow, in the *Supplement to the R.H.S. Dictionary of Gardening,* states that it grows up to 20 feet high, but in view of my comments on climate mentioned above, I feel that it is most unlikely to grow as tall as this here. The largest specimen which I have seen grows in Tauranga and is about 10 feet in height. This is taller than any plant of *L. gratissima* which I have seen either in this country or in Central Nepal, the western end of its natural range. However, Mr. J. A. Hunter, of Auckland, tells me that there is no difference in height and that both species can grow to 12 feet or more according to the way in which they are treated.

The leaves of *L. grandifolia* are much bigger than those of the other species, up to 15 inches in length. The petiole and main leaf veins are more or less red. Again it seems that the plant is really deciduous but in New Zealand it often tends to retain many of its leaves in the winter in warmer districts. In both species a certain amount of colouring of leaves takes place in the late autumn.

The flowers form the main distinguishing feature. In *L. grandifolia* they are white, whilst as far as I know all plants of *L. gratissima* have flowers of some shade of pink. Botanically, the small flap-like processes at the base of the corolla lobes in *L. grandifolia* form a more important distinction. This would assume greater importance horticulturally, if as often happens with other plants, a white-flowered sport arises from the coloured species. It seems that *L. grandifolia* may be slightly hardier than *L. gratissima,* although it appears that the former also comes from an area where frost is unknown. I think, however, that many people here would say that it can tolerate a little frost. It would be interesting to have the two species growing together in borderline localities in order to see how much cold each would tolerate.

A final point of contrast is that whereas *L. gratissima* flowers in winter, *L. grandiflora* flowers mainly in the autumn, although it often commences in the summer.

PUBLICATIONS REVIEWED

PROCEEDINGS OF THE CONFERENCE ON HOME GARDEN IMPROVEMENTS (Published by Canterbury District Council, R.N.Z.I.H.; copies 5/6 each, post free, from the Secretary, Mrs. M. Banks, 38 Mersey Street, Christchurch 1).

This cyclostyled collection of papers presented and read at the Conference held at the Horticultural Hall, Christchurch, 26th May, 1965, contains authoritative information that must be valuable to all gardeners. To give a very brief impression of its scope, the opening, lecture, by Mr. S. Challenger, deals with the essentials of Garden Design. Aspect, soil, exposure, what to grow and other important considerations are dealt with in a clear and concise manner. It is an excellent introduction to what is to follow.

Mr. L. J. Metcalf advises on the Construction of Rock Gardens. In his lecture he covers all the essentials such as Choice of Site, Proportion, Balance, Simplicity (giving a wise caution to avoid too complicated a design), Prepara-

tion of Site, Construction. There are ways and means of encouraging quick mossing and weathering of quarried stone which are useful to know, there being insufficient naturally weathered stone to meet the demand. This is an excellent guide to rock garden construction.

Planting the Rock Garden is the subject of Mr. D. D. Riach's lecture which he covers well, pointing out the importance of considering the particular needs of the many genera and species and the importance of making a selection that will provide something of interest right through the year.

Water is a desirable feature in most gardens and Mr. D. Field, in his lecture on Water Features, shows how water can be used to advantage. The value of streams, marginal and aquatic planting, waterfalls, formal and informal ponds, ponds at various levels are features of a valuable contribution. A natural follow-on from the use of water is the subject of Fountains, which is covered in Mr. G. Armstrong's lecture. This is often simply passed over in many garden books but here it is dealt with in welcome detail.

Such essential garden features as sun shades, sun umbrellas, tables, chairs and the barbecue are covered by Mr. J. C. Taylor in a short but comprehensive lecture. Mr. R. Proctor's lecture on The Home Garden in Relation to the Street is an important aspect not considered as often as it should be. So many gardens are planned and planted from the house aspect with little thought of the street beyond blotting it out, on the score of privacy. Anyone following the points of this lecture cannot fail to be impressed with the importance, to say nothing of the neighbourliness, of considering the attractive appearance of a front garden for the benefit of the passer-by.

The Patio, given by Mr. D. A. Cowey, is covered thoroughly, historically and in relation to the modern garden, with due emphasis on that much beloved feature of gardens of all sizes — outdoor living space where, thanks to our climate, we can spend so much of our leisure time. Fences, Walls and Pergolas provide the subjects for Mr. G. G. Henderson's lecture. Here again their use in garden design is considered, also their ornamental as well as practical use. Construction, in each case, is dealt with carefully and the amateur who wishes to introduce any of these features to his garden will find all the information he will need to achieve his object.

The lecture by Mr. A. C. Morgan deals with the essential features of Paths, Steps, Garden Ornaments and Garden Lighting. The first two are essentials in many gardens, garden ornaments to a lesser degree, and garden lighting or illumination is a feature not found very often. Nevertheless, an illuminated garden can lend an exciting additional effect of spaciousness to a home after dark. But, if it is decided to illuminate a garden, it must be done well if it is to be done at all. I have seen some very beautiful effects from illumination, obtained by carefully obscured lighting, placed to give shadow effects and focus attention on certain features. I have also seen attempts made by quite obvious electric light bulbs that were too crude to be effective.

NATIONAL PARKS OF NEW ZEALAND. Illustrated in colour and with maps. Published by R. E. Owen, Government Printer. Wellington. Price 35/-.

This is a remarkably attractive book that possesses a wide appeal to all who love natural beauty. But, to appreciate it fully, the reader must, first of all, understand what is a National Park. It is also intended for the enjoyment of the people. A National Park may be described as a territorial reserve designed for the maintenance, judicious improvement and protection of indigenous flora, fauna, bird life and its own natural scenic beauty and character. A National Park is not to be confused with a botanic garden or a city park, both of which are governed usually by municipal authority.

In his foreword, Mr R. J. MacLachlan, Chairman, National Parks Authority, refers to the National Parks Act of 1952 which established this Authority as the overall administrative body. The story is told how New Zealand was one of the first countries in the world to establish a National Park. This was when the Maori leaders gave to the nation the nucleus of what was to become the

Tongariro National Park. That was in 1887, and now, nearly 80 years later, we can look back in retrospect and trace the formation and development of New Zealand's 9 National Parks. That is just what this book does in a thorough and interesting manner. These parks occupy a total area of 4,500,000 acres. They comprise mountains, valleys, glaciers, rivers, inland lakes and an attractively varied coastline. In these reserves a native fauna and bird life has its home, protected from any attempt at destruction. There is also what the late Lord Wakehurst described as our 'incomparable flora'. Certain sports are permitted within defined limitations, especially ice sports in season.

The National Parks at Urewera, Tongariro, Egmont, Abel Tasman, Nelson Lakes, Arthur's Pass, Mount Cook, Fiordland and Westland are described in fascinating detail. Each is accompanied by a map. The coloured illustrations, which exceed 100, many occupying a full page, portray vividly the individual charm of each park, although the caption to that on page 145 (Lake Matheson) appears to have been omitted. Included among these are some excellent examples of native birds and flora. So high is the standard of these illustrations that it is difficult to select outstanding ones—the Mokau Falls near to Lake Waikaremoana contrast with the Devil's Punchbowl at Arthur's Pass, the Arctic landscape of the Tasman Glacier with the hot springs at Ketetahi, and the fresh foliage of the forest along Ohakune Mountain Road with the rocky grandeur of Milford Track.

Much topographical detail is given, with means of access to these parks. Maori lore and legend and the early story of the pakeha settlers provide entertaining reading. The discovery, in 1877, by Walter Trail of 'fossilised man' at Cavern Head, Fiordland; the first ascent of Mount Egmont; Bidwell recording his impressions of his first sight of the fearsome crater of Ngauruhoe are just a few of the many incidents taken at random from the 158 pages of this book. The early botanists, Colenso, D'Urville and others, are quoted from time to time as reference is made to the native flora. The ornithologist, too, will find considerable interest in the references to birds and bird sanctuaries.

This book will be an inestimable guide both to the visitor from overseas and the New Zealand naturalist. It tells how to enjoy the New Zealand scene systematically and without missing detail. He is shown how to reach the various parks and, by a careful study of the information given, he will know what there is to see and how and where to find it.

CAREERS IN HORTICULTURE. Produced by the Canterbury District Council. (Published by the Royal New Zealand Institute of Horticulture (Inc.).

The production of this attractive and informative publication has been made possible by generous contributions from 21 firms and organisations. It is designed to encourage a greater interest in Horticulture as a career, and gives a clearly defined resumé of its many departments.

The cover design is based on Maori legendary lore, depicting the Sky Father (Rangi Nui) and the Earth Mother (Papa tu a nuku), parents of all creation. It is singularly appropriate.

The importance of Horticulture in New Zealand's national economy (almost £30,000,000 per year) is stressed, and it covers a wide field — stone, citrus, pip, berried and sub-tropical fruits, vegetables, tobacco, hops, grapes, flowers, bulbs, nurseries, and glasshouses.

Each section then deals with particular aspects of horticultural employment, indicating the scope of the work, the educational facilities available in that section and the desirable qualifications.

The success of Horticulture rests on the skill of the producer guided by the horticultural scientist. This automatically relies upon research and a very large field is covered here. Thus we have the grower, advised by the horticultural scientist, who is himself constantly in touch with world developments in horticultural science.

Economics in production of flowers, fruit, plants, bulbs for home consumption and export is another factor which demands a modern approach. Although yet in its infancy there are indications in certain progressive centres, that landscaping is influencing municipal development and there is a decided trend towards the preservation of natural beauty and the addition of suitable plants to relieve the deadlines of a preponderance of concrete and brick.

Distribution, internal and external, is another important feature which has a bearing on the economics angle. Then there is horticultural education where students can sit for degrees that will qualify them for various professional offices.

Overall this brochure shows New Zealand Horticulture to be a very live force. The variation of climate from Northland to the Bluff makes possible a very wide range of horticultural experience. The scope is enormous, but it can only be developed and expanded to its full capacity if there is a great response from those of the younger generation who desire to adopt one of the most fascinating and satisfying of all careers. On the last page are given addresses from which special aspects of Careers in Horticulture can be supplied under the headings Education and Examinations and Opportunities.

This booklet should be of great value to all who have the opportunity to guide young people in the choice of a career,and in particular it details the scope and rewards in Horticulture.

THE ALPINE RANUNCULI OF NEW ZEALAND, by F. J. F. Fisher, Department of Scientific and Industrial Research, Bulletin 165, 191 pages, 130 figures and plates (Published by Government Printer). Price £3/10/-.

In his *Flora of New Zealand* Dr H. H. Allan states: 'Our knowledge of the N.Z. *Ranunculi* is very defective and no satisfactory treatment is as yet possible. It is clear that genetic differences, habitat modifications and hybridism all play a part in the great diversity shown by many spp. and linking forms.' I am sure that all who are fortunate enough to read this book will agree that F. J. Fisher has done much to improve our knowledge of the *Ranunculi* found in the alpine regions of New Zealand. This is a masterly treatment of the subject which has involved long and painstaking research and few people will probably realise just how many years the author has been working on the subject. In the preface he modestly states that investigations on the subject began some years ago. However, Dr Fisher has been studying *Ranunculi* for approximately 17 years and his knowledge of them is quite profound.

The author starts by introducing the subject and explains his method of aproach to it. It is interesting to note that each of the species dealt with was extensively cultivated in an experimental garden so that continual and close observation of them was possible. This is a method of study deserving of wider attention by many taxonomic botanists. The affinities of our native *Ranunculi* with exotic species are noted, and then he goes on to explain the distribution and variation of the various alpine species throughout New Zealand. The different species are grouped according to the nature of their habitat, five groups being recognised. In this section each species is dealt with in turn within its group, and details of its habitat and distribution are given. Although the book is primarily a botanical work, there is a great deal of information in this section which will be helpful to those wishing to cultivate some of these beautiful plants. The great value in the information given is that it is written by somebody who is quite familiar with the plants as they grow in the wild and has also grown them.

In the third section of the book the author deals with patterns of variation and explains the problems of a botanist when confronted by a group of variable plants. How much variation does one permit within a species, how much is due to hybridism or habitat, and does the variation fit into a pattern? These are all questions to which he must seek an answer. One sentence in this section stands out from all others, it is 'One specimen can typify a name but many may be necessary to typify the taxon.' It is something which many of us forget, and Dr Fisher is to be commended for having applied this to his studies.

The final section consists of a taxonomic revision of the alpine *Ranunculi*. In it each species is dealt with in detail, its botanical description, citations, distribution, etc., all being given. With each is a list of herbarium specimens examined by the author together with the locality of collection and one cannot help but compare this with the usually very brief and inadequate distributions given in the *Flora of New Zealand*. Hybrids between the various species are also dealt with in detail.

Throughout the whole book there are excellent maps and line drawings by Keith West which add considerably to its value. The maps show at a glance the overall distributions of the various species, and how related species may, or may not overlap. Line drawings of foliage types with each map completes the picture. The line drawings of the individual plants show detail which is not always apparent in a photograph, and they prove that there is still a place for this type of art. A few photographic illustrations are included and it is a pity that on the whole they are not of the same high standard as the rest of the work.

Dr Fisher is a self-styled 'lumper' and probably not everybody will agree with some of the decisions. He has reduced some 21 species and several varieties as listed in the *Flora of New Zealand* to 14 species and one or two sub-species. However, this is probably better than being a 'splitter' and creating numerous new species, sub-species, varieties and forms out of each geographical variant. One of the most pleasing features of the work is the easy-to-read style in relatively plain language and the absence of unnecessary scientific jargon which often makes works of this nature very dull reading.

This is a botanical work of high quality and will be of great interest to all botanists, and to people of botanical inclination who are interested in the alpine flora of this country. Although it will not find a place in the library of the average horticulturist, there is nonetheless much information in it of value to growers of alpine plants who are keen to grow some of the gems of New Zealand's alpine flora. It is perhaps a pity that the author did not monograph all of the N.Z. *Ranunculi*, but then this would only have delayed the work still further and added much to the cost of publication. We can only hope that the author will be able to continue with the rest of the genus and that his work will be of the same high standard.

KNOW YOUR TREES AND SHRUBS, by Richmond E. Harrison and Charles R. Harrison (Published by A. H. and A. W. Reed). Price 63/-.

In their introduction, the authors state that the purpose of this book is to provide 'a pictorial work of reference, illustrated in colour to make identification simple'. The book is most noteworthy for its 144 pages of coloured illustrations taken from photographs and numbering 583 different varieties and species of trees and shrubs. It was printed in Japan.

Most of the illustrations serve the purpose for which they are intended. Particularly outstanding are really excellent reproductions of *Banksia* (12), *Camellia* (22), *Erica* (28), *Grevillea* (13), *Leucadendron* (4), *Leucospermum* (7), *Protea* (16), *Rhododendron* (14) and a wide selection of those African and Australian genera that do so well in New Zealand. Each illustration is accompanied by a note giving outstanding features, a guide to likely height and a code reference to degrees of hardiness. The authors indicate that these descriptions are necessarily brief and refer readers to Mr R. E. Harrison's *Handbook of Trees and Shrubs for the Southern Hemisphere* to which the volume under review forms an appropriate supplement. The main points for criticism are the density of some of the illustrations, particularly where there is purple foliage, although *Prunus cerasifera* 'Nigra' (no. 476) is clean and clear. On the other hand it is difficult to understand how the illustration of *Dodonaea viscosa* 'Purupurea' (no. 187) came to be included, so inferior in quality is it to the others.

In a note 'On Taking the Photographs' the authors refer to the difficulties with which they were faced when dealing with flowers involving a wide colour

range. Special reference is made to the difficulties offered by blue flowers. Yet, strange to say, these appear to be generally satisfactory, although the hybrid *Ceanothus* x *delilianus* 'Marie Simon' (on. 126), which is actually a soft rose, appears as a soft blue in the illustration. Some subjects, such as *Forsythia* 'Arnold Giant' (no. 256), *Hypericum leschenaultii* and 'Hidcote' (nos. 305 and 306) are too pale and lack the intensity of rich gold that makes them so outstandingly attractive. *Metrosideros excelsa* (no. 393) has a brownish dullness that does not do justice to one of our most colourful natives. Had these been up to the same high standard as the other illustration there would have been little but praise for this book. Perhaps, in a later edition, these faults can be remedied.

The literary portion of the book is necessarily brief and for full information concerning the plants illustrated and many others, numbering over 2000, the reader is referred to Mr R. E. Harrison's well-known handbook, to which reference has already been made. Nevertheless, there are very helpful sections dealing in a very practical manner with such subjects as hardiness, cultivation and other essential matters, with particular reference to azaleas, acacias, rhododendrons, camellias, ericas, grevilleas, eucalyptus, proteas. There is also a special note on shrubs with variegated foliage. As with Mr Harrison's previous books, considerable care has beeen taken with nomenclature.

May we hope at some future date to see published a companion in colour to supplement Mr R. E. Harrison's earlier *Handbook of Bulbs and Perennials for the Southern Hemisphere.*

DISTRICT COUNCIL REPORTS

WHANGAREI

Ruarangi (A Botanical Survey)—

During February of this year a party of archaeologists from Auckland University, under the leadership of Mr. R. Oppenheimer, Social Anthropologist, was working in the Ruarangi block, the site of a once large and thriving Maori pa, and of extensive burial caves. We visited the party, and the fact that the area includes a wonderful limestone outcrop prompted me to suggest a botanical survey, and so it was arranged. To obtain our permit from the Maori Land Court it was necessary for us to be "attached" to Mr. Oppenheimer's party, and also to visit Mr. Pitman, the Maori Warden, to tell him of our intentions and to receive his blessing on our project. The Whangarei Transport also gave permission to cross their land, and a key to open their gates on Sunday.

Our party consisted of Miss Marguerite Crookes, M.A., of Auckland, N.Z. authority on ferns, Mr. C. Devonshire, Mr. O. Blumhardt, Mrs. U. May and Mrs. W. Reynolds.

Weather conditions were ideal and we recorded 96 species of New Zealand plants. Quite naturally there were several introduced plants but we did not record these.

The whole area is interesting and very beautiful. The grandeur of the limestone formation is a landscape artist's dream, especially where, out of reach of cattle, the great rocks are crowned with the splendour of ferns and astelias. From the ridges the area commands a magnificent view of Whangarei Harbour, Whangarei Heads and distant islands beyond. On a clear day Little Barrier is visible. Unfortunately, cattle and opossums browse the area, and, we think, it is because of this that we did not see certain species we expected to find, e.g., *Asplenium lamprophyllum,* a fern on the forest floor, some of the ratas, particularly *Metrosideros carminea.*

Carmine Rata, which often grows on limestone rocks and *Elatostema rugosum,* parataniwha, near the creek. We judged the area to be fairly heavily infested with the opossum pest. On the other hand we were surprised to find *Phormium*

tenax, flax, and we think it likely that this species was planted during Maori occupation, and has survived. Kowhai *Sophora microphylla,* which is very abundant, presents an interesting problem for study. There are large and small-leaved types, and erect and divaricating juveniles. An area that has been burnt, or cleared, comparatively recently is coming back almost entirely in coprosmas and presents a strange appearance. *Coprosma arborea,* 20ft - 25ft, forms the canopy, with *C. arborea, C. spathulata* and *C. rhamnoides, C. areolata,* all about 3ft to 4ft, as a thick undergrowth. Altogether, we had a most interesting day, and feel privileged to have seen such an area before its glories bow out in deference to the juggernauts of progress, for the limestone is of high quality, and essential in the making of cement. Alas!

Ruarangi would make a mangnificent scenic reserve and site for a botanical garden for the city of Whangarei.

The Growing of Orchids—

Mr. Waterhouse, F.R.I.H.(N.Z.), a very well-known grower of plants in pots, a form of gardening in which he specialises, and among which orchids are in considerable numbers and species, gave members helpful information regarding his hobby at the June meeting.

Mr. Waterhouse said there could not be any simple explanation of orchids since there were so many kinds and such large numbers which were found in almost every part of the world except in the polar regions. There were over 500 genera belonging to the large family *Orchidaceae,* which containued over 15,000 species. It could be readily realised that the same treatment could not possibly apply to members of such a large and diverse family.

The first mistake made was to think that orchids came only from the tropics. Though many did live in the tropics there were many others which came from temperate regions, and amongst these were some which could be grown outdoors or in the simple protection of a lathe-house. In New Zealand alone we have over 70 orchids belonging to 21 genera. In the tropical forests with their great density of vegetation, orchids find these conditions very congenial, and find homes both high up in the trees or low down. Those which perch on any part of tree are called epiphytes, and those which grow in the ground are terrestrial. In the tropics many grow on rocks, but owing to the density of the vegetation few grew on the ground, but in New Zealand many were terrestial.

Orchids were characterised by many special adaptations of form, colour or scent which enabled them to survive under special condition and to reproduce themselves in adverse circumstances, The form of the flower was irregular, often gaily coloured or noticeably scented. In the epiphytic species roots were long and widespread in order to gather minerals and other foods from the air. Thus they were able to survive and maintain the strength and energy needed for seed production. The main purpose of all plants was to reproduce their kind. Methods of reproduction differed, and petals were so shaped that a bee or other insect entering carried pollen from the anthers to the stigma. Most orchids were hermaphrodite, that is they contained both male and female parts in the same flower, the large lower petal or lip was out-thrust and so made a good landing place for the bees.

Besides these aids, certain plants resembled the insects they needed to attract. The bee orchid attracted bees by its scent at certain seasons, and the wasp orchid not only looked like the female wasp, but at certain seasons had the same odour. Of the many, perhaps thousands of seeds set, possibly only one germinated and reached maturity.

Different methods were used to maintain existence. Most orchids produced pseudo bulbs (also called back bulbs) and these had the ability to store food for the plant. *Cymbidium* bulbs were typical. Orchids always grew forwards and, when planting, plenty of room should be left at the front of the pot. The back bulb lives until all the nourishment it stores has been used up.

Orchids are not easy to grow from seed, so that one wonders they ever grow in nature. One must pollinate them artificially, plant the seed on a sterile medium and supply the appropriate catalyst such as Vitamins B and C. This is one reason why orchids are expensive.

Propagation by division is much easier and in so doing exactly the same plant is obtained. Few seeds produce plants which are the same as the parent. Cymbidiums divide easily, or take the back bulb and it will throw shoots if in a suitable medium.

In the tropics 7,000ft to 8,000ft is really equivalent to the temperate zone as far as warmth is concerned, but all orchids have an optimum temperature. This can be ascertained by study and observation. The very tropical *Phaelaenopsis,* which is the national flower of Malaysia, needs heat and humidity. It is easier to grow those which stand temperatures between 32° and 80° but those which require higher temperatures give trouble. *Odontoglossum* grow easily in a medium temperature. *Cymbidium* grow easily, do not require glass and should be put outside in summer time. The growing time for orchids is after the flowers are gone. They then need plenty of light and nourishment.

Oncidiums can be grown on a piece of bark. All epiphytics require medium fern fibre moss and peat with plenty of sand. Dicksonia fibre was generally used, and a little liquid fish manure from time to time. *Dendrobium nobile* was a favourite, also the scented Australian *D. kingianum* which grows on rocks. *Coelogyne cristata* was no trouble in shade and on fibre. *Cattleya* were good under bush house conditions and popular with florists. Vandas required tropical conditions and needed heat.

Terrestial orchids such as *Bletilla* could be grown in the garden.

Cypripediums were also terrestial but were indoor plants and knowledge was necessary for success. *Epidendrums* were easily grown outside, but should have protection from frosts.

Coelogyne asperata, a perfumed and pendulous type, was best in a basket, others could be grown on rafts, flat pots or ordinary pots.

Mr. Waterhouse then showed a number of colour slides of his orchids, a proof, if such were needed, of his knowledge and skill in growing such beautiful specimens and an incentive to members to take up an exciting hobby.

Toe-Toe-Kakaho *(Cortaderia* toe-toe)—

The New Zealand landscape is graced with many handsome grasses and sedges, some of which could well find their way into planned plantings in private gardens and in parks. One of the most notable of these is Toe-Toe-Kakaho, *Cortaderia* toe-toe. Until recently this was known as *Arundo conspicua* — how pleasantly this name rolled off the tongue! However, botanists now consider it to belong to the genus *Cortaderia* and have further divided it into three species — *C.* toe-toe, *C. richardii* and *C. fulvida,* the difference in the species being a fine botanical distinction in the flower structure.

Our New Zealand species are endemic and belong to a small genus of about 12 species, dispersed throughout most tropical and warm temperate zones.

Cortaderia toe-toe is found in North, South, Stewart and Chatham Islands, in damp lowland situations, on fixed dunes — see it this spring at the toheroa beaches where it is a good sand binder — ond on sea cliffs. It grows at Busby Head, Smugglers Bay and Bream Head. One of the highlights in my 'memories of beautiful things' is the sight of Toe-Toe-Kakaho at the Poor Knights, its creamy, feathery plumes outlined against grey rock and blue sea, and with numerous brilliant green kakariki, native parakeet, feeding on the seed heads.

A plant more familiar to most New Zealanders, perhaps, is the introduced and now well-naturalised pampas grass, *Cortaderia plumosa,* toe-toe's brother of the American plains. The morning paper recently featured this palnt in a

fine picture but named it wrongly as toe-toe, a common and quite understandable mistake. Pampas has made itself very much at home and is both useful and beautiful as a farm shelter belt-cum-fodder-plant, and, in clumps, as an outdoor piggery.

In Whangarei it 'escaped' from one or two early gardens, where it was grown as an ornamental, and soon colonised vast areas, particularly of reclaimed grounds. This ability to establish on solid, wet, in hospitable, often salt-laden soil, is a useful attribute. For many years it was a source of revnue for the Harbour Board and sold as Townsend's grass. It flowers in the autumn, and at that time is a wonderful sight. The colour range of the great feathery panicles is fascinating, including all shades from cream, pale green, varying shades of pink, smoky greys and brown, some almost with a hint of purple.

Tote-toe-kakaho flowers at a different time, in the spring and early summer. The creamy panicles are more slender and gracful, arching, not upright. It was known in Maori legend as the fairy child of Tane and the ancient goddess Ngaore, and was used in ceremonial in the Whare-Kura. In ancient times it was used to strain tutu *(Coriaria)* berries, for the juice of these was a delicacy, the seed poisonous; it was used, too, in the making of 'bread' from raupo pollen. The leaves were used in the thatching of the whare and the very enduring stems for beautiful panelling. I understand that pampas is not suitable for this, not having the lasting quality.

The Maori name toe-toe is applied as a prefix to the names of several grasses and sedges; it is the kakaho that specifies that it is the plant *Cortaderia.*

Similarly we need to distinguish between Toe-toe-Kakaho, *Cortaderia* toe-toe, the Tangata-Whenua, and Pampas, *Cortaderia plumosa,* the stranger. Remember: spring flowering toe-toe with arching plumes; autumn flowering pampas with upright plumes.

In July the Display Table provided items of interest to the experienced grower as well as to the beginner.

A Ming Tree grown by Mrs McMillan was one of the most unusual exhibits. It was a tiny yellow-leaved conifer growing in a flattish container, watered once weekly and given once a year rinsings of a milk bottle — decidedly *not* a Plunket baby.

Long stems of *Chaenomeles,* 'Falconet Charlet', were shown by Mrs Sanson. This is quite the best of the flowering quinces, with double two-tone blooms of pink and cream. They are best in an open sunny place and like some lime. *Pieris japonica* also came from Mrs Sanson. It does not like lime and is good in association with other lime-haters such as camellias, rhododendrons and ericas. *Hypocalymma robustum,* a lovely West Australian shrub related to tea-trees and ratas, was grown by Mrs May. Its long flowering habit was confirmed by its second appearance after a month of bloom and by the abundance of unopened buds. A choice plant for light soil, sunny and well drained.

A very attractive bulbous plant from South Africa, *Dipidax triquetrum,* also from Mrs May, is a useful plant for a wet place or in shallow water, enjoying the same conditions as *Schizostylis* and *Montbretia.*

Tall mauve sprays of *Moschosma* came from Mrs Martin's garden. A plant for any sunny sheltered place, a welcome winter flowerer. From the same garden several camellias, including 'Czar' and 'Cho-cho-san', were shown. Some very beautiful blooms of *Michelia doltsopa* also came from Mrs Martin's garden. This large shrub or small tree, a fairly newcomer to our country, is a close relative of the *Magnolia* and its waxy cream flowers in late winter and early spring are a good addition to our winter flowering shrubs. A good average soil and some shelter from the worst winds ensure good growth and abundant blooms.

In September the display table always earns praise from our members and, as our chairman said in his annual report, is one of the highlights of our meetings and a good method of giving information to gardeners — new or old.

The September table was no excepton and contained many interesting specimens. A collection of azaleas from Mrs Wright's garden was diverse in form as well as in colour, and some frilled types were especially attractive.

They enjoy good cool soil, an abundance of moisture and a good mulch during the summer and autumn. Prune after flowering. Several crab apples also came from the same garden.

Rhododendron virgatum, a lower growing compact plant with lovely blush pink flowers, was shown by Mr Blumhardt who also brought several of the species of *Chaenomeles*, flowering in spring or late winter. These enjoy a little lime, as do the flowering apples, and produce more bloom if it is given.

A large and beautiful spike of *Cymbidium* was shown by Mr Waterhouse. Two leucospermums, both salmon pink, came from Mrs Sanson's garden. They were *L. bolusii* (perhaps the handsomest of the species) and *L. nutans* — the nodding one. Both resent poor drainage. *Bauera sessiliflora* from Australia does well in our climate in half shade. It must be pruned after flowering to keep compact and will then bloom profusely. The white *Adenandra uniflora* is a very desirable and showy South African and a better doer than its sister plant *A. fragrans*.

SOUTH CANTERBURY

At a recent meeting members were very interested to hear about many unusual plants photographed by Mr Tom Palmer during his visit to England and the Continent. Included was a blush-pink *Lapageria* which would be a useful acquisition here in South Canterbury where the lapagerias do so well . . . planted in deep, rich, cool soil, where it can twine up a bamboo rod and into the branches of a deciduous tree, it will soon festoon the twigs with waxy trumpets.

Members were impressed with the wonderful variety of delphiniums growing in the trial grounds at Wisley.

The month of September is notable here on account of the *Erythronium* species to be seen in so many gardens. Early in the spring the first buds of *E. dens canis* unfold from attractively marbled foliage. *E. tuolumnense* soon follows with its taller stems of yellow blooms. A well developed corm of this species can produce twenty blooms to a stem and appreciates extra potash in the soil. These are followed by the creams and lemons of *E. citrinum*, *E. californicum* and *E. oregonum*. This last is a particularly well poised and beautifully marked species.

A most graceful one is *E. hendersonii* with reflexed lavender petals and violet centre marking. This one is extremely slow to increase.

E. revolutum — a rose pink bloom with mottled foliage needs more moisture in the soil than some of the earlier flowering ones.

E. tuolumnense and *E.* 'White Beauty' have been used as parents of some very vigorous hybrids, notably 'Pagoda' and 'Kondo' which have flower stems of about 1½ ft.

One of the last to flower is *E. grandiflorum*. The scape of this species carries one or two flowers of lemon yellow. This one increases by seed only, not by off-sets. The seed takes about five years to produce flowering sized corms.

These dog's tooth violets are excellent plants to grow near to deciduous shrubs so long as they have a well drained, cool, leafy soil. The contractile roots pull the corm deep into the soil making them hard to shift but in any case they must not be left out of the ground for any length of time, or they quickly soften and lose their vigour.

SOUTH TARANAKI

The coastal town of Patea was the venue for a circuit meeting of the South Taranaki District Council on 24th August last, when over 70 members and friends were welcomed by the President, Mr R. Syme, A.H.R.I.H.(N.Z.).

Appropriately, the subject chosen for the evening's talk was 'Plants for Exposed Coastal Situations' and the speaker, Mrs F. H. Symes, of Manutahi, displayed blooms from her extensive garden of flowering shrubs. Showing leucodendrons, proteas, banksias, wattles, grevilleas, leucospermums, ericas, etc.,

in variety, Mrs Symes produced a wealth of material with which to emphasise her points; and she answered a number of questions regarding the care and cultivation of plants she grew so successfully in exposed positions in her rather sandy soil. The thanks of a very interested audience were voiced by Mr R. D. Chamberlain, F.R.I.H.(N.Z.), Hawera.

Numerous other specimens from a well-stocked bench were named and discussed by Mr Syme and interest was added by a demonstration of Floral Art by Mrs J. B. Mills of Manaia. During the evening, interest was roused by the circulating of a list of 20 plants which had been submitted by the sub-committee for the Award of Garden Excellence. Gardeners in different districts within the area were invited to append their comments, and many varied opinions were expressed.

The serving of supper brought an interesting and informative meeting to a close.

Arbor Day. On 4th September a number of Institute members joined in the local celebration of Arbor Day when a planting was made at Naumai Park, Hawera. The occasion marked the beginning of the planting of Magnolia Dell, envisaged several years ago when the felling of large pine trees began the clearing of a suitable area. Later in the morning, a planting also took place at the new entrance of the Turuturu-Mokai Reserve. This historic place, a battle-ground of warring Maori Tribes of long ago and more lately the scene of a Maori-Pakeha battle, has recently had a new entrance made. This has been adorned by two pillars of split stone and in one of these, on this cold and blustery Arbor Day, there was unveiled a copper plaque in memory of the late Mr S. G. Larcom, by whose generous will horticulture in Taranaki has benefited so greatly.

The evening of 27th September saw an attendance of over 80 welcomed by Mrs J. S. Hickey, F.R.I.H.(N.Z.), at Opunake, another seaside town. Here, too, Floral Art was demonstrated, on this occasion by Mrs T. Pickett of Opunake, who made 6 attractive arrangements of various types, describing her materials as she worked and discussing various points regarding colour, line, choice of material, etc. Thanks were expressed by Mrs N. V. Anderson, F.R.I.H.(N.Z.), of Mangatoki, and a large number of bench specimens were identified by Mrs C. Macalister of Kaponga.

Delightful and unusual slides of part of a recent trip overseas were shown by Mrs T. Holdem of Awatuna who chose as her subjects 'The Floating Gardens of Kashmir', 'The Window Boxes of Oberammergau' and 'The Redwoods of California'. In the Indian section, fascinating slides were included showing tea-growing terraces in Darjeeling and a dairy farm and piggery high up in the mountains.

Hints of the growing of fuchsias and their propagation were given by Mr R. W. Barry, F.R.I.H.(N.Z.), Hawera, and samples of suitable shelter plants for Opunake were shown by Mr R. Syme, Hawera, with a variety of specimens of pohutukawa, *Corokia,* karo, *Olearia, Senecio,* koromiko, and many others. The planning of a trip to Pukeiti Rhododendron Reserve and the serving of supper concluded a most enjoyable meeting, the last circuit meeting of this district for this year.

WAIKATO

In 1948 several horticulturists in the Waikato met in Hamilton and decided to form the Waikato District Council of the Royal New Zealand Institute of Horticulture (Inc.). The late Mr M. C. Gudex was elected President and much of the subsequent success of the Council was due to his efforts over the years.

It was desired that some form of permanent memorial be established to mark his outstanding contribution to the Waikato. So a meeting was called in Hamilton recently of representatives of all the many organisations with which Mr Gudex had been associated. It is an impressive indication of his wide

interests and the esteem and respect in which he was held that fourteen societies and organisations were represented at the meeting. Mr H. M. Hammond, a founder member of the District Council, was elected as its chairman and Mr R. T. Fear, the present President of the Council, as secretary-treasurer.

Various forms which the memorial could take were discussed. Eventually agreement was reached on a plan to develop an area of land near Cambridge, which it is hoped will be called the Gudex Memorial Park. This area is of about 7 acres in extent and is known at present as Sanatorium Hill, and forms part of the Mangakawa Scenic Reserve, situated about 6 miles from Cambridge. The Scenic Reserve itself covers 129 acres, being administered by the Commissioner of Crown Lands, who has agreed to the development of the 7 acres for the purpose proposed. During his lifetime Mr Gudex was a member of the Scenic Reserve Board, and it is felt that a permanent commemoration of his work as envisaged would be most appropriate.

The present Scenic Reserve Board was set up by the Commisioner of Crown Lands. It is composed of representatives from the Department of Lands and Survey, County and Local Councils and the R.N.Z.I.H., the latter being represented by Mr R. T. Fear.

The location of Sanatorium Hill is central to a large area of the Waikato and, from it, extensive and pleasant views are to be seen. Looking over Lake Karapiro to Maungatautari is a view typical of this district, and on a clear day Ruapehu is visible. The rainfall of the area is fairly high, and it should prove a most suitable place in which it is eventually hoped to plant a wide selection of native and exotic trees and shrubs. Already in the Scenic Reserve there is an extensive selection of native plants growing in their natural habitat.

The fund established will be used to develop the 7 acres in association with the Scenic Reserve Board, and it is hoped that eventually an outstanding memorial worthy of Mr Gudex will be established.

Appeal for Bequests

For the past 40 years the Royal New Zealand Institute of Horticulture Inc. has encouraged the improvement of every branch of Horticulture in the Dominion. It has been unsparing in its efforts to preserve our native flora. By its annual examinations, carried out by fully qualified examiners, it ensures a very high standard of efficiency among the younger generation of horticulturists, on whom will depend the maintenance of the beauty of our land, in town and country.

These and other objectives of the Institute, entail a high annual expenditure, and it is suggested that New Zealanders who have the beauty of their country and progress of horticulture very much at heart might care to give financial assistance by a bequest, which might be worded as follows:

'I give and bequeath the sum of £...../...../..... to the Royal New Zealand Institute of Horticulture Inc., and I declare that the receipt of the Treasurer for the time being of the said Institute shall be a complete discharge to my executors, for the legacy hereby given to such Institute.'

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