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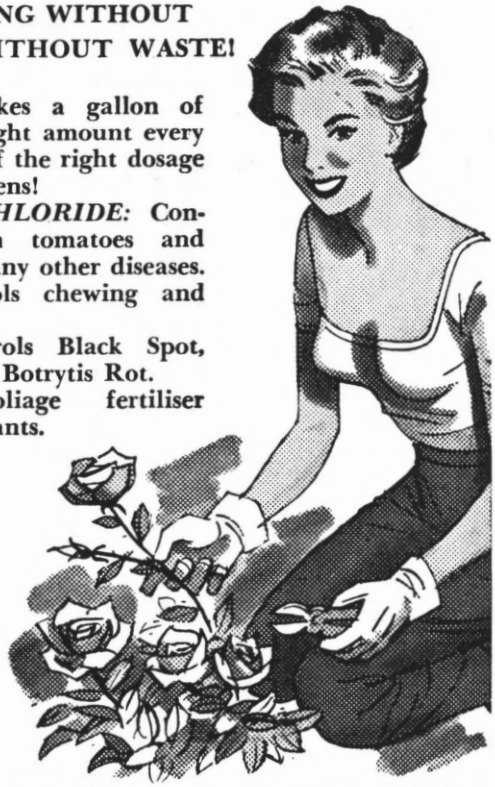

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NEW ZEALAND PLANTS AND GARDENS

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Volume 2. JUNE 1957 No. 3.

PLANT BREEDING

The wealth of plant genera collected by plant hunters over the past century and a half has been enormous. Its impact on gardening throughout the Western World has been revolutionary. Its influence has been twofold. Hardwooded genera, in particular, have, in themselves, been valuable from the aspect of the garden landscape. Some, especially rhododendrons, have provided considerable scope for the plant breeder, although, in this respect, the perennial and bulbous genera have provided the greater mass of material.

Observation over a period of forty years has given a good indication of the periods of evolution through which a plant passes on its journey from its wild state to the more sophisticated forms that have been born from cross-breeding. After the first generation from the mating of its wild parents has flowered, variations usually begin to take place. These often give the first indications of future possibilities. It is at this stage that the imagination and knowledge of the raiser comes into play. If he is guided by wisdom his foresight will guide future developments along desirable channels. If he regards as being desirable any seedling that is merely different to, without being an improvement on others, he will soon find himself in deep water. The wise breeder, by careful selection, discarding any seedling that does not conform to that standard of excellence he will evolve progressively, and by working along clearly defined lines, is likely to meet a fair measure of success. But his most difficult period will lie ahead.

The time will eventually come when the standard of excellence will be so high as to render improvement on existing varieties extremely difficult. The plant breeder must be an idealist, and not permit commercial interest to dictate policy. He will continue to limit his selection to desirable mutations or the rare appearance of a seedling of distinctive merit. He may even turn his attention to the development of another genus.

There are certain instances where a new seedling, closely resembling an older variety, can be useful. It happens, occasionally, that a variety of rose, chrysanthemum, carnation, dahlia or other genus that lends itself to intensive propagation loses its stamina and degenerations sets in. This is often due to too intensive propagation and a variety is said to have "run out" or to have exhausted itself. If this variety

possessed a desirable character, not found elsewhere in an existing variety, there is every justification in introducing an identical seedling under a different varietal name, provided it possesses stamina. It is merely a case of "Le roi est mort! Vive le roi!"

New Zealand plant breeders are in their very early stages. Some have achieved a success that verges on the spectacular. They enjoy a climate where results from their work can be developed rather more rapidly than elsewhere. Selectivity must be severe. We are nearing the time when there will be a definite need for specialised floral committees, working from a central organisation, to adjudicate upon new varieties of merit.

GEORGE A. R. PHILLIPS,
Editor.

SPRING, 1957, IN BRITISH GARDENS

WILL INGWERSEN (England)

These words are written on the eve of another Chelsea Flower Show, the horticultural "event of the year" for British gardeners. One Chelsea has a way of looking very like another and only the keen observer is able to pick out the new or different plants which appeal to the enthusiast. The spectacle, however, is always magnificent, and never palls, however often it has been seen. This year, owing to the curious season, it may well be that some of the exhibits will wear a different face. If the Editor thinks it a good idea I propose to make Chelsea Show the subject of my next contribution. I shall be, as usual, deeply involved from its beginning to the finish on Friday, May 24th, and it will be, I think, of interest to gardeners on the far side of the world to read of this, the greatest of all spring flower shows.

The winter through which we have recently passed has been one of the gentlest I can remember, with very little frost, almost no snow at all, and no extremes of rain or drought. These ideal and most unusual conditions persisted until early March. February had been wetter than usual, but not alarmingly so, and we began to think that we were passing from a wonderful winter into a perfect gardening spring.

In March it became dry, and no rain fell in measurable quantities until nearly the end of April, and the country was swept by unceasing searing east winds. Growth on many plants was extremely precocious, and soft tips suffered not a little, and there was an immediate check to the progress of plants already weeks ahead of a more normal season. Frosts have not been severe, but one or two nights when the thermometer fell low enough to register 10 degrees F. of frost at 4 feet from the ground did a certain amount of damage. Those who had been so incautious as to plant out their dahlias and a certain number of bedding plants, paid the price of their temerity, and early potatoes were blackened.

I had been able to enjoy a display of early flowering dwarf rhododendrons which surpassed anything I can previously remember.

So often we are visited by calamitous frosts early in the year which blast the expanding buds of such species as *R. williamsianum, R. ciliatum, R. pemakoense, R. nitens* and many others. This year they all covered themselves with such a multitude of flowers that the plants were, in many instances, completely obscured by the brilliant blossoms. That splendid shrub, *Pieris forresti,* was a feast of vivid colour for several weeks, every young tip was dyed with scarlet. We were able to enjoy these pyrotechnics until a fortnight ago, when one night of frost, followed by a day of brilliant sunshine and biting east winds, burned every luminous shoot to a shrivelled horror.

The taller hybrid rhododendrons, and many of the species, as well as the colourful azaleas, have all flowered weeks earlier than usual, and it is probable that Chelsea will be robbed of some of its glory this year since many of them are already finished. Tulips, too, which are normally persuaded to hang on for the Chelsea week only by dint of great skill and artifice on the part of the growers, will almost certainly be over too soon unless there has been even more use made than usual of cool storage during these preceding weeks.

Every year I seem to find cause to abandon some cherished idea about gardening or plants. As I grow older it becomes increasingly obvious that, to be a good gardener, one must possess an immense tolerance and must be alert not only to new ideas, but the advisability of regarding with more than a measure of suspicion, principles which have come to be firmly accepted and are regarded as unalterable dogma.

The summer of 1956 as experienced in the British Isles was a wearisome period, consistently wet, with little sunshine, and periods of low temperatures. Just the worst possible conditions one would imagine to ripen the growth of shrubs and encourage the formation of buds for 1957. In spite of all this, I have never known shrubs to blossom with greater freedom than they have so far done this year, and not only shrubs. A number of alpine plants, of which it has always been said that they would only flower freely when the preceding summer had been hot and dry, have indulged in an absolute orgy of flowering.

One of the greatest joys of the year so far has been the seldom achieved success of establishing and flowering a number of plants of *Eritrichium nanum.* When this little King of the Hills does consent to live for more than a few months and make a half-hearted attempt at flowering, the blossoms are a mere travesty of their usual pure beauty of unbelievable blue. This year, however, and that after a mild winter which I should have expected to spell death and destruction to any self-respecting eritrichium, the plants are neat, silver grey cushions of tiny hairy leaves, studded with dozens of fragrant, stemless, circular Forget-me-not flowers, each with an eye of purest gold. It is too much to hope that the plants will endure through another winter, but at least I am left with an imperishable memory of perfect beauty almost equalling those breathless and awe filled moments when one turns a corner in the mountains and comes upon eritrichium in all its glory.

The star plant of the past twelve months in my own garden has been that old world favourite *Cheiranthus cheiri* "Harpur Crewe". I

have been able to trace the history of this delightful dwarf double flowered, rich orange and intensely fragrant Wallflower far back into the 17th century, and it may even be older. It sets no seed and must have been propagated vegetatively throughout the years, and yet it retains all its vigour. Three large bushes, growing in a fairly hungry and very well drained loam soil, have flowered without a break for ten months. In the very depths of the winter no day passed without a cheerful gleam of gold and there is every indication that they intend to carry on and complete a full year's cycle of flowering. There can be few plants which will flower on 365 days of the year. If grown in rich soil, *Ch.* "Harpur Crewe" can be a disappointment. It thrives on a spartan diet but becomes soft when over indulged and produces lush growth, few flowers and ultimately dies.

We grow too few of the many lovely plants which are native to New Zealand, and I treasure those which we have whilst longing for more. Particular pleasure has been provided for me during the past two or three years by *Myosotis goyeni,* which just now is flaunting dense heads of white flowers on short stems above felted grey-green leaves, and by *Leucogynes grandiceps,* which, last summer, under cloud and rain, bore hundreds of its pretty Edelweiss-like flowers over mats of bright silver stems and leaves. Both species seem perfectly hardy and the leucogynes is definitely happier out of doors. The myosotis I grow in an alpine house during the winter to protect its softly hairy foliage from our too abundant moisture.

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THE BANKS LECTURE 1957

"Distinctive Features of the Flora of the Far North"

R. H. MICHIE, F.R.I.H.(N.Z.) (Kaitaia)

The annual Banks Lecture was inaugurated in 1926 *in recognition of the work of the celebrated botanist Sir Joseph Banks. Sir Joseph Banks was born in* 1743. *He inherited considerable wealth, and was endowed with a great intellect. He was intensely interested in botany. When Captain Cook's first expedition was being planned, Banks spent* £10,000 *in equipping the natural history side of it, and he joined the expedition himself. With his colleague, Dr. Solander, another distinguished botanist whose membership of Captain Cook's party was arranged by Banks, he gathered over one thousand botanical specimens in coastal areas of the North Island of New Zealand. These included some three hundred distinct species, a notable achievement. Banks gave even more assistance to Captain Cook's second expedition, but did not accompany it himself. Sir Joseph Banks was President of the Royal Society of England for forty-one years. He also had control of the Royal Gardens and Herbarium at Kew.*

The far northern peninsula, commencing at Kaitaia and extending to the North Cape, a distance of some 80 miles, has, like many parts of New Zealand, interesting plant species restricted to that particular locality.

Although the flora of New Zealand has been studied for more than 150 years, commencing with Sir Joseph Banks and Dr. Solander, those two eminent botanists who accompanied Captain Cook on his first voyage, very few plants or trees have evaded the attention of botanists over the years since. There are, however, still several plant species in the vicinity of the North Cape which have remained unnoticed and as yet unnamed.

First of these is a member of the pomaderris family. In the late Mr. T. F. Cheesman's "Manual of the New Zealand Flora", published in 1924, five species are recorded and described. From then until quite recently no new species have been added. However, of recent years it has been found that there is one and possibly two new species or varieties. The first of these is found growing on the edge of the road along a dry ridge extending for approximately 2 miles approaching the eastern end of Spirits Bay. This plant somewhat resembles *Pomaderris phylicaefolia* (tauhinu) but much larger in every respect, growing into a nice round compact shrub 3 to 4 feet high, and in October is very attractive with its panicles of creamy white flowers.

Another plant of the same family which is now under study grows at Kerr Point, North Cape, the northern extremity of New Zealand. This little frequented area is a sunbaked and weathered undulating hill top at an elevation of some 700 feet, the edge of which is steeply sloping, almost precipitous in places, being littered in most parts from top to bottom with hard loose broken rock running right down to the sea. The whole face is a veritable rock garden being covered with sedges, astelias, Reinga Lily, veronicas, coprosmas, flax, epilobium, *Helichrysum*

glomeratum, Cassythia paniculata, Corokea cotoneaster, a few stunted pohutukawa, karaka and *Pseudopanax lessoni,* to mention only some of the plants. Mingling with the above plants are three other species found nowhere else, fighting for their very existence and a share of the earth among the rock crevices.

First of these is *Pittosporum pimeleoides* var. *major,* being the only prostrate pittosporum found in New Zealand. It was first discovered by the late Mr. T. F. Cheesman in 1894 when that eminent botanist made a very hurried survey of the flora of the extreme north. It was not seen again till 1945, when the writer rediscovered it following a fruitless search by himself and others previously.

This plant is quite distinct in habit and appearance from the species of which it has been classified a variety. The species *pimeleoides* is extremely variable in leaf size, and is an upright growing slender shrub attaining a height of 7 feet or more when grown in a garden in semi-shade under favourable conditions with nothing to hamper its upright growth. Variety *major,* on the other hand, is probably the most uniform in leaf form of any of the New Zealand pittosporums and no amount of coaxing will give it the slightest desire to grow upright.

In its natural habitat it scrambles along over and under rocks, rooting whenever it comes in contact with earth. My own observations of this plant have forced me to the conclusion that it is so distinct from *P. pimeleoides* that it is entitled to recognition as a species, and a very appropriate name for it would be *Pittosporum prostrata.* Growing in company with the above plant is a small leaved, slender stemmed prostrate growing unnamed parsonsia, unlike either *P. capsularis,* or *P. heterophylla* (kaiwhiria), both common plants of the north, which are strictly climbers, and will twine round any plant in an endeavour to attain height and light. This plant, on the other hand, has no twining or climbing tendencies at all; its habits are identical to the pittosporum described above. It flourishes in full sunlight in the garden and by periodic pinching back of the stems can be made into quite an attractive little clumpy bush. It bears panicles of flowers similar to those of the other parsonsias. The third variety to be found here is *Geniostoma ligustrifolium* var. *crassum,* an almost prostrate type of the hangenango, with a much thicker and broader leaf.

The sunbaked, undulating hill top already mentioned is only about a mile long, varying in width from 12 to 15 chains. The soil being of a hard volcanic-like baked red clay with a liberal mixture of iron stone, not an inviting environment for plants, yet botanically it is extremely interesting and fascinating as several species of plants found here grow nowhere else.

Generally speaking, the shrubs which occupy this area have a somewhat flattened appearance as few exceed 3 feet in height. A very misleading account appeared in a certain press publication recently describing this area as having a dwarf forest. It is true that a few isolated dwarfed tanekaha, not exceeding a height of more than 6 or 8 feet, are sprinkled among the shrubs and other plants which occupy

this area, but by no stretch of imagination could it reasonably be termed a dwarf forest. A strange feature of the tanekaha here is that they do not pass through a period of several years of juvenile foliage.

Among the predominating plants are the veronicas or hebes. These are *Hebe ligustrifolia,* also *H. speciosa* var. *brevifolia,* one of the large dark green leaved veronicas with racemes of dark reddish purple flowers. This is one of the parents of some very fine garden hybrids seen today.

Another plant of distinction is *Cassinia amoena.* This restricted area is its only known habitat. A small shrub not unlike a heath, having small hard dark green leaves bearing panicles of white flowers, it somewhat resembles *Cassinia vauvilliersi,* a southern cousin. However it is quite distinct from it.

Leucopogon richei is another small plant with bronze coloured leaves, similar to the familiar *Leucopogon fasciculatus* (mingimingi) with totara-like leaves. The former however is quite distinct in the flower arrangement.

Tropical Australia, Tasmania, and the Chatham Islands are the only other places where this shrub is known to grow. There it attains a height of from 4ft. to 5ft. At the North Cape, however, it has practically developed into a prostrate plant, a habit which persists even when grown in the garden under ideal conditions. *Pomaderris elliptica* (kumerahou) is plentiful. Also *P. phylicifolia* (tauhinu) and another which until quite recently has been regarded as *P. edgerleyi,* a common plant in the extreme north. Concerning the plants in this particular area, however, a query has developed as to whether this may not prove to be a new species or variety, as it differs in several respects to the type *edgerleyi.* One departure being that it adapts itself to either prostrate or upright growth as necessity demands, whereas the true *edgerleyi* immediately succumbs if it grows among close scrub.

Other plants of interest in the northern extremity in close proximity to the sea are the two species of hibiscus, *H. trionum* and *H. diversifolius, Ipomoea palmata* and *Sideroxylon novo-zealandicum* (twapou).

Taking these in order of sequence, both species of hibiscus can be described as exceedingly rare and on the verge of extinction, only a few isolated plants of each species being now known to me.

Ipomoea palmata, a member of the convolvulus family, is fairly well distributed along the northern coast line, usually trailing down a rock face, or scrambling over sand and through flax within spray distance of the sea. During the summer months it is very attractive with its bright purple flowers with dark centres.

Sideroxylon novo-zealandicum (tawapou) is a coastal shrub or small tree, attaining a height of some 40ft., with dark green leaves, dense and spreading in habit. It can almost be classed as a rare tree. It appears only near the sea as isolated specimens or in small isolated groups. If all the trees known to me, commencing at Cape Te Reinga to the North Cape, thence down the eastern coast to Mangonui, a distance of probably 150 miles, were all grouped together they would not be

crowded on half-an-acre of land. The tree has an olive shaped berry, which passes from green to yellow, then red or blotched with red to purple during the autumn, when these berries are ripening. The colours mentioned can all be seen on the same twig, making a very attractive sight.

Mention must be made of the pink tea tree (Kahikatoa to Northlanders), which never fails to attract the attention of visitors to the far north. Just beyond Te Kao, some 45 miles beyond Kaitaia, this beautiful tea tree appears in quantity. Unfortunately the country on which it grows is burned as often as it will carry a fire, which is usually every 3 to 4 years, consequently with the exception of small isolated clumps, it seldom attains a height of more than 2 to 4 feet. However, where ever it avoids destruction and reaches a height of 8 to 12 feet the varying shades of pink make a beautiful sight when it is in bloom during the early spring. As yet the so-called manuka blight has not reached the extreme north, but this curse may soon be there and destroy hundreds of acres of nature's pleasing natural cover. Often growing on the tea tree is the parasite *Cassythia paniculata* (taihoa), a giant member of the dodder family; this hangs down to the ground in yellow green trusses.

From Te Kao also the beautiful fern *Todea barbara* begins to appear more frequently, reaching its peak in the vicinity of Te Hapua, the northernmost Maori settlement, situated on the northern side of the Parengarenga harbour. Growing on hill faces and in slips, it can be seen in quite sizeable patches. Fortunately it can withstand frequent burning, and after a fire it usually sends out a number of bright green leaves contrasting with the bare blackened surroundings. Often growing in company with *Todea barbara* in damper situations is *Glynhenia flabaletta,* a member of the Umbrella Ferns.

Coming closer to home in the bush-clad hills at the back of Pukepoto (near Kaitaia) is a very unusual form of alseuosmia, of which there are four named species in New Zealand. The plant in question (they are well distributed over an area) is unlike any of the four named species, the leaf resembling that of *Myrtus bullata* (ramarama). In fact it is not easy for an inexperienced person to distinguish them without flowers or fruit.

Returning again to the extreme north, stress must be laid on the urgent necessity of having some at least of the few remaining pockets of bush in that fascinating area reserved. At present the property is all privately owned, and at any time any or all of the bush could be chopped out or burned, a possibility which is not at all remote. Should such a thing happen it would rob that area of a priceless attraction, and also reflect on those of us who should be endeavouring to preserve it for posterity.

The bushes referred to in particular are several small patches in the vicinity of Pandora. This is on the Te Paki station owned by Mr. Keene, the other patch is situated about 3 miles east of the Kopuwaroa Stream (Spirits Bay) in the vicinity of Unuwhao Trig or Maori

Pa, over 1000 feet. This latter area comprises probably 350 acres, and I understand is Maori land.

Each of the two pieces of bush referred to has its own special interest. For instance, the bush in the vicinity of Pandora has some very nice stands of young healthy kauri, the largest having a diameter of some 3 to 4 feet. Growing here also are some very fine specimens of *Dacrydium kirki* (Monoao).

Dacrydium intermedium, sometimes called Mountain Pine or Yellow Silver Pine, has never been reported north of the Bay of Islands, but several small trees of this have been located in this bush. Another interesting small tree is *Ascarina lucida,* one specimen only. This has not previously been reported further north than Hokianga. Other interesting plants in this same bush could be mentioned.

Now to the Unuwhao Bush, which is of an entirely different character. Large pohutukawas are growing right through it and on its southern side is a fine stand of a large taraire with a fine patch of healthy nikau, with dark, drooping, shining leaves. Also there are many fine specimens of *Pittosporum umbellatum* (haekaro), a very attractive small tree which is seldom found other than within a hundred yards or so from the sea; here it is 1½ to 2 miles inland. Here, too, in places inaccessible to stock, are to be found the rare balsam-like plant *Colensoa physaloides* (oru), which has beautiful blue flowers followed by large bright blue berries. The dacrydiums and kauris, mentioned in the Pandora bush, are conspicuously absent here.

Another small attractive shrub, strictly a Northlander, named *Olearia angulata,* is well represented in this bush. The only other place where it is known to grow is in a restricted area near Ahipara, at the southern end of the 90 Mile Beach.

In concluding, I wish to make a few observations. We of today would do well to pause a moment and view the position of our wonderful flora, what it was in the immediate past, what it is today, and what of the future.

In retrospect, we are posterity of yesterday, and to our sorrow and regret have inheriated but a ragged remnant of nature's generous endowment of the most beautiful and varied forest flora in the world.

It therefore becomes a serious responsibility and duty on the part of those too few of us today, who have some appreciation of our flora, to do our utmost through every available channel, to leave every acre possible reserved. So can we afford the unborn of tomorrow an opportunity to enjoy a little of what would still be but a shadow of their birthright—an unspoiled forest.

HARDY CYCLAMEN

C. A. TESCHNER (Dunedin)

No one but a botanist would link cyclamen with primulas. Nevertheless, they belong to the natural order *primulaceae.* They are among the most charming of all bulbous subjects for the garden, though they are, correctly speaking, corms not bulbs.

During recent years it became evident that the nomenclature of the species was in a chaotic state and in 1938 Professor Otto Schwarz made a revision of the genus, changing many well established names.

In 1950 Dr. J. Doorenbos, of Holland, published "The Taxomony and Nomenclature of Cyclamen" in a further endeavour to solve the problem which Professor Otto Schwarz did not completely succeed in clearing up. Linaeus knew about six species, but recognised only one. Hildebrande named about twenty-four species, but Schwarz (1938) reduced this number to thirteen. Glassau (1939) extended this again to seventeen. All very confusing, so in this article I propose, as near as possible, to use the names under which they are best known to the ordinary gardening fraternity.

The natural habitat of the species is Central and Southern Europe, N. Africa, the Middle East, including some of the islands in the Aegean Sea, and one or two species have been discovered as far east as the Caucasus Mountains. The majority of the species are extremely hardy and the corms, too, are practically indestructible and once established grow steadily in size. A few corms in my garden have attained a diameter of 14-15 inches. Once planted, these hardy little plants can be left to take care of themselves, though a dressing of leaf mould occasionally would be beneficial. Their cultural requirements are fairly simple. Admittedly, most of them are not plants for hot, sunny places nor do they thrive in wet marshy ground. In their natural habitat they are found growing on rocky sloping banks or in shady crevices. Corms should be planted just a little below the ground, preferably in semi-shade, in a reasonably moist and, if possible, a leafy, limey soil. They are ideal plants for naturalising under deciduous trees and shady parts of the rock garden. They also add colour planted amongst the dwarf ferns in ferneries.

By growing a selection of the species it is possible to have cyclamen in flower throughout the year. All have beautiful flowers, some are very sweetly scented and their beauty is enhanced by the beautifully marbled foliage.

Winter Flowering Species

C. coum, which comes into bloom as early as April. It is exceptionally hardy, withstanding extremely heavy frosts with impunity. The flowers and leaves appear together. The leaves are round, deep green and unmarked. The flowers are of varying shades of pink, rose and red and there is a scarcer beautiful white form.

C. atkinsi flowers about the same time as *C. coum* and closely resembles that plant except that the leaves are marbled. Originally *C. atkinsi* was described as a hybrid of *C. coum* and *C. persicum,* the latter being the pollen parent. According to Doorenbos, the plant inherited none of the characters of the pollen parent. The leaves are marked not as those of *C. persicum* but as those of *C. orbiculatum.* As both *C. coum* and *C. atkinsi* have thirty chromosomes and *C. persicum,* on the other hand, has forty-eight, it is assumed that the cross never took place. Thus *C. atkinsi* is reduced to a form of *C. orbicu-*

latum and the epithet *"atkinsi"* has been scrapped. However, it is a handsome species and as *C. atkinsi* it is likely to remain in catalogues for many years. *C. atkinsi alba* is a white form.

C. libanoticum is a showy Syrian plant with marbled leaves and large, blush pink flowers, almost scentless. *C. ibericum* is a winter flowering species and is extremely hardy. In colour it is more or less similar to *C. libanoticum* but is a dwarfer plant. *C. pseud-ibericum* is an extremely rare winter flowering species with large pink or orchid-purple flowers. Only one spontaneous plant is known, collected about 1897 near Smyrna. *C. repandum* is often erroneously referred to as *C. hederaefolium* and is fairly widely distributed in the Mediterranean basin from France to Greece. A highly ornamental species which commences to bloom before the winter flowering species are completely past. The leaves are ivy-shaped and marbled; the flowers rosy red. White forms have been known to occur. *C. creticum* is a closely related form but as my corms have not yet flowered there is little I can say about it. *C. balearicum* is the dwarf of the genus with smallish, white flowers and is of little ornamental value. No one but the collector will seek it.

C. persicum (wild form), also a spring flowering species, was introduced from the Eastern Mediterranean in 1731. Found in Cyprus, Silicia, Syria, Lebanon and Palestine, but not Persia. From it has been evolved the many coloured, large flowered plants usually used as pot plants for house decoration. An interesting example, incidentally, of what may be done by careful selection, for only the original, small flowered species in white or pale pink has been used in their development. In the breeding they have undoubtedly lost the charm, and in the main, the hardiness and perfume of the species. The flowers of *C. persicum* (wild form) are larger than many of the species and the stems rather longer. The foliage is extremely beautiful. *C. europaeum* (Central Europe) is the one summer flowering species and is extremely sweetly scented. The flowers are red and the leaves slightly marbled. None of the species remains in bloom as long as does *C. europaeum*. Commencing to flower during summer, now, during May, it is still in bloom.

Autumn Flowering Species

Whereas all the winter, spring and summer flowering species produce both flowers and leaves simultaneously, this is not so with all the autumn flowering ones. *C. neapolitanum* produces its flowers first and the leaves appear as the flowers pass out of bloom. This is one of the best species for naturalising under trees. It is extremely hardy and free-flowering. *C. cilicicum* comes into bloom shortly after *C. neapolitanum*. It is a little gem with a dwarf habit, pretty marbled leaves and pink flowers. Only once has a white form occurred among my plants.

C. africanum somewhat resembles *C. neapolitanum* but flowers and leaves appear simultaneously. The flowers are pink and the leaves only slightly mottled. *C. graecum* occurs extensively on the mainland of Greece and is quite common on the hills around Athens. It is also found on some of the isles in the Aegean Sea and a form occurs

in Crete which was given specific rank and named *pseudo-graecum*. The tubers of this species attain a great size and are covered with a corky skin which, as growth proceeds, splits into strips. This, together with the long, fleshy roots, which arise in a bunch from the lower surface of the tuber, gives it an unique appearance. The foliage is variable and extremely handsome and has a very velvety texture. The flowers which vary from white and pink to deep rose appear before or even with the leaves and are similar to those of *C. neapolitanum,* but the auricles are less prominent. *C. graecum* requires a warmer situation than most of the species.

C. rohlfsianum is a rare species endemic to the hilly, coastal area of Cyrenaica, where it flowers in late autumn and winter. It is extremely rare in cultivation and will not stand severe frosts. The flowers appear just after the leaves and are very fragrant. My single corm has just attained flowering size.

C. cyprium (Cyprus and Silicea) is a pretty species with dull brownish green leaves only faintly marbled. Flowers are white with a purple base. It has proved quite hardy in Dunedin. I understand that during recent years the Russians have discovered two new species in the Caucasus Mountains but these have not yet found their way into commerce.

The hardy cyclamen are adaptable plants which, when once established, will seed themselves freely and form ever increasing colonies. There are few plants which will make so great an appeal to their possessors.

INTERESTING AND UNUSUAL BANKSIAS

W. R. STEVENS (Wanganui)

It is almost forty years since I first saw a banksia flowering, and I can still see that same plant in my mind. It was about ten miles out of Sydney, in sandstone formation. The tree was a mass of orange yellow spikes standing up like large candles. This was *B. ericifolia* in mid-winter and the sight entranced me. Probably it was then the thought was born, that some day I would grow some banksias. Well, time went by and I didn't get round to doing anything about it until ten years ago, when I started collecting them. Today I have over two hundred flowering specimens comprising over twenty species, and I am still looking for more. Now where lies the fascination for this particular genus? To that I can only answer, I do not know. After all, you could ask the same question of many gardeners and I doubt if the answer would be much different. Probably one of the reasons would be that many species are winter flowering and keep well when cut. I am sure that even more gardeners would be interested if, in the middle of winter, they saw a large bowl of *BB. ericifolia, integrifolia, occidentalis* or *spinulosa.*

The majority of the banksias do not present any cultural difficulty, but it is a fact that some species do better in light soils where drainage

is good, than in heavy soils which get waterlogged. As we do not get heavy frosts here, I am unable to say how hardy they are, but they do stand a lot of wind without injury. The majority are all the better for a light pruning every year, so that cutting the flowers is not detrimental.

Plants are quite easily raised from seed but in harvesting the seed cones, it is well to bear in mind that some species take two seasons to ripen and others are ready very shortly after flowering. *B. integrifolia,* for instance, opens its seed capsules about six months after flowering, and if you are not watching, most of the seed is lost. The general method of getting the seed cones to open, with other species, is to expose them to heat, when the capsules will open and the seed can be extracted.

A feature which appeals to me is that it is very easy to have banksias in flower every month of the year. They vary considerably in appearance, height, and size of flower. For instance, *B. marginata* has a flower spike only 2 inches long, and grows to a height of 6 feet, while on the other hand, *B. grandis* has a flower spike of about a foot long and grows to a height of 30 feet.

The generic name is in honour of Sir Joseph Banks, who first collected plants at Botany Bay, and the number of species, all peculiar to Australia, is probably over fifty. Banksias belong to the order *Proteaceae,* an order which is represented in New Zealand by only two members, *Knightia excelsa* and *Persoonia toru.*

In these notes I propose to deal with a few of the species of banksias not commonly grown in New Zealand.

The first of these is *B. prionotes,* a vigorous growing species up to 30 feet. It has greyish serrated leaves about an inch wide and up to a foot long. The flower cone when in bud is covered with heavy white tomentum, which looks from a distance like cotton wool. The orange yellow flowers open from the base of the cone, and as they advance upwards, the effect resembles a giant acorn. Eventually all the flowers open and the spike, of almost 9 inches, is one colour only, a brick yellow. There is always a fascination watching this flower change from white to yellow and white, and finally to all yellow. When I first grew *B. prionotes,* it was in deep alluvial soil, with the consequence that it made fast and vigorous growth and took a long time to develop flower buds. These days I grow it on a clay hillside, where growth is much slower, but it flowers at a much earlier age. In its natural habitat, it grows in sandy soil, but apparently is quite happy in heavy soil. It is September flowering.

B. ornata occurs only in South Australia and Victoria, where it grows in sandy soil. At maturity, it would be a medium sized shrub of about 5 feet, but it differs from most species in growth as it does not make a central leader. From near the base of the plant, it will send several strong growths which branch upwards, making in effect a shrub with several leaders. Any attempt to make it conform to a single leader will end in disaster. The flower spikes are about 4 inches long and

3 inches across, leaves 3 inches long and ½ inch across. The flower buds when young are bright brown, very firm, but as the flowers develop, the colour changes to a warm tawny brown, and becomes very soft in texture. They are not terminal, but borne on short lateral growths. It is a very free flowering species over a long period, starting in February and finishing in April. It stands dry conditions.

B. robur, for long called *B. latifolia,* occurs in New South Wales and Queensland, usually in rather low-lying parts which become waterlogged in winter. Here it grows equally well in full sun or semi-shade, but prefers a wet summer. From the flower point of view, it is not at all spectacular. The buds are greenish-yellow and become deep brown when fully open. But its rather mediocre flowers are more than compensated for by its showy and ornamental leaves. These are much larger than those of most banksias, ranging from 9 inches to a foot long and 4 inches wide, of heavy, almost leathery, texture. Down the centre of each leaf runs a bright yellow midrib, which provides a striking contrast against the dull green. The under surface is covered with a light brown tomentum, and it has rather stiff, rigid growth up to 10 feet. The young growths, as they emerge from the tips of last season's branches, are a brilliant deep red, velvety to the touch, developing as the new leaves unfold to a tawny pink. At this stage, the leaves have not developed their heavy leathery texture, but are soft and downy. The species is January-February flowering.

B. speciosa is a species popular with everybody, probably due to the fact that it is a splendid cut flower. If picked at the right stage, that is when the bud cones are firm, just before the flowers start to open, it will last almost indefinitely. In fact even after the leaves drop off it can still be used as a dried flower. The flowers are borne at the terminals of stiff upright growths, and are generally about 6 inches long and 3 inches in diameter. The bud cones are a beautiful silvery grey, with the flowers a pale lemon yellow. The leaves are narrow, deeply serrated, and with sharp points down their entire length, about 12 inches long and ¾ inch wide. It has a long flowering period, commencing in November and continuing through to March, and has an eventual height of about 12 feet. Although it will do fairly well in clay soil it much prefers a deep, well drained soil, when its annual growths will be well over 3 feet.

B. sphaerocarpa is another Western Australian species, differing from many others by having almost needle-like foliage. Indeed, without the flowers one would have some difficulty in placing it as a banksia at all. The flowers are, taking the fine foliage into account, unexpectedly large, about 4 inches by 5 inches, of a shade difficult to describe. When first opening they are almost a biscuit colour, deepening to light straw, and gradually to light brown. In this species again the flowers are not terminal, but borne on lateral growths. In its native state it grows in rather stony or sandy soil, but here I find it quite satisfactory in heavy clay soil. Its height as given in Western Australia is from 3 to 4 feet, but already it is over 6 feet with me.

B. lehmanniana is more strange than beautiful. When I say strange,

I use the term because it differs from most species in that the flower heads are pendulous instead of upright. There are several species which have the same habit, and though I have puzzled about it I am unable to determine the reason why they have reversed the usual flower habit of the genus. The flower heads of *B. lehmanniana* are quite large, about 4 x 3 inches, bright green in the bud stage, silvery green when open. They are borne terminally on short branches, and are deceptively heavy in weight. Though pendant, the stems are quite rigid. The small serrated leaves are about 3 x 1 inch, and are distinctly spathulate. The flowering season is from December to January, and a mature plant will reach 6 feet.

B. caleyi is to me a comparative newcomer, and so far I have had only two plants to flower. The colour of the flower heads is totally distinct from all other species and rather hard to describe. Probably cinnamon red would be nearest, although there is almost a hint of carmine as well. It was a most pleasant surprise when it flowered as I had not been prepared for something so different or so ornamental. The flower heads are borne inside the plant, and towards the base, and the colour of the buds, even when just developing, is the same toning as the open flowers. The young growth is very attractive, with warm, tawny brown colouring, but as the leaves mature the colour changes to an olive green. As I have not had my plants very long I cannot give the height at maturity, but I should imagine it will not grow very high. The species is November flowering.

B. baueri is a species that excites more attention than any other I grow. I use the word "excites" deliberately, as it is an exciting plant. I first flowered it in 1934, but unfortunately lost it after very heavy frosts of 16 degrees. It was many years before I managed to get seeds again, and my new plants have been flowering for no more than three or four years. The flower buds are rather thin, rigid spikes covered with grey tomentum, and are borne towards the lower part of the plant. Gradually they swell, becoming soft and fat. There is a suffusion of lavender, almost light purple in the colour until the flowers start to open. The effect of the big soft heads can be likened to that of a koala bear without its head showing. At this stage it has a silky feel and most people have an urge to stroke it. The plant does not grow more than 4 feet, and the flowers seem almost too big for it. Generally they are about 8 inches long and about 5 inches in diameter. If cut at the right stage they will last for years as dried flowers, but I must admit that drying does not improve the appearance as the colour gradually fades until there is only a hint of lavender left. *B. baueri* is rather open in growth and flowers in July and August.

From the above notes it will be seen that growing even one genus of Australian plants has interesting and fascinating possibilities. The fact that there are many more banksias I have not grown only lends spice to the hobby, for if I had a complete collection of all the species I'm sure I would not be so interested. For instance, I still have to try and grow that striking and difficult Western Australian species *B. coccinea,* and here I have no doubt it will be a case of trial and

error until I find the right soil conditions. Also I remember seeing a specimen of *B. victoriae* in South Australia, and the beauty of its apricot yellow flowers still haunts me. Perhaps I could describe my feelings at the moment as being in a state of discontented satisfaction—so much done, but plenty to do yet. No true gardener should ever be satisfied with his efforts, for anticipation is the very meat upon which he lives.

SUCCULENTS OF THE EASTERN PROVINCE OF THE CAPE OF GOOD HOPE

F. R. LONG, A.H., R.H.S., F.Inst.P.A. (South Africa)

With Port Elizabeth as the centre of a half circle with radius of 150 miles and swooping inland from a point on the west coast, say from Plettenberg Bay, then inland to Willowmore, Aberdeen and Graaff Reinet, thence east to Cradock and south-east to Adelaide and back to the coast at Bushmans River, this covers a most interesting area, full of succulents of all descriptions. Many areas are but scantily explored and it is my guess that new species are there for the finding. In my own brief tours of exploring for specimens of our glorious flora, I have found the following new species—*Stapelia longi, Huernia longi, Haworthia longiana* and I have only scratched the surface during twenty years.

The climate in this area varies very considerably from humid general rainfall conditions on the coast to arid karroo, almost desert conditions, inland, specially at Willomore, Graff Reinet, Jansenville and Cradock. Many mountainous areas have never been traversed except by sheep and goats (those non-conservationists!). It is as well to study the climatic conditions in order to make it easier to cultivate in New Zealand the succulents found within the district with which I am now dealing. On the coast and within 10 to 20 miles inland the climate is comparatively moist, the rainfall is, say, 20 inches but intermittent throughout the year, generally warm with a little frost in valleys. In the Karoo itself the rainfall is scanty down to 8-12 inches per annum, mostly thunderstorms in summer. The winters are dry, very dry, and frosts occur. The sun is constant and there is little cloud. Summers are very hot.

This study teaches the gardener that full sunlight with seasonal baking and resting are essential. Many subjects such as some stapeliads and certain haworthias are found only in the shade of rocks or shrubs, but comparatively dry.

The soil must be well drained, using plenty of coarse river sand, gravel and rich loam with some leaf mould or peat. Manure should be avoided. Drainage is essential. Resting to the extent of shrivelling of the leaves specially in euphorbia, aloe, most mesembryanthemums, and gasteria. In cultivation I find pots or pans are better than tins.

Succulents found in the Western Province, require more rain in the winter with dry hot conditions in summer and autumn; this applies

to all conophytum and gibbaeum. On the other hand lithops found in the Transvaal, such as *L. lesliei,* require dry winters, and summer rains.

Having gone into the general requirements as applied to watering and resting somewhat fully, let us consider some of the genera in detail.

Most of the haworthia species are of easy cultivation and although the flowers are not attractive and mostly alike, the varous forms are fascinating. At one time I had over 250 species and forms growing in pots and tins.

They require liberal drainage and plenty of old leaf mould in a good sandy loam, practically no manure.

The translucent sections are found in shady nooks, south facing. *H. cymbiformis* is found in large clumps on sloping banks near the coast within two miles of where I am writing, usually shaded and on top of rocks with a few inches of sandy soil.

H. pilifera and its forms *dielsiana,* and *stayneri,* then *H. cooperi, denticulata, planifolia, turgida, cuspidata, setata,* etc., may also be included in this group for cultivation purposes. *H. bolusi,* with lovely soft juicy leaves covered with delicate silver hairs, is found inland at Graaff Reinet on exposed hills with low rainfall. *Apicra foliosa* is found in the Addo Bush.

The harder leaf haworthias are easily grown. They require more direct sun than the translucent section. *H. viscosa* I have found in blazing sunlight, 90° Fahr., no shade: *H. attenuata,* also exposed; both these grow in clumps. *H. fasciata* is common in the hills round Port Elizabeth, usually in gravelly exposed field conditions among grass. *H. glauca* is found at 2,000 ft. near here. *H. herreri* is another rather elongated species to be classed with *H. reinwardti, H. coarctata, H. chalvini*—all of easy culture and delightful in a rockery. *H. rigida, H. hybrida, H. tortuosa* are apparently lost in a wild state. I obtained mine from Mr. J. R. Brown of Pasadena, California, who in turn, I understand, had them from the Liverpool Botanical Gardens. Two haworthias with the habit of a lithops, namely, *H. truncata* and *H. maughani,* both from the Oudtshoorn district, have "window" leaves with the tops at ground level. They are difficult to spot in the wild state.

I re-discovered *Haworthia sordida* in the Addo Bush some 30 miles from Port Elizabeth. My family and I were sitting down under a bush taking a quick flask of tea one afternoon, when my daughter said "Look Dad, what's that weird looking plant?" (about 6 ft. from where we were sitting). I gave a jump as I saw a "sordid" looking brown-black, spiky leaf plant and my mind instantly went back to the Salm-Dyck monograph which I had been studying. Sure enough, when I reached home there was the plate of *H. sordida,* a species that had not been heard of for over 120 years. It was very scarce and only grew in ones and twos but I managed to collect seed and

distributed it all over the world. This was in 1932, but later on I found two solitary plants on the Cockscomb Mountains right on the opposite side of Port Elizabeth. Then again near here *H. woolleyi* was discovered by Major Woolley. He was on one side of the road and I was on the other, 200 yards apart. We both gave a yell simultaneously. I found a new form of *H. blackbeardiana* and he *H. woolleyi,* both new to science. Such is the fascination of collecting in South Africa. There are no records that *H. woolleyi* has been located elsewhere. Another unusual species is *H. longiana,* found near Hankey by Miss Eily Archibald. This has long green spiky leaves, 9 to 10 inches long. Most of the haworthia species are of easy cultivation and give unbounded pleasure to the grower. I should say that there are at least 300 species and forms with which to play about. A revised book on the genus is long overdue.

A word about stapeliads, namely, *Stapelia piaranthus,* caralluma, huernia, duvalia, pectinaria and ceropegia. The species of hoodia, tavaresia and trichocaulon do not occur in the district under review and are difficult under cultivation. Stapeliads are fascinating to say the least. Most of the flowers give off an offensive smell like decaying meal but this is to attract the blue bottle fly which does the cross pollination. One species I found near Kenhardt, *Stapelia flavopurpurea,* gives off a honeylike smell and attracts bees. All flowers are beautiful and many have attractive silky hairs like *S. hirsuta* and *S. grandflora;* some are 6 inches, others ½ inch in diameter. Stapelias and huernias will not tolerate over watering, nor forcing fertiliser. It is best to keep off manure but, on the other hand, good old leaf mould, coarse river sand and light loam, in equal parts, should be the mixture. Good drainage and not deep soil is advisable. Some collections have the nasty habit of rotting off. I believe in occasional drying off periods to the extent of shrivelling.

Pectinaria, piaranthus and duvalia and some stapelia, such as *S. variegata* are of easy cultivation and are surface rooters with fascinating flowers. The stems or creeping stolons are on the surface and throw down their roots from the stem joints. *S. variegata* and *Huernia thureti* are found on exposed gravel slopes in Port Elizabeth and are of easy culture. Pectinaria, duvalia and piaranthus do well in pans and between sloping stones in the rockery. This group of stapeliads is raised from seeds and cuttings. The latter can be severed and allowed to dry out for a few days before inserting into sand.

The finding of *Stapelia longi* or the "Rat's Tail" stapelia makes interesting reading. I was investigating a krantz (sheer cliff) at Paardepoort (Horse Pass) when I spied "something" on a ledge just out of my reach. I called to my pal to hold my foot against the rock as I made a spring. I caught hold of the "something" and we both fell down about 20 feet. In my fist I was still clutching "something" which I took for a ceropegia. I took it home, cut it up, rooted and it flowered—*S. longi* (see page 644 "The Stapelieae" by Alain White and Boyd L. Sloane).

Ceropegia is another interesting group. *C. woodi* is the only one

with true leaves, is trailing or climbing and has delightful claret coloured flowers. It is found just outside Port Elizabeth and is suitable for pot culture in a room. Another local is *C. stapeliiformis,* not difficult to grow. To this one, *C. crassifolia* can be added.

A group that is attractive and easy to grow is the gasteria, once placed by Salm-Dyck under aloe. They have attractive leaves, usually mottled and marbled with shades of grey and green, the flowers are all beautiful, pink to dark salmon red with green and white tips, some 12 inches high whilst others, *Gasteria croucheri,* run to 3 to 4 feet high.

Gasteria are still found in pots in the cottage window or the amateur greenhouse in England and if only given more sun and a baking with rest from water, would flower. An elderly aunt of mine grew them more than sixty years ago.

One species, *G. armstrongi* is very dwarf, almost the habit of a lithops and is very hard to find.

G. croucheri is found along the sea coast in sand dunes, a mile or so from where I am writing. The flower stems, 3ft. high, are branched horizontally with flowers hanging down. It is the largest species.

G. acinacifolia with upright pointed leaves, *G. lingua* with spreading tongue-like leaves, and *G. nigricans* with leaves set fanwise, and *G. verrucosa* which grows in dense masses are some of the outstanding species. *G. nitida* is common here. Some will stand frost under very dry conditions.

Just a short note or two on the euphorbia found near here. *E. meloformis* is common on the coast in grass land fully exposed. This ball like plant, the size of a large tennis ball, has two relations, namely *E. valida* and *E. obesa.* The last mentioned species is rare and only found, I believe, on two hills near Graaff Reinett. Another fascinating species is *E. pulvinata.* This one grows in huge clumps on hill slopes and from a distance looks like sheep lying down.

Two upright species, *E. ledieni* and *E. coerulescens* are very similar, 3 ft. high in dense clumps, acres of them. The former occurs just outside Port Elizabeth and then gives way to the latter, 40 miles or so inland. One never sees a hybrid. The fascinating parasite *Hydnora africana,* grows on the roots of the latter. Tucked in amongst its shade I have found haworthias in plenty.

Euphorbia globosa, E. stellata and *E. gorgonis* are common on exposed hilly slopes. All these are easy to handle under cultivation, if handled roughly, viz. poor soil, little water.

"The Succulent Euphorbieae" by Alain White, A. R. Dyer and Boyd L. Sloan is the standard work on South African species.

Before leaving the subject of succulents of South Africa, mention must be made of a few outstanding members of the *Mesembryanthema* Group, that huge class now split up into 50 genera. I will not mention

the attractive creeping "Wild Figs", so easily grown and propagated but just a few of the extraordinary species. These add interest to any succulent collection.

First of all there is *Pleiospilos simulans* and the similar *P. bolusi.* These have two fat solid leaves (not unlike lumps of calves liver) with a gorgeous golden flower, larger than a half-crown piece, set in between. Two more leaves develop after flowering, taking the place of the former pair which shrivel away. Pleiospilos are found at Miller in the Karoo in open sandy ground.

There is one "Stone Plant" or lithops found near here, *L. terricolor,* but there are no conophytum as these like the winter rainfall areas of the Western Cape. Gibbaeums are also to the west. Seasonal watering followed by drying off are essential for this group.

Two easily grown mesembryanthemums are faucaria and bergeranthus. I could take visitors to a spot where *F. lupulina* (similar to *F. tigrina*) *Bergeranthus multiceps, Aloe humilis* and *Euphorbia meloformis* can be found growing wild within yards of one another on a limestone formation within a mile of the sea coast. Here also is the rare Cycad, *Encephalartos horridus.*

A useful book on mesembryanthemums is by N. E. Brown, Dr. A. Tisher and M. C. Karsten, and entitled 'Mesembryanthema", written in three languages, English, German and Dutch. It is well illustrated and published by L. Reeve & Co., England.

I have covered a lot of ground in this article but I have restricted my selection to species that can be grown in New Zealand providing due care is taken in regard to observing the growing and resting periods. Very few of our succulents can withstand frost with humidity.

PLANT HUNTING ON THE OLD MAN

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

The Old Man Range is neither very high nor very spectacular but it has long been popular with the plant hunters of Otago because it is so accessible, and because the long flat hogsback that is the summit carries a rich and varied flora different alike from that of the low coastal hills and the high western ranges. It is that bold mass lying on the southern side of the Clutha River between Clyde and Roxburgh and the easiest track to the top is within sight of the great hydro-electric dam most of the way.

The range gets its name from a spectacular rock, whose angular outline is not unlike that of an old man, that must have stood sentinel towards the northern end of the summit for untold centuries. It must have been a well-known landmark in the old gold-mining days when one of the few roads between Central Otago and Southland followed the Snow Pole Track that may still be traced for miles, until it disappears in a south-easterly direction in the far distance.

I have known the Old Man for about 30 years and climbed it several times by the track that goes up from what used to be Bald Hill Flat, but was named Fruitlands under an abortive orchard scheme many years ago. The track was a tiring one in the old days, nothing difficult about it, no real climbing, but a long hard pull to the top that is about 5,700 feet above sea level. It has been improved so much by the judicious use of a bulldozer that nowadays a notice by the side of the main highway proclaims to all and sundry that cars may be taken to the top in fine weather.

The broad grassy road is very steep in places and we were glad enough to stop at the last water-race, about 4,000 feet and probably one of the highest in the country, and boil the billy while the engine got a chance to cool down. We did this near a big outcrop of rock and I took the opportunity to see what was to be found. I was not disappointed. The bright blue stars of *Wahlenbergia gracilis* were twinkling among the waving grasses and forming a very nice contrast with the lemon yellow pompoms of *Craspedia uniflora* var. *lanata*, rising 6 inches or so above its white woolly foliage on stiff little stems. Many interesting little plants grow under the shelter of the tussocks where they are sheltered from full sunshine and from the full effect of the eternal winds. It was there that I came across *Mazus pumilio*, a striking little thing well worth growing in the garden for its pretty inch-long leaves, light green and spotted and speckled with purple and brown on which lie the mauve-purple musk-flowers. I was even more delighted to find *Herpolirion novae-zealandiae*. It is very hard to find when not in flower because the leaves are just like some inch-high grass and the long underground stems seem to be indistinguishable from some kind of twitch. But if the foliage is plebian the flowers certainly arrest attention. They are exactly like single blossoms of chionodoxa, lying flat on the ground. I dug up specimens of both and hope I may be able to get them established in the garden as carpets for miniature bulbs. Growing close by was another dainty carpeter, *Lobelia linnaeoides*, forming small open patches of dark green, purplish foliage above which dance the white, often pink flushed flowers on slender 2 inch stems.

On a dry sunny bank was a very attractive pimelia whose small silvery leaves glistened in the sunshine. The off white blossoms were all but over and the first of the pearl grey fruits already beginning to ripen. Here grew the glaucous green *Raoulia lutescens*, sturdier and more compact in habit than the better known *R. australis* and now at the height of the flowering season with the whole patch, nearly a yard in diameter, embroidered with flowers until it looked like cloth of gold.

After a refreshing cup of tea we pushed on for another 500 feet or so where we were stopped by a damp peaty patch across the track. It looked as if a car might get through all right, but the risk was too great. The trouble of finding help when the nearest homestead was six or more miles away and several thousand feet nearer sea level was too much to contemplate so we turned the car and made our way to the top as best we could.

The soaking peat by the side of the track was covered with an inch-high olive green turf, the foliage of *Claytonia australasica,* that was flowering in the greatest profusion. Here is another unusual plant ideal for carpeting small bulbs and adding interest to the pockets by the masses of white flowers, each about the size of a shirt button but so plentiful as to hide most of the foliage.

Instead of following the track I elected to go up a tumbling creek whose waters were racing merrily down the hill from one of the last outposts of winter, a great bank of melting snow. By the edge of the creek grew a neat little pratia with milkwhite flowers and purple berries and a very attractive little epilobium. They are all such weeds, even the nicest of the epilobiums, that I have never bothered to get to know them well. I was glad I went that way because the whole of the upper reaches of the small gully was simply covered with a close set mass of *Caltha novae-zealandiae.* Rarely have I seen it so plentiful with the curious double arrowhead leaves forming a close turf on which the starry cream or white blossoms lay everywhere. They seemed to be as happy under the running water as in the drier parts where snow had obviously been lying a day or two before. The open flowers went right up to the edge of the melting snow and when I began to search I found that they were open under the snow to a depth of about 3 feet. I could not help wondering if the curious double leaves have something to do with this ability to grow and flower under snow that may lie there for some days before the flowers see the sun.

On the Summit

The great open summit is quite flat and very exposed with nothing to break the monotony except the many outcrops of rock that have a monotony of their own. No shrubs grow there and the greater part of the top is a flat peat bog or fell field whose most striking feature is the closely matted turflike surface produced by many dwarf cushion forming species growing into each other. Most of the flowers are white and much of the foliage is more or less silvery, but the colours are many and varied. The rich green of *Donatia novae-zealandiae* whose mosslike patches are really so hard that one can scarcely make any impression with a boot, *Celmisia argentea* and *C. sessiliflora* that delight to grow where the water comes up over the toes of your boots as you walk over them. Nevertheless they grow quite well in any reasonably moist soil in the garden. Both smother themselves with their white stalkless daisies and form conspicuous silvery grey carpets up to 6 feet across. Among them grow some of the bog shrubs, growing through the cushions and giving their contribution to the colour of the whole, but nowhere rising above the flat, almost turfy surface of the peat bog. They include a dracophyllum that may be *D. muscoides* with yellowish, almost orange, leaves and neat little flowers that betray it as an epacrid right away: *Pentachondra pumila* looking for all the world like a prostrate manuka until you examine it and notice the minute starry flowers that are

followed by quite large ruby berries; *Coprosma repens,* whose inconspicuous flowers, like the rest of the family depend on the wind for pollination, are followed by gay orange drupes, and the more decorative *C. petriei* that forms mossy looking masses of green and decorates them with translucent ruby red, or sometimes wine coloured fruits each the size of a marrow fat pea.

As you walk over the spreading peat bogs the variety is endless, celmisias and aciphyllas, anisotome in variety, the pale pectorella with its tufted foliage and inconspicuous flowers, the reddish *Phyllachne rubra* that is not unlike the donatia but easily recognised by its peculiar reddish tinge.

The Southern Gullies

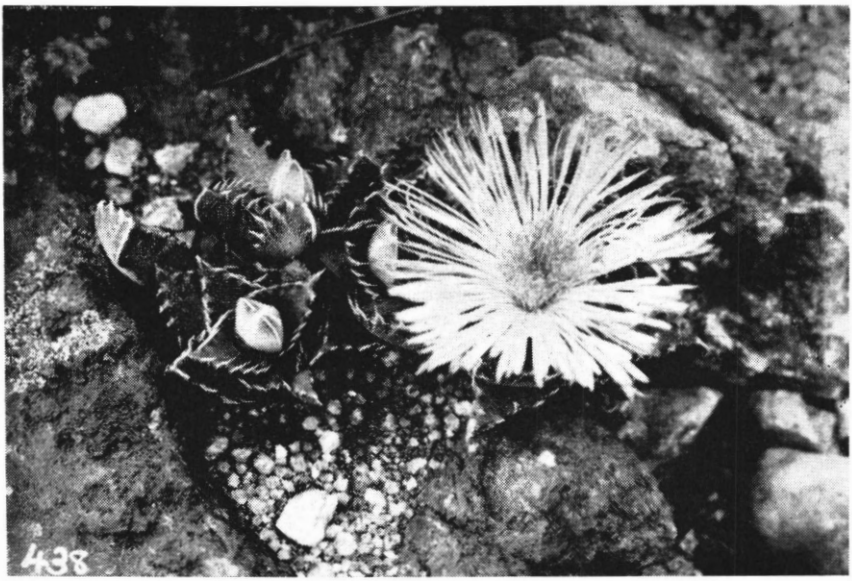
But it is some of the southern gullies where small creeks race away down to join the infant Nevis River that some of the choicest plants are to be found and fortunately many are fairly safe because you have to know the mountain really well to know where to go. There in the wet ground, lying away from the sun are all the plants we noticed on the way up and many more besides. A lovely white gentian that is probably *G. patula,* in one place covers about a quarter acre and in the creek some of the finest specimens of *Ourisia glandulosa* I have ever seen. It runs along the surface of the ground among rocky peaty debris and is one of the easiest to identify by the dark green foliage and the long glandular hairs that fringe the leaves, and the thick glandular pubescence on the peduncles and bracts. The stout little stems hold aloft the comparatively large white flowers, here about an inch in diameter and varying from four to six per stem.

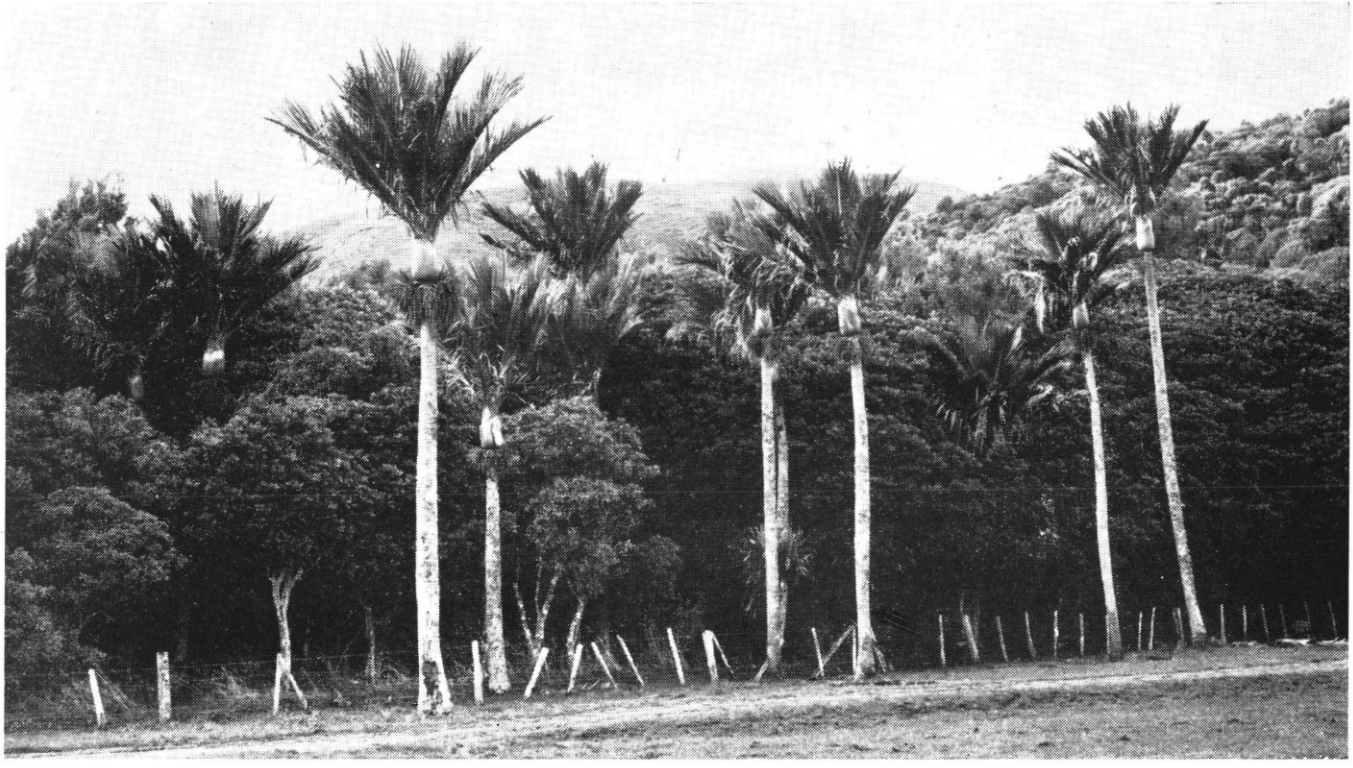
The southern sides of the rocks, being protected from the hot sun, bear some interesting plants of which the most exciting is undoubtedly *Hebe dasyphylla* which looks more like *Cassiope fastigiata* than anything I know with its little tuffet of olive green foliage and solitary half-inch flowers at the ends of the branches and white, flushed purple, in colour. A fitting companion is *Celmisia ramulosa,* the neatest little 6 inch shrublet you ever saw with white cottony stems and under leaves bearing inch wide daisies on long slender stalks from the leafy tips.

So far I have said little about the celmisias or Mountain Daisies but at one time or another I have found no fewer than ten different species on the Old Man, perhaps more. In some places they are very plentiful. In an area that we considered to be about a mile north and south and a mile east and west we once estimated that there would be an aggregate of 30 to 40 acres of celmisias of one kind or another, with that great group *densiflora, novae-zealandiae, sinclairi, discolor* predominating. These all seem to run into each other and are not to be identified lightly. Almost equally plentiful on the drier, boulder strewn slopes is *C. viscosa* very different from all others and easily recognised by its stiff narrow, more or less recurved leaves growing in very stiff rosettes. The plant has a very charac-

Gentiana patula
(see page 114).

Faucaria species
(see page 111).





Nikau palms in Native bush, Waikanae, Wellington (see page 115).

Phoenix noebeleni (see page 115).

The Loder Cup
(see page 122).

An informal garden with bird bath and pool to lend added interest
(see page 120).

teristic dull grey appearance and the hard clumps make very difficult going if you have to walk over them for any distance. Most characteristic of our mountain flowers, not only because of the beauty of their flower, form and leaf, but for their abundance in so many of our mountains above 4,500 feet, are the Mountain Daisies.

"Go where you will", says Cockayne in his "Vegetation of New Zealand", "on sub-alpine and alpine herb field and their silvery foliage strikes the eye, it may be in stately rosettes of daggerlike leaves, in circular mats trailing over he ground, or in dense cushions. Their aromatic fragrance fills the air; from early till late summer some of their white heads of blossom may be seen, while in due season gregarious species clothe both wet herb-field and dry, stony slopes with sheets of white."

PALMS AND THEIR CULTURE IN NEW ZEALAND

PERCY EVERETT, N.D.H.(N.Z.), Assistant to Horticultural Superintendent, Department of Agriculture, Auckland.

(PART 1)

The plant family *Palmaceae* is amazing in many respects; it is alluring, enchanting, and fascinating. To the traveller, palms engender reminiscences of visits to tropical lands. They create an atmosphere of dignity and respect and it is claimed that the air is cooler under a palm than under any other kind of tree. The products of palms are many and varied and were extensively exploited before the dawn of recorded history.

Palms form a distinct and important group in the vegetable kingdom. They are woody plants or trees having solid stems which are not differentiated into bark, wood, and pith. Most species have single upright stems or form clumps by the production of suckers from the base, but there are various other forms includling those with horizontal creeping stems. The upright growing species are crowned with a tuft of handsome leaves which are invariably either pinnate (featherlike) or palmate (fan-shaped), except for the first few years of growth when the leaves of all species are much alike.

A notable characteristic of palms in general is their unbranched stems which in many species rise to a great height and terminate in a crown of magnificent plume-like leaves. Other species have medium or short trunks and in a few instances no trunk is produced. Palms 50 to 60 feet high are regarded as tall, but some are reported to grow to a height of 200 feet in their native habitat. They are a prominent feature of tropical vegetation and when suitably placed never fail to add grace, beauty and dignity to a garden.

The flowers of palms in general are not greatly attractive in size, shape or colour, and in many species are about $\frac{1}{4}$ inch in diameter. However, when immense numbers are arrayed in large clusters or sprays, or are closely spaced along a series of long racemes they

are distinctly beautiful. The dominant colours are yellow or greenish white, but in some species more attractive colours are produced. Palm flowers may be perfect, i.e., possessing both male and female parts, but in many species this does not occur and male flowers may be produced on some flower stalks or trees and female flowers on others. The seeds of palms vary in size from less than the size of a pea to that of the so-called tropical double coconut which will sometimes attain a weight of 40 to 50 lb.

Usefulness

The palm family is extremely important from the viewpoint of its usefulness to man; in fact their utility is difficult to exaggerate. Multitudes of people in the tropical regions of the world depend largely on palms for their every day requirements. They supply mankind with food, shelter, clothing, valuable oils, sugar, starch, wine, and scores of other products.

The coconut is of immense value to most tropical countries, likewise the date, which is a staple food of vast numbers of people, especially in North Africa.

In temperate climates the usefulness of palms, as distinct from palm products, is mainly in their aesthetic value. As indoor foliage plants palms are probably utilised to a far greater extent than all other families of plants combined, and many millions are propagated annually for this purpose. They are to be found in homes, both humble and great, adorning the entrance hall, or stairway; they provide a background for floral displays, and in the city shops and offices they are unequalled in fostering a feeling of freshness and restfulness. For stage decorations they are unequalled and no tropical stage setting is complete without palms.

For outdoor use the palm is unsurpassed in gracefulness and elegance when grown in its rightful setting. Not only do they enhance the beauty of residential gardens, small and great, but they also give character to city parks and domains. Magnificent avenues line the boulevards of many great cities.

Climatic Range and Soils

By far the greatest number of palm species are indigenous to tropical regions; nevertheless there are scores of species that thrive in temperate climates. These include some of the species originating in the tropics. At least one species is thriving outdoors in parts of southern England and several species are to be found in gardens at Christchurch and Dunedin. It is claimed that at least twenty-five species will tolerate 10 to 12 deg. Fahr. below freezing point and a further nineteen species can be added that will succeed where oranges succeed.

Some species will not tolerate full sun, which may cause the mature leaves to turn a brownish colour and become less attractive.

Many species of palms are readily damaged by wind and when grown in exposed situations the leaves become torn and ragged, pre-

senting an untidy appearance. On the other hand, there are several popular species that will tolerate windy situations without showing the least distress.

For use in seed trays and pots, a clay loam mixed with a liberal amount of compost and sand is advised. Sandy soils which dry out rapidly should be avoided. Most palm species can be grown in any of the common soil types provided it is not waterlogged and does not dry out excessively at any period of the year. However, best results can be expected in fertile clay loam soil that remains moist throughout the year and is slightly acid in reaction.

Propagation

Palms are generally propagated by seed but sometimes by separation of suckers. Seeds are best planted as soon as mature, although some species can be kept several years without losing viability. Seed of *Howea fosteriana* has been known to germinate up to six or more years after planting, although most seeds of this species will germinate within one year of planting. The seeds of some popular species normally germinate in less than one month from the time of planting, whereas many others fail to emerge in less than two or three months.

Seed can be planted in the open in the warmer parts of New Zealand, but it is preferable to plant in shallow trays with the soil about 2½ inches deep. This prevents the roots from penetrating to a great depth and enables potting to be done with less risk of breaking the roots. The seeds should be planted in late spring or early summer and when the first leaf is fully developed the seedlings should be transplanted into 2 inch or 3 inch pots. If this stage of development is not reached until late summer or autumn, the potting should be delayed until the following spring. Extreme care is required when planting into small pots to ensure that few roots are broken. Most palms can be grown for at least two or three years after potting before they require transferring to a slightly larger pot. When repotting, it is advisable to remove as much of the old soil as is possible without damaging the roots.

Most experienced propagators agree that palms appear to make better growth when in pots that are relatively small for the size of the plant, than when in larger pots.

In propagating some species from basal shoots it is necessary first to partially sever the shoot from the parent plant, then heap earth around the shoot to induce root growth. When a few sturdy roots have been produced it can then be removed from the parent and replanted.

Transplanting

Most palms grown in the open ground do not transplant readily when they have attained a suitable size for planting outdoors. With many species a large percentage will die when transplanted, even when a considerable amount of soil is retained around the roots. Some of the hardy kinds can be successfully moved to new positions while

comparatively young, but after trunk formation has commenced the task becomes increasingly difficult. In transplanting established palm trees it is advisable to leave as much soil as possible adhering to the roots and remove most of the foliage. It is also important that the operation be carried out at a season of the year when rapid root growth is taking place; this can be expected during late spring and early summer. Removal of some of the foliage and the shading of trees for several months after moving will assist their recovery.

When transferring potted specimens to the open ground the exposed roots may be spread slightly provided they separate readily from the main cluster of roots. It is better to plant without separating the roots than to cause damage in untangling them. There should be no need to remove any of the foliage provided ample soil moisture is maintained.

Culture in Pots

Most species of palms that are commonly grown in pots are not difficult to maintain in a healthy condition in suitable climates. They require much the same treatment as many other potted plants, namely:

1. The soil should be kept continuously moist without any prolonged period of saturation.
2. Suitable fertilisers supplied at regular intervals.
3. Avoid draughty positions, excess light and excess shade.

The principal plant nutrient required by potted palms is nitrogen and this should be supplied in liquid form not less frequently than once per month by saturating the soil with the solution. The source of nitrogen supply is not important, but sulphate of ammonia at 1 oz. in 4 gallons of water is advised. Although of less importance, it is also advisable to occasionally supply phosphorus and potash. The former is readily applied by lightly dusting the soil surface about twice annually with superphosphate. The nutrient is slowly carried into the soil by each watering. The other element is best applied in liquid form using 1 oz. of sulphate of potash to 4 gallons of water and thoroughly soaking the soil with this solution once or twice each year.

Potted specimens that are required to remain indoors for long periods under dry atmospheric conditions should be placed outdoors for several nights each month, preferably when there is light rain or mist. This treatment gives the foliage a fresher appearance. The foliage should at no time be exposed to full sun, as shady conditions not only improve colour but also cause the leaf stalks to grow much longer, which in turn increases the aesthetic value of the plant.

Palms that have become pot bound are slowly forced upwards by the pressure of the roots. Action to check the upward movement should be taken before the base of the plant becomes level with the top of the pot. This is normally done by repotting into a larger pot. Where this cannot be done, the plant can be repotted in the same pot after the lower portion of the root mass has been cut away. The latter treatment causes a severe check to the plant and should

be performed only in late spring or early summer when root growth is rapid.

Note.—The foregoing article will be continued in the next three issues of "N.Z. Plants and Gardens".

NOTES FROM THE CHRISTCHURCH BOTANIC GARDENS

L. J. METCALF, Assistant Curator.

Now that the summer is past it may be as well to look back and review one or two of the plants which proved their worth.

Compared with the last two or three seasons the summer started off in a promising manner with plenty of rain in the late spring and a few showers in the early part of the summer. However, after the New Year the drought set in and, if anything, was worse than the previous summer because many plants were in comparatively soft growth. One shrub which came through with flying colours was *Hibiscus syriacus,* the hardy shrubby hibiscus, which all through the heat of the summer flowered without a break. The origin of *H. syriacus* is not certain, but it is probably native to India and China and not Syria as was supposed by Linnaeus, when he named it. The type is a shrub 6 to 12 feet high with solitary and axilliary rose or purple flowers about 2 or 3 inches across. In the garden the colour is very variable, while some forms have double or semi-double flowers. "Admiral Dewey" is a form with pure white double flowers, "Coeleste" has single purplish blue flowers, and "Puniceus" red double flowers, a number of other named varieties are also available. *H. syriacus* is an easily grown shrub and in the Gardens it thrives in a hot dry border with no artificial watering which combined with its late flowering habit makes it a desirable garden shrub.

Another plant eminently suitable for similar situations to *H. syriacus* and likewise unaffected by drought is *H. moscheutos,* the "Swamp Rose-Mallow" of America. This hibiscus is a strong growing herbaceous perennial with large three lobed leaves and very large flowers measuring up to 8 inches across. The true *H. moscheutos* is probably not in cultivation here, the plants being so offered are hybrids, probably between *H. moscheutos* and *H. coccineus.* Like *H. syriacus,* it is a late bloomer and is rarely seen in gardens. The flowers are in various shades of pink, red and white.

In the Clematis Border *Clematis tangutica* and the closely allied *C. orientalis* proved themselves to be garden plants of exceptional merit. Both species are native to Central Asia and in the autumn cover themselves with flowers of a rich yellow, held erect on long stalks. *C. tangutica* is the finer species as it has larger flowers of a slightly better colour. The flowers are not the only claim to merit of these species for after flowering the silky, tassel-like seed heads look very spectacular in the autumn sunshine as they wave about in the breeze.

Mahonia lomariifolia is a shrub of comparatively recent introduction to this country and at this time of the year several plants of it may

be seen in flower around the pine mound. Native to Burma and W. China, it is an erect growing shrub with long pinnate leaves (10 to 24 inches) in a tuft at the top of the stem. The flowers are bright yellow and crowded on erect spikes at the apex of the shoots. The fruits are blue black and also quite attractive. When this shrub is better known it should become very popular.

BASIS OF GARDEN DESIGN

DOUGLAS ELLIOTT

So you want to plan your garden? It is good to hear that because too many folk seem to think planning is unnecessary and the sad result is that they have gardens that are neither as attractive nor as useful as they could be.

Perhaps this mistaken idea about planning is due to a mistaken idea about what a garden really can be. If you think of it merely as a place for a bit of grass and a few plants or, worse still, as something surrounding the house that has to be kept tidy at the cost of too much time, then you naturally cannot see much need for a design; so let us see first of all what a garden can be.

I think its most important feature is often overlooked and that is that it should be a sort of extension of the house: a place where you can live in the open air. Then it should also be an attractive setting for the house. And, at a more earthly level, it should provide food and a work area that may be no more than a small backyard and a place for hanging out the washing.

Living in the garden has given rise to what the Americans aptly call the outdoor living-room. This is a place where you can sit in the sun or shade and have meals in fine weather, and where you and the family can play. This means, for most of us, that the area will need to be more or less private. In a big garden we can select one or more parts for the purpose but in the small garden the whole available area may be only just big enough. For the most convenient use, the outdoor living-room should be near the house, and preferably should have a door or French window opening out into it.

As a setting for the house the garden may in some cases follow the style of architecture employed in the buildings, especially where the style is very definite. For instance, a very formal building would require at least a hint of formality in the garden and in any structures such as pergolas or pools, whereas a rambling informal house calls for a rambling informal garden. Some of the rather severe looking modern houses with their low roofs and straight lines are much improved by the right placing of the right kind of tree and shrub, but at the same time it is important that the house should not be hidden.

Houses that are intended to look tropical, such as some of the Spanish bungalows, require special care in the selection of the plants that are to form their setting. There are many with large leaves and other apparently tropical appearance even though they may not actually come from tropical countries.

When it comes to growing food in the garden, it is not so much the style and shape of the vegetable patch that matters as its placing and its size. There is not much point in having a large vegetable garden for a small family or indeed in having any vegetable garden at all if the section is very small and the owners are content to buy their supplies. After all, you can buy vegetables in a shop but no shop will supply you with happy hours outdoors in a pretty garden. As to the placing of the vegetable garden, it should, if possible, be well away from the house and certainly not in full view of your living room windows. Though it may excite your gastric juices, it is not the prettiest picture in the world. Yes, I know a good vegetable garden is attractive but a good flower garden is much more so—and all the year round.

The work area is normally around the kitchen door because that is the most convenient spot. If this part of the garden includes enough space for the drying line, so much the better; but if at all possible the line should not be allowed to spoil a view from the main windows. Rotary clothes-lines are frequent offenders in this way. The old wire strung between posts or trees is less conspicuous even if not so handy. But the main reason for keeping the line away from important windows is that the odd bits of washing that are put out daily in some households are not a pretty part of the picture.

The placing of the garage or car port can often have a big effect on both the usefulness and the appearance of the garden. So if you are building now, give plenty of thought to the problem; it is not merely that the garage itself will take up space but the drive will do the same and it will also, in the average town garden, make a wide open space that will break into your privacy and into your garden area. If you drive in some distance from the street you may want to arrange for a turning area. This can be attractive and it should certainly be ample and easy to use otherwise you will have tyre marks on the garden, to say nothing of frayed tempers.

The placing and line of footpaths and the material used in their making, also have a big part to play in the beauty and convenience of our garden and should be given careful thought before the final decision is made.

Garden features such as pools, pergolas, rock gardens, ornaments, steps, and walls can add greatly to the beauty and interest of a garden but they can also too easily be wrongly placed or so poorly constructed that they spoil the effect.

The choice of plants is particularly important. Not only do we want plants that are trouble free and beautiful but we also want plants of the right shape, colour, and texture to fit in with our design and

they have to be set in the right position to add emphasis to the line of a border, to give colour at a special time of year, to screen an undesirable sight or to enhance a beautiful view.

In later articles we will treat these subjects in more detail, and in this way we hope to make it possible for you to work out your own design and add greatly to your pleasure in gardening.

THE LODER CUP

"Offered to lovers of nature in New Zealand to encourage the protection and cultivation of the incomparable flora of the Dominion."

ROSALIE A. CAMPION

For the last twenty-eight years, probably unknown to many of our readers, a treasure highly valued by New Zealand naturalists and horticulturists has been circulating in New Zealand. It is known as the Loder Cup.

Towards the end of last century, Mr. Gerald W. Loder (later Lord Wakehurst), on a visit to New Zealand, was impressed by its "incomparable flora". He became an ardent collector of New Zealand shrubs and plants and remained so until his death. In 1926 Mr. G. W. Wright, an Auckland horticulturist, visited Mr. Loder's home in Sussex and remarked that he "saw more native New Zealand plants on Mr. Loder's property than are found in any one place in New Zealand."

After discussions with Mr. Wright, Mr. Loder, who was a member of the Council of the Royal Horticultural Society, decided to offer a challenge cup to the value of 50 guineas to be held for one year by the exhibitor of the best collection of native plants and flowers at certain flower shows in New Zealand.

The Cup was first vested in the Minister of Agriculture and two botanists, but a more representative committee was later appointed.

During the first years competitions were held in Auckland, Dunedin, Christchurch, and Wellington.

The original conditions were very soon found to be far too restricted to give anything like full effect to what the donor had in mind. The conditions really restricted the competition to a few nurserymen who were able to supply an excellent but overwhelming display.

After much deliberation it was decided to reconstitute the conditions governing the award so that the winner would be selected from nominations received from recognised societies or organisations. The competition has been run on this basis since 1934, when His Excellency Lord Bledisloe, then Governor-General of New Zealand, was awarded the Cup in recognition of his distinguished advocacy of the merits of the indigenous flora and his services to New Zealand horticulture and forestry.

The conditions under which the Loder Cup is now presented are set out here in full so that people may realise how they may nominate people whom they consider worthy of the award.

CONDITIONS OF THE AWARD

Administration, Custody, and Award of Cup.

(a) The Loder Cup shall be entrusted to the Minister of Agriculture who shall make the annual award of the Cup.

(b) The Minister shall be assisted by an advisory committee known as the Loder Cup Committee, which shall deal with all matters relating to the administration, custody, and award of the Cup.

Constitution of Committee and Term of Office.

The Committee shall consist of the Director, Horticulture Division, Department of Agriculture (who shall be Chairman) and six other members who shall be severally nominated by:

The Royal New Zealand Institute of Horticulture (Inc.).
The Royal Society of New Zealand.
The University of New Zealand.
The N.Z. Horticultural Trades Association (Inc.).
The New Zealand Institute of Park Administration.
The Forest and Bird Protection Society of N.Z. (Inc.).

The term of appointment of the Committee shall be three years commencing from the first day of March, 1952, and every three years thereafter. Any member of the Committee shall be eligible for re-appointment.

(a) *Chairman*: In the absence of the Director from any meeting, the Committee shall elect one of its members present to be Chairman for the meeting.

(b) *Secretary*: The Committee shall arrange for the appointment of a Secretary.

(c) *Expenses*: The expenses of the Committee, including secretarial fees, stationery, engraving of Cup, insurance, etc., shall be met by the Royal N.Z. Institute of Horticulture (Inc.) out of the annual grant received from the Government.

Nominations for Award.

Any person, association, society, firm, company, local body, or body of persons (whether corporate or unincorporate) may be nominated for the award by any of the following persons or bodies:—

(a) The Royal N.Z. Institute of Horticulture (Inc.) and any society affiliated thereto.
(b) The Royal Society of New Zealand and any Society affiliated thereto.
(c) The University of New Zealand and any Constituent College thereof.
(d) The N.Z. Horticultural Trades Association (Inc.) and any Society affiliated thereto.
(e) The New Zealand Institute of Park Administration and any Society affiliated thereto.
(f) The Forest and Bird Protection Society of N.Z. (Inc.) and any Society affiliated thereto.
(g) Any private person through one of the above mentioned Societies.

Provided, however, that only one nomination may be accepted from each body entitled to nominate.

Nomination Particulars.

Each nominating organisation is requested to forward 12 copies of the statement of work done by the nominee, and the nominating organisation is requested to vouch for the accuracy of the statement and, if possible, to forward documentary evidence.

Closing Date for Nomination.

It shall be the duty of the Secretary of the Committee to forward notices in June of each year to all nominating bodies inviting them to submit nominations.

Every nomination shall be transmitted to the Committee so as to be delivered to the Committee on or before the 30th day of September in any year.

Award of Cup.

(i) The Cup shall be awarded annually to the person or body of persons (whether corporate or unincorporate) who or which has been nominated for the award as hereinbefore provided, and who or which has excelled all other nominees in furthering the aims and objects of the donor of the Cup. (The committee may refrain from making a recommendation in any year if in its opinion the quality of the work of nominees does not justify the making of an award for that year.)

(ii) For the purpose of facilitating an award of the Cup in any year the

Committee may consult any person having special knowledge of particular aspects of the work of the nominee.

(iii) The Committee's recommendation shall be made annually to the Minister, whose decision shall be final.

Publication of Result of Award.

The decision with respect to every award shall be published as soon as practicable after 30th September in any year but not later than 31st December in that year.

Certificate of Award.

A Certificate of Award shall be issued to every person or body of persons to whom or to which an award of the Cup is made in any year.

Location of the Cup.

The Cup may be exhibited annually at a place to be selected by the Committee, together with a complete list of all previous awards, and a statement of the particular merits of the work of the successful nominee in respect of the award for the current or last preceding year.

List of Awards.

This list gives the names of people or organisations who have been awarded the Loder Cup. The aggregate of their influence is enormous. There are many others who have also done much to "encourage the protection and cultivation of the incomparable flora of the Dominion." To them all, we are greatly indebted.

Under Original Conditions of Award.

1929—At Auckland: Duncan and Davies Ltd., New Plymouth.
1930—No competition.
1931—At Dunedin: Henry Bennett and Sons, Dunedin.
1932—At Christchurch: Henry Bennett and Sons, Dunedin.
1933—At Wellington: Thos. Waugh and Son, Wellington.

Under New Conditions of Award.

1934—Viscount Bledisloe: Publicity on New Zealand flora.
1935—Bruce Trust in perpetuation of memory of late Robert C. Bruce, Wanganui: Hunterville reserve—bush bought.
1936—Simpson and Scott Thomson, Dunedin (joint winner): Botanists.
1937—Auckland Institute and Museum in association with the name of its Botanist (Miss Lucy M. Cranwell): Annual Shows, Cheeseman Memorial Exhibitions, etc.
1938—Mrs. Knox Gilmer, now Dame Elizabeth Knox Gilmer, Wellington: Native flora, growing native plants, and publicity.
1939—W. A. Thomson, Dunedin, botanist: Garden of native plants and alpines.
1940—Major P. H. Johnson, Raincliff: Gift of 1000 acres of bush—Raincliff, South Canterbury.
1941—E. Earle Vaile, Auckland: Preservation of native flora, Bay of Plenty, Taupo, Waitakere.
1942—A. W. Wastney, Nelson: Botanist, forest ranger.
1943—J. Speden, Gore: Grower of native plants; botanical explorations.
1944—Norman Potts, Opotiki: Native bush and its nomenclature.
1945—W. B. Brockie, Christchurch, botanist: Botanical Gardens and publications.
1946—The Forest and Bird Protection Society of New Zealand Inc., in association with the name of the late Captain E. V. Sanderson, the founder of the Society: Protection—publicity.
1947—N. R. W. Thomas, of Auckland: Waipoua kauri forest.
1948—A. D. Beddie, Petone: Otari Plant Museum, Wellington; botanising Mt. Matthews.
1949—Miss N. Baker, Stewart Island: Collection of native plants.
1950—A. P. Harper, Wellington: Exploration and preservation of the Westland forest; publications.
1951—L. W. McCaskill, Lincoln College: Education, plantings, and preservation.
1952—Miss M. W. Crookes, Auckland: Native flora, Cheeseman Memorial Exhibitions, education, and publications.

1953—Mrs. Perrine Moncrieff, Nelson: Donor of 363 acres of native forest. Initiated establishment of Abel Tasman National Park, 38,000 acres.
1954—N. L. Elder, of Hawke's Bay: Teaching, mapping, and botanising.
1955—M. C. Gudex, of Hamilton: Botanist, preservation, and publicity.
1956—F. S. Halman, of Whangarei: Collecting, propagating, and cultivating native plants.

BOOK REVIEWS

PLANT PROTECTION IN NEW ZEALAND, published by the Technical Correspondence School, New Zealand Department of Education.

This book is admirably produced by the Government Printer on 699 pages, with very durable binding. There are nearly 500 splendid illustrations, also charts, full reference key, index, glossary, and may be termed an "omnibus" by Plant Protection specialists. It is a work by scientists who are specialists in their particular field of research and activity, presenting in one volume the long awaited and desired comprehensive account of plant protection.

Subjects covered include Fungus Diseases, Bacterial Diseases, Virus Diseases, Physiological Diseases, Insect Pests, Plant Protection Chemicals, Fumigation, Soil and Seed Disinfection with descriptions as to their nature and guides to control. The necessary mechanical aids are also illustrated and described.

The existence and welfare of man depending as it does on the plant products of the earth, the more rapid forms of transport facilitating rapid spread of pests and diseases, it is well that not only is research being conducted by the scientists but the results are made available in applicable form that protective measures may be adopted by producers. It is all to the good that the public in general may be better informed on what is not only an interesting and fascinating subject but of vital importance extending beyond this generation.

For the student of the subjects dealt with there is sufficient explanatory detail treated in a manner not only to inform but to encourage further study and research while, as a text book, it is both full and modern.

For the practical man, be he farmer protecting vital plantations and vegetation, nurseryman, orchardist, horticulturist whose livelihood depends on the production of clean crops, or the "do it yourself" amateur who delights in producing fruit and vegetables for the table or plants of beauty, there is information on which he can base proven protection measures.

For the tutor there are clear progressive steps in the various subjects which permit of easy recognition of the points which need stress. Being the text book of the Technical Correspondence School Department of Education is sufficient recommendaiton of value. The chemistry and use of modern therapeutants is clear yet unique among publications.

While the general subject matter is plant protection, there is an added interest and advantage to be derived from the plant nomenclature which is an undercurrent throughout the book.

For the general reader there is much to educate and entertain, though it is not popular science fiction, but science fact; not by "Back room boys" but by scientific research supported by extensive work in the field of application.

Should there be any particular subject or aspect the reader may desire to pursue, the Bibliography quoted is a guide to other publications which are mainly of New Zealand origin.

While it is perhaps unfortunate that the subjects of Biological Control and Plant Breeding are not more fully dealt with, as they play an important part in plant protection, the whole work is most detailed and comprehensive and will meet a long felt want in this Dominion which depends so much on plant life and must, to survive, adopt and continue forms of protection.

HOW WE GOT OUR FLOWERS, by A. W. Anderson, A.H., R.N.Z.I.H. (Published by Ernest Benn Ltd.)

Horticulture has a bibliography of its own and many a keen gardener is a bibliophile, more or less. There is the ordinary gardener who will possess a few practical books on gardening. There will be others who read a wider

literature and there is the very keen gardener who likes to have the beauty and interest of plant life reflected on his bookshelves as well as in his garden. Many of the old books of unique interest are difficult to obtain and only turn up, periodically, at book auctions where they command very high prices. In the book under review Mr. Anderson has seen to it that no gardener need be ignorant of the many historical details connected with the introduction and development of plants. In this case fact is certainly as strange and fantastic as fiction. The story of the fantastic tulip mania in Holland in the early part of the 17th century makes most interesting reading, the ruse whereby a burgomaster steals precious seed of a rare anemone, the attempt to popularise the dahlia as an edible root to take the place of the potato before it became known as a florist's flower and the many plants, refugees from foreign persecution, brought to England in Tudor and Stuart times are features of interest. In one of the most entertaining chapters of this book, it is told how Napoleon Bonaparte's first Empress Josephine developed her famous gardens at Malmaison. The war between England and France appeared to be no impediment to the Empress insisting on an English garden and employing a Scotch gardener, Thomas Blaikie, for the purpose and importing plants from a Hammersmith nurseryman! The story of the original finding and naming of some of our New Zealand plants and other genera of the Southern Hemisphere combine to make a most interesting book that cannot fail to interest all gardeners who love a good book. It is brought right up-to-date with George Russell, of lupin fame. But there were many good lupins before the Russell strain was introduced. George Downer of Chichester, Maurice Prichard of Christchurch, and John Harkness of Bedale, Yorkshire, had lupins of good size and a wide range of colour and it was upon these that George Russell built his famous strain. Originally this book was entitled "The Coming of the Flowers", surely a title more pleasing than the present one. The woodcuts that illustrate the book are pleasing and add to its format.

PLANTS OF THE BIBLE, by A. W. Anderson, A.H., R.N.Z.I.H. (Published by Crosby Lockwood & Son Ltd.

A book no less pleasing than the author's former book, "The Coming of the Flowers", this is more specialised in character. It deals with twenty-four plants and trees of the Old and New Testament. There are twelve coloured illustrations, charmingly reproduced from the old coloured garden books, each illustrating a subject described in the text. Apart from their biblical associations the flowers in question are given their legendary and historical lore as well. The chapter dealing with the fig tells us "Thomas a Becket, returning from a pilgrimage to Rome is credited with having brought home the first fig tree and planted it at Tarring in Sussex". There is the story of how Cleopatra became owner of the Balsam groves of Jericho and, to the annoyance of Antony, became a grasping landlady. The controversy arises again as to what is the true "Lily of the field". Mr. Anderson favours *Anemone coronaria* and cites good authority for this, although there are others who firmly believe this to be *Sternbergia lutea.* The discovery, over 30 years ago that the Madonna Lily, *L. candidum,* grew in the mountains of upper Galilee, supports yet another candidate. It is indeed heartening to find New Zealand horticulturists of knowledge and repute putting pen to paper and producing such delightful books as these. May they prove a stimulus for others to follow suit.

OFFICIAL REPORTS AND ANNOUNCEMENTS.

ANNUAL REPORT OF THE DOMINION COUNCIL FOR THE YEAR ENDED 30th SEPTEMBER, 1956

Ladies and Gentlemen,

Your Council has pleasure in submitting its Annual Report for the year ended 30th September, 1956.

1. MEETINGS:

(a) **Annual Conference:**

The 33rd Annual Meeting of the Dominion Council of your Institute was held in Victoria Concert Chamber, Town Hall, Invercargill, on Tuesday, 31st January 1956. This Conference was particularly well attended as most Districts had representatives. In addition there was a very strong representation from Local Bodies Superintendents of Reserves as well as the various organisations which have representation on this, your Institute.

The Hon. J. R. Hanan, Minister of Immigration, officially opened the Conference.

(b) **Dominion Council:**

The Dominion Council met on five occasions during the year. There was an average attendance of approximately 16 members at all Dominion Council meetings which was very gratifying, considering the distance some representatives have to travel.

(c) **Sub-Committee Meetings:**

The Examining Board, the Finance, Publications, and Special Committees have met at various times throughout the year and as a consequence, the administration of your Institute has been well cared for.

2. OBITUARY:

It is with regret that your Council records the loss of several members during the past year. Their loss will be sadly felt and our sympathies were suitably expressed to their relatives.

Particular reference is made to the passing of Sir Heaton Rhodes, of Canterbury, an Associate of Honour and distinguished member; and to the late J. B. Paterson, A. Butterworth (of Auckland), Dr. G. Home (New Plymouth), and Hope Gibbons (Wellington), all of whom were Associates of Honour.

3. MEMBERSHIP:

The membership of the Institute has been well maintained throughout the past year. The total membership stands at 2,102 including Associates of Honour, as compared with 2,140 (36 Associates of Honour) in 1955. This membership constitutes 18 District Councils.

It is sincerely regretted by the Dominion Council that organized activities have ceased amongst the members in the Rotorua, Hawke's Bay, and Hutt Valley District Councils. Members in these localities appear to be catered for, however, in horticultural interests by the activities of local Horticultural Societies.

4. FINANCE:

(1) **Annual Accounts:**

The appended Annual Accounts reveal an excess of expenditure over income of £197/0/7 for the year ended 30th September, without bringing into account the cost of publishing the new Journal, "N.Z. Plants and Gardens", which was financed from the special Publications Fund. Income from regular sources was maintained and there was additional revenue from fees for Honorary Diplomas and Certificates. Expenditure has risen, mainly under the headings of Printing and Stationery, Capitation Fees, and Publications ("N.Z. Gardener"). This adverse balance for the year is being carefully considered by the Finance Committee.

(2) **Trust Accounts:**

These total £1,222/5/10, and are clearly set out in the published statements. All these funds are properly invested.

(3) **Publications Account and Loder Cup Account:**

Separate statements covering both of these funds are also appended. The Accounts for the September issue of the "N.Z. Plants and Gardens" were not received in time for inclusion in those statements and will therefore appear in the 1956-57 Financial Accounts.

5. LOCAL BODY DONATIONS:

The support accorded the Institute by Local Bodies during the past year has been appreciated and your Institute would like to record its gratitude to all Local Bodies throughout the Dominion who have contributed to the funds of the Institute and thereby encouraged those associated with the administration of your organisation.

6. PUBLICATIONS:

In accordance with earlier discussions, the new Journal styled "New Zealand Plants and Gardens" was duly proceeded with during the year, commencing with Volume 1 in December 1955. It is regretted that the Journal faced unforseen problems early in its history in that neither of the editors was able to remain with the Journal. This, together with the cost of publishing, caused the Dominion Council some concern and particular efforts were made to secure the services of another editor. Mr. G. A. R. Phillips, of Paraparaumu, was duly appointed to assume responsibility as from the December 1956 issue. This subject will be more fully dealt with by the Publications Committee in their report to the forthcoming Dominion Conference. Suffice it to say, however, that the Dominion Council has resolved to see the Journal soundly established as they are persuaded that the Institute must have its own Journal of the highest possible standard.

The Dominion Council expresses its appreciation of the services of Mr. M. Richards, who served as first editor of the Journal until September 1956.

7. ARBOR DAY:

The outstanding importance of tree planting in our Dominion is gaining prominence in the minds of the people and the members of the Institute are in a unique position to encourage and foster this national outlook. Arbor Day provides the practical opportunities to promote the interests of tree-planting and it is very pleasing to record that District Councils are taking a lead in the annual Arbor Day ceremonies.

8. SOIL CONSERVATION:

This matter has continued to receive the attention of the special sub-committee who have been active in gathering information from sources throughout the Dominion. They hope to be in a position to table their findings at an early date.

9. EXAMINING BOARD:

(a) **Meetings:**

During the year the Board met on five occasions under the Chairmanship of Mr. E. Hutt, N.D.H. (N.Z.), and the average attendance at these meetings was six members.

(b) **Revision of Prescriptions:**

The revision of the prescriptions for the N.D.H. and the N.D.F.C. examinations has now been completed and the following table shows the new subjects which, having been approved by the Minister of Agriculture will come into operation in 1957.

Junior	Intermediate	Diploma
1. General Science or Chemistry.	6. Principles of Botanic Classification.	10. Horticulture Stage II (2 papers).
2. Book-keeping.	7. Horticulture Stage I (2 papers).	11. Plant Protection Stage II.
3. Horticultural Botany.	8. Special Subject.	12. Oral and Practical Stage III.
4. Plant Protection Stage I.	9. Oral and Practical Stage II.	13. Thesis.
5. Oral and Practical Stage I.		

Certain concessions are available to those candidates who have already passed in the subjects affected by the revision.

(c) **Granting of Certificates in Vegetable Culture (without examination).**

Under its Statutory powers to grant certificates subject to certain

conditions, the Examining Board approved the issue of 16 Certificates in Vegetable Culture during the year.

(d) **Examinations in the subject of Bee-keeping:**

During the year the Examining Board investigated carefully the question of instituting examinations for a certificate in Bee-keeping. Finality was reached and it is expected that Statutory Powers to conduct this examination will be granted the Institute early in 1957.

(e) The 1956 Examinations in the subjects for Diplomas in Horticulture and Fruit Culture, Certificates in School Gardening and Vegetable Culture, and Seedsman's Certificates, were successfully concluded and a summary of the results is appended. Our congratulations are extended to those candidates who were successful in gaining passes. Also to Mr. G. N. J. Goldie, of Levin, who received the award of the Cockayne Gold Medal. There was no award of the J. A. Campbell Memorial Prize. Some of the theses submitted by Diploma candidates were of very good standard, particularly that of Mr. G. N. J. Goldie on the subject of "Perpetual Carnations".

Examinations were conducted in 12 centres.

10. LODER CUP AWARD 1956:

The Dominion Council extend their congratulations to Mr. F. S. Holman, F.R.I.H. (N.Z.), of Whangarei, who was awarded this coveted trophy for 1956 in recognition of his outstanding work. Mr. Holman was nominated by the Whangarei District Council. There were altogether seven nominations.

11. TIMBER MILLING IN UREWERA FORESTS:

The Dominion Council has followed with close interest the development of timber milling in the Urewera District and a small sub-committee was appointed to keep the Dominion Council fully informed on this subject. This committee has already done valuable work. The Institute will ever be concerned with the preservation of our native bush and can play a valuable and important part in endeavouring to bring this about.

12. CHRISTMAS TREES:

The Dominion Council became concerned about the wanton cutting of young pine trees and the damaging of larger trees for use as Christmas trees, each year. A sub-committee was appointed to assemble facts and make a report. Resulting from this action the Institute was able to take the matter up with the Horticultural Trades Assn., the N.Z. Forest Service, and the Institute of Park Administration, with a view to encouraging the establishment of an organised industry for the supply of Christmas Trees, and also to educate the people on the value of trees.

13. DOMINION SECRETARY:

During the year Mr. J. H. McIvor tendered his resignation after serving the Institute for ten years. At their meeting held on 3rd July 1956 the Dominion Council, in accepting his resignation, placed on permanent record their appreciation of the service Mr. McIvor had rendered during his term of office.

Mr. K. J. Lemmon, Public Accountant of Wellington, was appointed in succession to Mr. McIvor.

14. VOTE OF THANKS:

The thanks of your Dominion Council are extended to all those who have contributed to the successful functioning of the Institute during the past year and in particular to:

1. The New Zealand Government, Ministers of the Crown and Departmental Officers.
2. Local Bodies for their continued interest and financial support and to the Superintendents of Reserves throughout the Dominion.
3. Examiners who set the papers covering all aspects of horticultural education, and others who assisted in the conduct of the examinations.
4. All members, District Chairmen and local Councillors for their

active assistance in fostering the Institute objectives in their respective localities and to all others who have assisted directly and indirectly in furthering the work and influence of the Institute.

15. CONCLUSION:

The year has been a happy one for me as your President, and I pay tribute to the enthusiasm and energy shown by members of the Dominion Council and Examining Board as they have dealt with the affairs of the Institute throughout the past year. The Institute is playing a vital role in Horticulture in our Dominion and will continue to do so in the years ahead. It is the only examining body in Horticultural subjects in New Zealand and its influence is spreading out into the lives of young people who are making horticulture, and kindred vocations, their careers.

Horticulture is growing in importance in our Dominion, which is so essentially agricultural in its outlook and productivity, and to the Institute is being entrusted the solemn responsibility of not only guarding her interests but also of promoting them on every hand and at every opportunity. May we never be found wanting in the discharge of this trust.

JOHN HOUSTON, LL.B., *President,*
Royal New Zealand Institute of Horticulture Inc.

ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURE INC.
THIRTY-FOURTH ANNUAL CONFERENCE

The Thirty-Fourth Annual Meeting and Conference of Delegates was held at Whangarei on Thusday, 28th February, 1957.

The President, Mr. John Houston, LL.B., of Hawera, who presided over a very good attendance of delegates and representatives from various affiliated organisations warmly welcomed delegates and visitors to the Conference.

The Conference was officially opened by the Hon. S. W. Smith, Minister of Internal Affairs and Forests, deputising for the Vice-Patron of the Institute, the Rt. Hon. K. J. Holyoake. In his remarks Mr. Smith congratulated the Institute on its decision to visit Northland this year following last year's Conference at Invercargill. He considered this visit to be especially fitting as Mr. F. S. Holman had been awarded the Loder Cup. He was impressed by the broad basis and range of examinations conducted by the Institute and referred to the policy statement of the Editor of "New Zealand Plants and Gardens" that "articles on practical horticultural procedure will be provided only by those who are able to write by virtue of their own experience and observation". He re-iterated the statement in the Annual Report of the Institute touching upon the growing importance of horticulture in our Dominion and called attention to the place occupied by the Institute in guarding her interests and in promoting them on every hand and at every opportunity.

Occasion was also taken by the Mayor of Whangarei, Mr. W. L. McKinnon, to extend a warm welcome to Whangarei to all delegates.

Mr. A. W. Green, of Hamilton, suitably responded to the opening address by the Hon. Mr. S. W. Smith and to the welcome by His worship the Mayor, and thanked him for the hospitality extended by the people of Whangarei to their visitors. Mrs. Gower of Wanganui joined Mr. Green and expressed sincere thanks on behalf of the ladies for the floral arrangements placed in hotel rooms for them.

PRESIDENT'S ADDRESS

The President, Mr. John Houston, LL.B., in his Presidential address confined his remarks to three points: firstly, he emphasised the important part being played by the Examining Board of the Institute today compared with past years. This Board had a considerable task on hand, having the administration of not less than five separate schemes of examination in horticultural subjects. The Institute is the only body in the Dominion with statutory authority to award certificates and diplomas in Horticulture, Fruit Culture, Vegetable Culture, School Gardening and Seedsmen's qualifications.

Secondly, the Institute's official journal had now become a reality in a form and of a quality that would command full respect throughout horticultural circles in the Dominion and overseas. It must continue to be our aim to reach the highest possible standard of publication in this journal and every member and each District Council must feel their responsibility to support and assist the Editor by contributing articles of good literary quality and of real interest. Mr. Houston expressed the opinion that there must be many persons in New Zealand eminently suitable to write articles on New Zealand subjects of which there was a wealth and wide variety.

Thirdly, the President stressed the need of having the Institute in a sound financial position. To publish its own journal, to conduct Dominion-wide examinations and to prosecute the regular objects of the Institute called for a solid income backing and he felt confident that members would give their full support in this.

IN MEMORIAM

The President spoke of the affectionate memories of the esteemed members whose decease had occurred since the last Dominion Conference, amongst whom were the following Associates of Honour: Sir Heaton Rhodes (Canterbury), J. B. Paterson (Auckland), A. Butterworth (Auckland), Dr. G. Home (North Taranaki).

ASSOCIATES OF HONOUR

Upon the recommendation of the Dominion Council, the nominations of Messrs. J. Passmore, F.R.I.H. (N.Z.), of Dunedin, and H. M. Hammond, F.R.I.H. (N.Z.), of Hamilton, for election to the high office of Associate of Honour of the Royal New Zealand Institute of Horticulture, A.H.R.I.H.(N.Z.) came before the Conference.

On the motion of the President it was unanimously resolved that the distinction of Associate of Honour be bestowed upon Messrs. J. Passmore and H. M. Hammond. Mr. Passmore, being present, received his engraved certificate and suitably replied to the President's congratulatory remarks. Mr. Hammond's certificate was handed to the Waikato District Council for presentation.

The Constitution of the Institute provided that not more han 40 persons at any one time could hold the distinction of Associate of Honour. There are now 35 Associates of Honour. (Citations in support of these nominations are published elsewhere in this issue).

ANNUAL REPORT

The Annual Report for the year ended 30th September, 1956, had been previously circulated amongst all District Councils and delegates.

In moving the adoption of the Report the President briefly referred to the various matters contained therein. (The report is published in this issue.)

The Report was duly adopted without discussion.

FINANCIAL STATEMENTS

The Financial Statements for the year had been previously circulated and were duly adopted on the motion of the Chairman of the Finance Committee, Mr. J. F. Living, F.R.I.H. (N.Z.). Expenditure exceeded Income to the extent of £197/0/7.

EXAMINATIONS

The Chairman of the Examining Board, Mr. E. Hutt, N.D.H. (N.Z.), A.H.R.I.H. (N.Z.), reported on the activities of the Board throughout the past year during which much thought and attention had been given to the revision of examination prescriptions for National Diploma in Horticulture, the National Diploma in Fruit Culture, and the Certificate in School Gardening. These changes had been approved by the Minister of Agriculture and would come into force in 1957.

Certain concessions would be available to students who had partly completed the present prescriptions.

The Examining Board had approved the institution of a new examination in Bee-keeping and statutory authority to issue such Diplomas was expected

early in the 1957 Parliamentary Session. During the year 16 Certificates in Vegetable Culture had been awarded without examination to approved applicants. The Institute had been given special statutory authority to issue such diplomas up to 31st December, 1956.

Fifty-two candidates had submitted themselves for examination last November. The coveted award, the Cockayne Memorial Gold Medal, for the candidate gaining the highest average marks in the Diploma section of the examinations had been awarded to G. N. J. Goldie, of Levin, but there had been no award of the J. A. Campbell Memorial Prize.

DISTRICT COUNCIL REPORTS

Reports were submitted by several delegates on behalf of their District Councils. Monthly meetings with talks, films, demonstrations, 'bus outings, co-operation with Horticultural Societies and Gardening Clubs, monthly newsletters amongst members, question times, features amongst the activities of District Councils. It was felt that visits between neighbouring district councils would be beneficial as well as providing occasions for happy social intercourse amongst members.

PUBLICATIONS

Mr. A. M. W. Greig, B.Sc., N.D.H.(N.Z.), F.R.H.S., Chairman of the Publications Committee, paid tribute to the work of members of that small Committee for their co-operation and untiring efforts, in conjunction with the Editor, to get the official Journal of the Institute, "N.Z. Plants and Gardens", fully and successfully established. There had been several previous attempts to get a Journal published by the Institute but for varying reasons these had not fully succeeded. The latest endeavours had every promise of being successful and he felt that the Journal had reached a standard, of which the Institute could feel justifiably proud. He hoped that before long it would be possible to have about 80 per cent. of the articles written and supplied by New Zealand authors on New Zealand subjects.

The Journal had the support of the N.Z. Institute of Park Administration, stated Mr. M. J. Barnett. There had also been very favourable comment from many other sources.

Members generally had been favourably impressed by the standard of the Journal.

Mr. J. F. Living introduced the motion calling for an increase in subscription rates and gave a résumé of the financial position of the Institute, and in particular the costs of publishing the Journal. An increase in revenue to finance the Journal was imperative and without dissent the following subscription rates were adopted. The former rates are shown in parentheses.

Individual members	£1	0	0	p.a.	(15/-)
Firms, Societies, or Associations	£1	10	0	p.a.	(£1/ 5/-)
Fellows	£1	10	0	p.a.	(£1/ 5/-)
Life Members	£15	15	0	p.a.	(£15/15/-)*
Non-member Students (exam. privilege)		10	0	p.a.	(10/-)*
Junior members (excluding literature)		2	6	p.a.	(2/6)*

* No change.

Every financial member is to receive one copy free of each quarterly issue of the Journal "N.Z. Plants and Gardens".

The monthly journal, "N.Z. Gardener", published by A. H. and A. W. Reed Ltd., would be supplied to members who requested it and paid an additional 15/- p.a.

Capitation fees payable for the current year to District Councils were fixed at 2/6 per individual financial member, and 5/- for Firms, Societies, Associates and Fellows.

The sum payable for Life membership was referred back to the Dominion Council for their consideration to a scale rate related to the age of applicants.

Advertising in the Journal was being sought to augment revenue, but such advertisements must be dignified and related to horticulture.

Continued future association with the monthly Journal "New Zealand Gardener" was to come up for the consideration of the Dominion Council, now that the Institute had its own official Journal.

A proposal for special family subscription rates was also referred to the Dominion Council for consideration.

At the conclusion of the formal business of the Conference, Mr. W. A. Fletcher, Citriculturist, of Auckland, gave a very interesting address, illustrated with slides, on the subject of "Impressions of Sub-tropical Fruit-Growing Overseas".

CITATIONS SUBMITTED IN SUPPORT OF THE NOMINATIONS OF MR. J. PASSMORE, OF DUNEDIN, and MR. H. M. HAMMOND, of Hamilton, FOR ELECTION AS ASSOCIATES OF HONOUR OF THE ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURE.

The Constitution of the Institute gives authority to the Annual Conference to bestow the title of Associate of Honour on persons duly nominated who have rendered distinguished service to Horticulture.

MR. H. M. HAMMOND (Nominated by Waikato District Council).

Mr. Hammond has been an energetic member of the Hamilton Horticultural Society for 30 years, a Committee member for 20 years, President for at least six years (at intervals), and for his outstanding work was made a Life Member of the Society.

He was, for many years, the most successful exhibitor of dahlias in the Auckland Province.

In recent years he has specialised in gerberas and raised some magnificent specimens, lecturing and demonstrating on them whenever invited and giving pleasure to hundreds of horticulturists thereby. Mr. Hammond is a foundation member of the Committee of the Waikato District Council of the Royal New Zealand Institute of Horticulture Inc.

He was a member of the Hamilton City Council for 19 years and of the Hamilton Domain Board for 15 years until it was merged into the City Council. He was then Chairman of the Parks and Reserves Committee for several years.

He is now President of the National Daffodil Society. For 30 years or more Mr. Hammond has done wonderful work for Horticulture in general, administration of Societies, talks, demonstrations, judging, donations of plants to boys and girls and, indeed, by helping gardeners at all stages and of all ages.

He was one of the "Final" judges in the Hamilton City Council Garden Competitions for 1956.

MR. J. PASSMORE (Nominated by Otago District Council)

Over a period of many years Mr. Passmore has served Horticulture, and the following is a summary of the many ways in which he has rendered this distinguished service.

For several years Mr. Passmore was Chairman of the Otago District Council and upon the institution of "Fellowship" status in the Institute was amongst those first elected. For twelve years he served as President of the Dunedin Gardening Club, of which he was also a foundation member.

As an amateur gardener, Mr. Passmore specialises in cacti, gladioli, and begonias, and served as Vice-President of the Southern Area of the New Zealand Cactus and Succulent Society.

For the past seven years he has given radio talks on gardening over Station 4YZ, and in addition has given many other lectures and talks on Horticultural subjects. As an exhibitor of Dahlias, Carnations and Vegetables, Mr. Passmore has gained many trophies. He was the organiser for Otago in the "Dig for Victory" campaign during the war years, and was also one of the chief organisers of the Otago Centennial Show in 1948. Maintaining a very fine model home garden himself, Mr. Passmore is a very keen and active member of the Dunedin Horticultural Society.

SIDELIGHTS OF THE DOMINION CONFERENCE OF THE ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURE, WHANGAREI, 27th FEBRUARY TO 1st MARCH, 1957

The Conference at Whangarei was an unique experience for members of the Institute who come from other parts of the Dominion. Travelling north from Auckland one looks around for signs of horticultural activity among the predominantly agricultural countryside. There is newly grassed farming land or native bush, scrub country being converted into farmland, but little or no horticulture.

However, this illusion is soon dispelled when Whangarei is reached, for there are several well planted public gardens or small plots, and the home gardens themselves are planted with a fine selection of trees and shrubs, many of them only previously known by name to those of us who come from the South.

On the occasion of the Dominion Conference and National Flower Show, the people of Northland excelled themselves not only in hospitality but also in horticulture. Two items especially indicate their attitude. There were posies for each of the ladies at their hotels presented by the borough and several banks and shops had window boxes or displays of flowers. These were changed and supplied with fresh flowers during the Conference. We can hope that this is now a permanent feature of the progressive borough.

The National Flower Show was opened at 2.30 p.m. on Wednesday, 27th February, by Mr. D. N. McKay, M.P. for Marsden, whose electorate includes Whangarei. He pointed out the educational aspect of flower shows, such as the National Flower Show, and also stressed the importance of interesting children in horticulture.

Later in the afternoon we visited the beautiful home and garden of Mr. and Mrs. E. Thomson, Powhiri Avenue. We were impressed by the variety of plants growing outside, by the ferns growing in a shade house, cymbidiums and other orchids growing outside and in a greenhouse, and yet another small greenhouse decorated with begonias. Once the many guests were assembled on the lawn, refreshments were served. This provided an ideal opportunity to meet old and new friends in a carefree atmosphere.

In the evening many of us returned to the National Flower Show, for we could not absorb or enjoy all the exhibits in one visit.

The Dominion Conference occupied Thursday, 28th February, and as the business of the Conference closed early in the afternoon, many members accepted the invitation of the Mayor, Mr. W. L. McKinnon, to visit the War Memorial being erected at Parahaki. This is a fine hill overlooking the town and Whangarei harbour, clothed on one side with most interesting native bush. A memorial and viewpoint is being erected on the summit which surely provides one of the finest views in the country.

In the evening, the Hon. Mr. S. W. Smith presented the Loder Cup to Mr. F. S. Holman. As superintendent of Parks and Reserves, Whangarei, Mr. Holman has over 3,000 acres under his supervision, and his early interest in native flora has been passed to the rising generation, not only by planting native trees and shrubs, but also by taking a leading part in educational activities. Mr. G. W. Wright, A.H.R.I.H.(N.Z.), of Auckland, was among those present at this ceremony. Mr. Wright, now 93 years of age, had been responsible in the first instance in encouraging Mr. Gerald W. E. Loder to present the Loder Cup and he gave a brief impromptu address on the origin of the Loder Cup.

After the presentation to Mr. Holman, the Banks Lecture was given by Mr. R. H. Michie, F.R.I.H.(N.Z.), of Kaitaia.

The following day many members of the Institute went on a most interesting coach tour of selected Northland areas.

One could not close a report on this Conference without special mention of the interest shown in all activities of the Institute by the Mayor of Whangarei, Mr. R. L. McKinnon. Though it is invidious to single out any individuals

for special mention, Mr. C. R. Ensor, Chairman of the Whangarei District Council, and Mrs. E. M. Sands, Secretary of the National Flower Show, are to be congratulated on the excellence of the arrangements and the success of the Show.

Even if one came to Whangarei as a visitor, one left as a friend, with the certain conviction that the 1957 Conference and National Flower Shaw had been a success both for Whangarei and for the Royal New Zealand Institute of Horticulture.

NATIONAL SHOW

The National Flower Show held in Whangarei on 27th and 28th February and 1st March was not just another flower show in the sense that many people in New Zealand have come to think of them, for flowers lined up in vases on the competition bench played a very small part. The aim of the organisers was to display the flowers and plants of Northland gardens to their best advantage in a more or less natural setting. How well this aim was achieved could be judged by the obvious interest and enthusiasm of visitors, gardeners and non-gardeners alike.

The Show was held in the Winter Exhibition Hall and was divided into three bays each of about 8,000 sq. feet. One of these was entirely devoted to the Northland garden, while the others were used for competitive classes and displays by various organisations and commercial firms.

The organisation was in the hands of a special show committee sponsored by the local Council of the Royal New Zealand Institute of Horticulture (Inc.). The committee had the complete and willing co-operation of all Northland garden clubs and gardening circles whose members total several thousands. Without them the show would not have been possible. The committee was set up about two years ago with no funds but plenty of enthusiasm, and last year a trial show which gave much valuable information, was held.

Some idea of the amount of work which went into the show can be gained by the organisation of the Northland Garden. No less than 11 sub-committees were set up for this section alone. The sub-committee responsible for the annual garden were given seeds which were distributed to their helpers many of whom gave up all their spare time in raising plants in open beds, pots and tins. Sub-committees responsible for other sections of the garden raised plants from cuttings and dug up perennials, trees and shrubs from their gardens to grow on in tins. As an example of co-operation with hundreds of helpers all working to one object it could not be bettered.

The Northland Garden was probably one of the most ambitious displays ever attempted by amateurs in New Zealand. The famous Chelsea flower show provided the inspiration and the untiring efforts of a team of workers turned the idea into a practical success. Covering over 7,000 sq. feet of floor space, it was laid out as an informal garden with mass displays of annuals, perennials, shrubs, native plants, cacti and succulents, lilies, water plants and tropical and subtropical plants. Much of the material was grown in containers which were skilfully hidden in beds of sawdust or in the rocks surrounding the pools. The finished effect was of a spacious garden, which, apart from displaying individual plants and flowers, could be taken as a guide by many home gardeners when laying out their gardens. The sweeping curves of the beds, the grouping of plants and the contrasts and harmonies in colour were excellent. It also served to show the very extensive range of plants which can be grown in the open in Northland.

The Whangarei Ladies' Gardening Club, which incidentally is one of the oldest clubs in New Zealand, was responsible for another outstanding display. Covering an area of 10 feet x 60 feet it was almost a flower show in itself and it is doubtful if its like has been seen before even in a show in one of the larger cities. The designer and her assistants deserve the greatest praise for what was generally recognised as the most attractive display in the show. The centre piece was a large fan standing about 5 feet high and was covered with an intricate design of statice and other long lasting flowers. To the sides were large floral arrangements. At one end these merged into smaller arrangements staged informally on a black background and at the other pot plants were

the main feature. It was uncrowded so that each flower arrangement and pot plant could be seen easily. Although the exhibit consisted of three sections they were so skilfully blended that it appeared as one complete unit.

The Parks and Reserves Department of the Auckland City Council sent a large collection of pot plants from the Domain Gardens. It consisted mainly of tropical and subtropical ornamental and economic plants and included many of the newer varieties of house plants.

The competitive sections were in the main not up to standard because of the hot, dry summer. The outstanding exception was the class for garden clubs outside the borough of Whangarei. The displays, each covering an area of about 10ft. by 10ft., were judged on artistic arrangements, harmony of colouring, quality of flowers and plants and originality. Originality was the keynote, for entries were very diverse in character and ranged from a model of Manaia Heads correct to the last detail, to an early settler's garden and home gardens. All the entries were excellent and the judge must have had a difficult time. In many ways this class would have been much better if kept on a non-competitive basis for it would have been in harmony with the main part of the show and the disappointment felt by some competitors would have been avoided.

There were several interesting educational displays. One on Maori horticulture attracted a great deal of attention. Contrary to popular opinion, practically all the basic foods of the early Maoris were cultivated plants and long before the first white settlers arrived large areas were under cultivation. In the display the plants grown, the tools used and the methods of cultivating and storing were shown.

The local schools staged a display illustrating the many phases of agriculture and horticulture taught today by teachers specialising in these subjects.

A local nurseryman showed a large collection of tropical fruit which could be grown in Northland. These included bananas, avocadoes, monsteras, and sapotes. Others displayed comprehensive collections of native plants, flowering trees and shrubs and pot plants. An interesting point about some of these displays was that they were staged for a decorative effect which fitted in well with the rest of the show.

The show was a great success financially. But even more important was the fact that the aims of the show committee to display the flowers and plants of Northland were fully realised. Many larger towns and cities would be well advised to take a critical look at their own shows and see how they could profit from the example of Whangarei. Perhaps the days of conventional competitive shows are numbered.

SOUTH TARANAKI DISTRICT COUNCIL R.N.Z.I.H.

A Week-end in Masterton District.

After leaving Hawera early in the morning of Saturday, 9th March, a party of 65 members reached Wanganui at 10 a.m. An hour was allowed to view the grounds of the Parks and Reserves. Colourful beds of celosias and petunias were a feature out of doors. Under glass were noted exotic climbers, particularly *Thunbergia laurifolia,* bougainvillea and *Hoya carnosa,* baskets of blue achimenes and begonias, pots of *Coleus blumei,* speciments of hibiscus and iresine.

Massey College was the focal point at Palmerston North, where Mr. Hockey conducted the party to the newer section of the gardens. A member of the *scrophulariaceae* attracted attention under the name of *Torenia fournieri,* from Indo-China. It was being tested as a plant for bedding.

The Pioneer Club Room was the venue at Masterton, where the president, Mr. Marshal, and members of the Masterton Horticultural Society welcomed the party. The Mayor attended and addressed those present. Following this was an excellent display of coloured slides of orchids and liliums by Mr. Miers and Mr. Leitch. This was followed by further slides of Taranaki gardens and plants, by Messrs. G. Walker and T. Reader of Hawera, taken on previous visits.

Sunday morning was passed in Queen Elizabeth Park, where the stately

trees, conifers and spacious lawns and sportsground commanded interest and admiration. The afternoon was occupied by a visit to Mr. H. Borthwick's garden at an altitude that commanded fine views of the surrounding landscape. Considerable variation in the level of the ground offered opportunity for landscaping, of which full advantage was being taken. *Lilium formosanum* and fuchsias were outstanding and the collection of shrubs and plants was obviously the result of much forethought. I noted a large white clematis in bloom, probably "Mrs. George Jackman". The return journey included a visit to the home of Mrs. Wardell, Te Whiti, approached beneath the shade of majestic trees, 100 feet high. The garden was planned in character with the old established house with expansive lawns and many fine trees, particularly a huge Scarlet Oak, whose limbs reached far over the lawn. The evening was spent at the Wairarapa Training Farm, 15 miles from Masterton, where Mr. Anderson, the manager, gave an address on the history of the farm. An added interest and enjoyment was provided by an American, Mr. Harter, and his son, who gave a display of coloured slides taken in the U.S.A. and other countries. Items of horticultural interest included cacti, spruce, growing in their native habitat, geraniums massed instead of lawns, paeonies, almost the national flower of U.S.A., with huge flowers. An interesting feature was a Rose Parade with a procession of floral decorated vehicles. Mr. Miers followed with slides taken in England, Scotland, America, ending with orchids at Auckland. Mr. Miers, being a keen orchid growers, showed specimens of a variety of kinds.

The departure took place on Monday morning, with promises to visit Taranaki in the near future. A break was taken at Palmerston North, where Mr. D. McKenzie, Superintendent of Parks and Reserves, conducted the party through the Esplanade garden, beautifully landscaped and planted with many fine plants and shrubs. The dwarf pomegranate, *Punica granatum nanum*, attracted attention as a dwarf plant for a hot, sunny position. A week-end crowded with interest for garden lovers.

Start of New Season's Circuit Meetings on Horticulture.

A hall gay with floral arrangements provided by Patea members was the setting at Patea last night for the first of the new season's circuit of meetings throughout its district under the auspices of the South Taranaki district council of the Royal New Zealand Institute of Horticulture.

The aims and objects of the Institute were explained to a good attendance by the President, Mr. John Houston (Hawera). Mrs. A. E. Joll (Hawera) showed slides in colour of her recent tours in the islands, and of the Rotorua gardens during the recent municipal conference. The thanks of the meeting were conveyed to her by Mr. E. J. Fairweather (Patea).

The Rev. J. L. Freeman (Waverley), who had been specialising in the culture of liliums, showed slides in colour of many varieties in his garden. He was thanked on behalf of those present by Mr. N. H. Leppard (Patea). Mr T. H. Reader (district secretary, Hawera) gave a general garden talk, and showed slides of the recent Bay of Plenty floral festival at Tauranga. Mrs. J. H. Anderson (vice-president, Mangatoki) discussed a collection of fuchsias from her garden.

A well stocked sales table did good business and supper was served by the Patea ladies.

OBJECTS OF THE INSTITUTE

The objects of the Institute are as follows:—

1. To encourage, foster and improve every branch of horticulture.
2. To exercise all the powers and functions of a horticultural nomenclature and certificating board including the making of decisions and reports in regard to the nomenclature of plants, and to issue, in the name of the Institute, certificates, medals or diplomas for novelties of merit or new varieties.
3. To assist and promote horticultural education in every way possible.

4. To promote legislation having for its objects the advancement or protection of horticulture.
5. To assist research work in connection with any or all branches of horticuture.
6. To endow or assist any chair, lectureship, or horticultural teaching in New Zealand, in colleges, universities or other educational institutions the Institute may decide upon.
7. To promote the interchange of horticultural knowledge and to co-operate with Governments, scientific or other societies or bodies, or persons in any part of the world who may be working along any or all of the lines covered by the objects of this Institute.
8. To undertake or assist in the introduction and acclimatisation of any fruit tree, flowering tree or plant, forest tree, seeds or other form of plant life which, in the opinion of the Institute, should be introduced.
9. To establish, assist or endow libraries, and to obtain by purchase, exchange, or otherwise, books, papers and other publications relating to any or all of the matters covered by the objects of the Institute.
10. To arrange for the carrying out of work of "bud selection," the testing of new varieties of trees, plants, vegetables and any and all things necessary to the better understanding of tree and plant life and the maintenance or improvement of the standard of such.
11. To arrange for the selection and breeding of any or all classes of trees and plants for testing, and for the supply of certificated propagating material to nurserymen and others on such terms as may be arranged.
12. To carry out, arrange for or assist any object or objects which, in the opinion of the Dominion Council or of the Executive, come within the scope of horticulture, in its widest scope (not excepting forestry or agriculture).

DISTRICT COUNCIL SECRETARIES

AUCKLAND: Mr. P. R. Parr, 7 Ormonde Road, Remuera, Auckland.

MANAWATU: Mr. M. R. Koehler, 314 Fitzherbert Avenue, Palmerston North.

NELSON: Mr. Dennis H. Leigh, F.R.I.H.(N.Z.), Reserves Department, Nelson.

NORTH TARANAKI: Mr. B. A. Norman, F.R.I.H.(N.Z.), 71 Wallace Place, New Plymouth.

NORTHERN WAIROA: Miss P. Berry, P.O. Box 16, Dargaville.

OTAGO: Mr. R. W. Balch, F.R.I.H.(N.Z.), c/o Botanic Gardens, Dunedin.

SOUTH CANTERBURY: Mr. A. W. Anderson, N.D.H.(N.Z.), P.O. Box 153, Timaru.

SOUTHLAND: Mr. G. A. R. Petrie, F.R.I.H.(N.Z.), 122 Janet St., Invercargill.

SOUTH TARANAKI: Mr. T. H. Reader, F.R.I.H.(N.Z.), 103 South Road, Hawera.

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WANGANUI: Mr. M. R. Boothby, N.D.H.(N.Z.), F.R.I.H.(N.Z.), Superintendent of Reserves, City Council, Wanganui.

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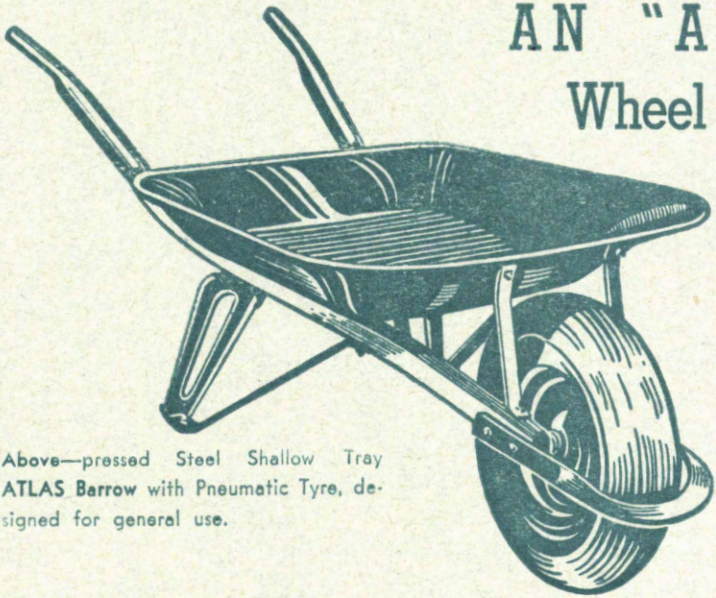

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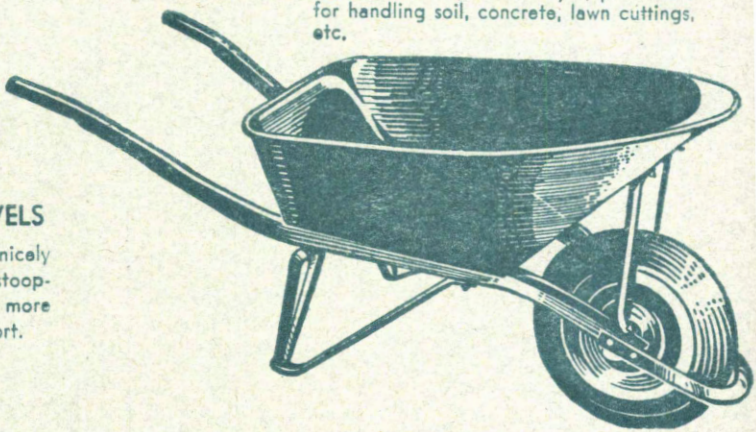

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