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Dominion Secretary :

K. J. Lemmon, A.P.A.N.Z., A.C.I.S., Suite 1, First Floor,
British Sailors' Building, 10 Brandon Street, Wellington.

Correspondence and articles for publication should be addressed to: The Editor, "New Zealand Plants and Gardens", Journey's End, Paraparaumu ('phone 154). All enquiries concerning advertisements should be addressed to the Editor.

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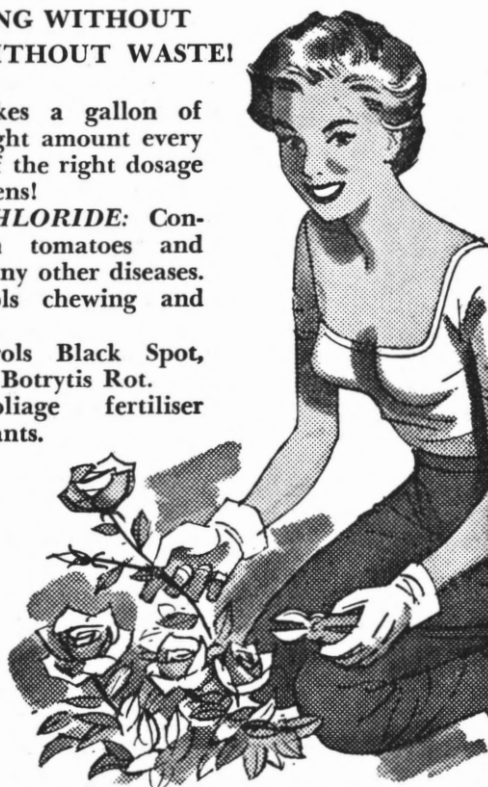
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NEW ZEALAND PLANTS AND GARDENS

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THE PUKEITI RHODODENDRON TRUST

An important indication of a country's advancement in horticulture can be seen in the development of its botanical gardens, apart from the parks and reserves. In Britain the Royal Botanical Gardens at Kew have been famous for two centuries. In the U.S.A. the Arnold Arboretum, in its 85th year, is world famous. Here, in New Zealand, there is that love of plants and gardening which, added to a spirit of enterprise, must surely bring into being a botanical centre worthy of the Southern Hemisphere. The birth, in 1951, of the Pukeiti Rhododendron Trust Incorporated suggests that such a project has already begun.

The Trust was formed as a result of the desire of a band of keen gardeners wishing to establish a national Rhododendron Park for New Zealand where conditions would permit the cultivation of both tender and hardy species and hybrids. The site at Pukeiti ("The Little Hill") was chosen by Mr. Douglas Cook, of Gisborne, and Mr. Russell Matthews, of New Plymouth, for its climatic suitability for the cultivation of rhododendrons and its central position. The original purchase of 153 acres has now grown to 900. The present membership is world wide, embracing many keen and eminent horticulturists, and now stands at about 1500. Some doubt has been expressed that the Trust may have acquired a far greater acreage than it can possibly hope to develop. This is probably true, so far as the present generation is concerned, but it took many generations to bring Kew Gardens to their present proud position. Progress in horticulture cannot be gauged by the work of one generation but only by the continuous work of several generations aiming at a definite objective. The acquisition of this acreage is an indication of the strong faith the founders of the Trust must have in the gardeners of New Zealand, not only of this generation, but of many generations to come.

The Lodge is of an architecture that sits happily against the background of native bush. Apart from the comfort it offers to visitors it now houses the nucleus of what it is hoped will eventually develop into a comprehensive library of horticultural literature. But they are the plants that must command the main interest. Either in the form of seed-

lings, being cared for in the propagating house and nursery, that forms part of the property, or as already advanced specimens being established in prepared positions in the bush, many thousands of plants are under cultivation. There is also a full collection of modern hybrids from Britain and elsewhere, including many that are rare and not yet in circulation. We are fortunate in having a climate that permits the cultivation, on the same area of ground, of such diverse species as the tender *R. nuttalli* and the hardy *R. thomsoni*. This may well make possible the development of a collection of rhododendrons, and other genera, of a greater and wider variety than is possible in any other botanical garden in the world.

Attention is not being devoted exclusively to rhododendrons. It would be a mistake if this were so. Such an enterprise as this must, eventually, be all-embracing. Shrubs of many kinds, from the aristocratic magnolia and camellia to the more lowly hydrangea, are being widely represented. It is particularly pleasing, also, to note that the best of our New Zealand native plants are being represented there as well.

To this end the Trust is maintaining the greater part of the area as a Scenic Reserve and is committed to a policy of preserving the native bush and protecting bird life.

A visitor to Pukeiti cannot help but be impressed by the keen enthusiasm and voluntary spirit that causes continuous work to be undertaken so that there shall be no interval in the progress towards further development. The increase, too, in the membership is an undoubted sign that, annually, a greater number of gardeners are becoming convinced that Pukeiti may indeed develop, in the years that lie ahead, into something that may well deserve the proud title of "the Kew Gardens of the Southern Hemisphere."

G. A. R. PHILLIPS,
Editor.

WEED CONTROL IN HORTICULTURE

Dr. J. S. YEATES, Ph.D. (Cantab.), Ph.D. (N.Z.), A.H.R.N.Z.I.H.
(Massey Agricultural College)

(1) Control by Natural Means

Weed control is the greatest single item of cost or of labour in horticulture.

We have mostly come to accept weeds as a part and parcel of our gardening activities and few people stop to think just how much of their gardening time is spent directly or indirectly on weed control. If, however, we stop weeding long enough to ponder the matter, we shall mostly find that the battle against weeds absorbs at least half our gardening hours.

Although weeding may be such a time consuming job, if gardening is used for relaxation, the time spent in weeding can be well worth

while. Given a good day, some choice plants to weed, and no feeling of urgency, a spell of hand weeding can be most enjoyable. While carrying on with the easy physical work, mental and nervous stresses are forgotten and the mind can, so to speak, "free-wheel". Such complete relaxation is the great virtue of gardening to most people. A most delightful and whimsical article on this very subject is "The Gentle Art of Weeding," by Richard Bate (Nat. Hort. Mag., U.S.A., July, 1950, page 108). If you can secure the journal, do not miss reading it.

Of course hand weeding is not without its minor problems. It is easy to forget that one is wearing a nicely creased pair of trousers, or to find after an hour or so that one has been using a good new hat as a kneeling pad! If we are weeding small seedlings it is certainly important to keep alert and not to mistake the "plants" for the "weeds". Recently, while pulling grass seedlings from among the grassy seedlings of *Lilium tenuifolium*, I was asked by my son what I was doing. In reply to my "Weeding the lilies", he aptly asked, "Are you sure you're not lily-ing the weeds?"

Pleasant though hand weeding may be, it has obvious limitations. A tiny garden can supply enough hand weeding for the time most of us have to spare. If there is a great deal of it to do, it becomes a most unwelcome chore and some means must be found to ease the burden. This is true not only of large ornamental gardens, but also of the vegetable garden, the orchard, and sundry paths and drives. The problem becomes much more acute in commercial areas, whether they are used for vegetables, for fruit, or for nursery purposes. In these larger areas, there is no question of weeding for relaxation, and the costs in labour are very high.

Weeding by Cultivation

The hoe, of one sort or another, is probably the most widely used implement in weed control. Given a sharp hoe, and I repeat the word sharp, hoeing is a good means of destroying many weeds, especially in the summer. Weeds cut off cleanly near the soil surface, and left in the sun, are fairly well killed. But in the wet conditions of winter and spring, many weeds are simply transplanted by hoeing. Mechanical hoeing by a rotary cultivator is the chief means used to control weeds in vegetable gardens, orchards and nurseries. The rotary hoe is an invaluable implement but its limitations are fairly obvious. It is indispensable for clearing ground before planting and for keeping the ground clean between rows, always provided the soil is not too wet to be workable. However, weeds in the rows or among closely or irregularly planted materials cannot be reached by it, and in wet soil its use is often undesirable. There is also the point that very frequent stirring of the soil gradually leads to destruction of organic matter and also breaks down its desirable crumbly structure. This loss of organic matter and of soil structure is a more important thing than most of us, in our enthusiasm for a new type of machine, are willing to admit.

Weed Control by Mulches

The smothering of young weeds by mulches is a fairly new thing in this country, but it has become very popular in recent years with the widespread use of sawdust for the purpose. The qualities required in a mulch are that it should contain no weeds or weed seeds, that it will stay in place on the soil for some time, and will be harmless or beneficial in its effect on the soil. Cheapness is of course an important consideration. Among the materials which have been used here or overseas are: Pine needles from the forest floor; spent tan bark from tanneries; spent hops from breweries; peat, vermiculite, sand or gravel of various sizes; shredded and pulped newspapers; special mulching paper; straw, and finally sawdust. A warning must be given about using lawn clippings as a mulch around plants. A thin layer of clippings which will soon dry, does no harm; but a thick layer very often makes a slimy mass which can kill the roots of plants in the soil below it.

Sawdust in this country is by far the most practical mulching material. It is abundant and in many localities its only cost is that of carting. The first extensive use of it that I saw was by the late Edgar Stead, who used it very extensively around the many rhododendrons and azaleas at "Ilam", his well known home in Christchurch. He used thousands of cubic yards of it, largely as a mulch, around his trees and shrubs. Not only did they thrive under this treatment, but weeding was reduced by about ninety per cent.

Since seeing its success at "Ilam", I have also used thousands of cubic yards of sawdust as a mulch for many sorts of trees and shrubs, and also for lilies, tulips, daffodils in the flower garden, and for asparagus, fruit trees, and peas, beans and maize in the vegetable garden. In all cases except the trees and shrubs, the sawdust is applied 2 or 3 inches deep over the bed or the row before the crop emerges. I have even seen a layer about $\frac{3}{4}$ inch deep used above newly sown cabbage seed with success. There are two or three points in which care is required when using sawdust mulch: use the coarse sawdust from a sawmill, not the fine dusty material from a joinery factory: apply sawdust only when the ground is thoroughly wet and when you can expect a fair amount of rain (and preferably frost, too) in order to firm the sawdust well into position: apply it only to ground which has been loosened by cultivation and which has been raked smooth. Sawdust applied to hard, compact soil leads to development of a bluish colour and a most unpleasantly sour smell. If the sawdust is applied to a lumpy soil, the high points of the lumps may not be covered deep enough to prevent weed seedlings emerging. Where sawdust is applied as a mulch there is no real necessity to apply extra fertiliser, though a dressing of your usual fertiliser before applying the sawdust, will usually be a good thing. It is when raw sawdust is deliberately cultivated into the soil that the addition of extra nitrogenous fertiliser is advisable. Dried blood is my favourite, but any slow acting nitrogenous fertiliser is all right. The slow acting feature is mentioned, because a quick acting form like ammonium sulphate may have all disappeared while there is still much sawdust to decompose. In situations such as shrubberies,

where the mulch is not disturbed, a new dressing is generally not necessary more often than every two or three years. By that time the roots of the shrubs will usually be found most abundantly in the rotted sawdust layer, a good substitute for a layer of leaf mold.

The other forms of mulch may have their uses in more limited conditions in this country, and every gardener is well advised to be on the alert for any cheap material in his locality which could be used for mulching. *(To be continued.)*

THREE PERSONALITIES IN FLORAL ART

MARGARET O'BRIEN (Horticultural Dept., Massey Agricultural College)

The fact that England is still, in some degree, class-conscious has its reflection even in the flower-arrangement world, for there are two distinct schools of thought.

Constance Spry's school caters for those who own large homes and therefore have backgrounds suited to larger and more massive arrangements. Bearing in mind that a complete flower-picture is made up of three parts, the plant material, the container and the background, it is obvious that large rooms and an old-world atmosphere call for lavish groups of flowers in antique jardiniers and urns. In New Zealand we consider that the larger a flower-arrangement is, the more it depends upon its outline and colour scheme for its effect, because the individual beauty of flower-form and leaf is lost in the mass. Constance Spry feels there is a real danger of becoming too stylised, and of losing the value of individual forms, errors of which we are indeed guilty at times. Her sense of colour, especially muted colour, is exquisite; her originality in the use of bold forms such as pods, unopened buds, green cones, distinctive leaves, fruit and greyed foliage is unique, but with the emphasis so much on form her large arrangements are looser and lack the design and balance which Americans, and we in New Zealand, appreciate.

A course at Constance Spry's delightful residential school, in the heart of Windsor Forest, is a pleasure long to be remembered. It is possible to fit in a course of advanced Continental cookery with flower-arrangement classes and one can even dabble in exclusive millinery too. During my stay at Winkfield Place we were greatly favoured in having two lectures by Constance Spry herself. She spoke to us about flowers in general, and about old-world roses in particular, for they are her chief joy. When requested to do flowers for us, she laughingly said, "Oh no! Why, if I did flowers in public they might not go just where I wished them to." How enviable to be such a famous flower-arranger that one could afford to take this happy attitude! But in every-day life this charming artist's skill is by no means restricted to the scale of arrangement suited to Westminster Abbey, or a royal function. In her own flat, within the old Georgian mansion which houses the school, three coloured hydrangea leaves and a spray of small pink geranium flowers, in a

lacquered wooden bowl, were a picture of simple beauty and glowing colour.

Violet Stevenson has one home in the lovely English countryside and one in crowded Covent Garden, just opposite the famous market. She says frankly that she caters for the middle-class in flower-arrangement. She is a personal friend of Constance Spry, but she is also a personal friend of the costers and the auctioneers of the market. She does not run a school as such, but she carries out an arduous and exacting series of lecture-demonstrations all over England. She is also a television expert and a prolific writer for gardening magazines. We are familiar with her excellent books, "Flower Arrangement through the Year" and "Dried Flowers." She is the only floral artist I have ever met who can successfully place her flowers from the back of a design, thereby allowing her audience an uninterrupted view of all she does. Her arrangements are on the whole simple, in that many of them have only two or three sorts of flowers or foliage. They are beautifully balanced and very firmly put together. She does use more dried summer flowers and dyed leaves than do others, but this is simply because they appeal to some of the folk she contacts. On the other hand, her knowledge of naturally dried material from English hedgerow and field tells of an appreciation of form and beauty which we would all covet to acquire.

With the American, Gregory Conway, comes emphasis on design, balance and form. For sleight of hand with flowers there is probably no other flower-arranger his equal. His stage manner is an education. He effectively demonstrated to us a greater number of flower-arrangements during one lecture, than I would have ever dreamed possible. I had the pleasure of attending two lectures and one practical class, a flower-clinic to Americans, which he held in Erie, Pa. He began with a series of arrangements which illustrated the evolution of Japanese designs from very early times. He is deeply versed in this aspect of the art, having lived in Japan for many years. In recognition of his worth there he was presented to the Japanese Emperor. For this important occasion he wore two dull green kimonos especially woven for him and embroidered in white with emblems depicting the Japanese name which was conferred upon him. For our benefit he appeared clad in these two kimonos, on a stage set up as a Japanese room, complete with shrine and flower scroll. In this setting he gave a convincing demonstration of the effective use of co-ordination rather than duplication, in relating an arrangement to its background, or surroundings. The flower arrangement which he did for this room was not a copy of the flower picture on the scroll, but he used similar material which conveyed the same spirit and atmosphere of springtime in the mountains of Japan.

Japanese arrangements of that era portrayed spiritual values and those of "the good earth we occupy." For example, early spring was

often a time of distress, as flood waters rose from melting snow, so at that time arrangements showed large areas of water, tinted faintly bluish-grey, to represent the turbulent waters of snow and ice. Seventeenth century Japan still portrayed spiritual values in flower arrangement. For instance, it was regarded as good form for one who had risen from peasant conditions to wealth and prosperity, to have as a base for his flower designs, a slab of wood made from some knarled old tree in the village where he spent his humble childhood and although he now had every right to be proud of his position and his achievements, in the contemplation of that slab of wood he learnt humility and self-abnegation. By the twentieth century symbolic designs, depicting spiritual values, had vanished. In their place were massive containers and heavy arrangements attempting to portray only the vastness of nature. Here the use of two flower-holders and three levels in plant material appeared. Also background, foreground and middle-distance groupings, which give so exactly the third dimensional effect we are striving for in our arrangements today. Contemporary Japanese arrangement strongly favours "free form" and it came as a considerable shock to my orthodox ideas of the subject of Japanese art, to be assured by Gregory Conway, that, during the last twenty years the West has contributed much to Eastern flower designs.

Conway's work was characterised by this free form; geometric abstraction playing form against form, and by extremes of contrast. He even introduced strange creatures which he so aptly called "whimsies." These took the form of two large raffia beetles, with bulging green eyes. He used tassels of cherry-coloured nylon thread on a high line of banana palm; he scattered stardust over it and as he put the finishing touches to this design, the whole thing began to revolve, to the accompaniment of slow strains of music. All this is not perhaps just according to our more conservative ideas on flower arrangements, but it embodied many basic principles of design and expressed a rhythm and movement of line, which would certainly add zest and life to our work.

These three artists contribute very diverse pictures but from each we can learn something of the expression of creative ability, with the common medium of plant material. We see Constance Spry putting the last rich bunch of grapes into a living reproduction of the work of one of the Old Flemish Masters. We see Violet Stevenson giving joy to one of her coster friends, at a street stall, as she presents her with a simple group of dried seed pods and dyed leaves in a brightly painted basket. We see Gregory Conway, with his Oriental flair, spelling life and movement with dried and lifeless desert wood.

NOTE CONCERNING ILLUSTRATION OF WINTER FLOWER ARRANGEMENT

This mass-line arrangement depends upon its colour and outline for its effect, rather than upon the form of the individual flowers, which are

a collection of rather wintery scraps. The line of height is a spray of silvery *Podalyria sericea* leaves. Grey, or silver-grey, foliage lightens an arrangement and is often a great help when flowers are scarce and colours subdued. The second line, following the curve of the first, is of white and pale yellow chrysanthemums. The third line of the outline is swept downward on the left to balance the line of height. It is made up of three sprays of creamy-yellow *Amalia* flowers (*Fatsia papyrifera*). The focal point is two deep purple bearded iris and lavender *Iris stylosa* carry the line upwards and downwards from it. From the low third line, and outwards to the left, to give depth, are sprays of the earliest wattle (*Acacia podalyriifolia*) and a group of lavender Siberian wallflower (*Cheiranthus allioni*). The third dimension, or actual depth in an arrangement, is most important to give it perspective and interest. This arrangement is almost fourteen inches in depth. Above the iris there is another scattered group of lavender wallflower, which helps to tie together the silver foliage, the chrysanthemums and the iris.

DR. ANDREW SINCLAIR, A PIONEER PLANT HUNTER

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

In the autumn of 1861 three men were exploring the then unknown headwaters of the Rangitata which flows into the sea about half-way between the Waitaki and Rakaia Rivers. They were Julius Haast (later Sir Julius), Dr. Andrew Sinclair and Richard Stringer, who was in charge of the packhorses.

Dr. Andrew Sinclair, R.N., F.L.S., formerly Colonial Secretary, was a keen plant hunter who had been collecting native plants, off and on, for twenty years, throughout the northern half of the North Island, among the Nelson mountains and was now taking part in the exploration of the central mountains of the South Island. His main purpose was to collect material for Hooker of Kew who was at work on his "Handbook of the New Zealand Flora," to be published in 1867.

The party had left Christchurch on February 20th after having obtained permission from the eccentric author of "Erewhon," Samuel Butler, to use the lonely homestead at Mesopotamia as their headquarters. They had spent the greater part of a month exploring the rocky gorges and steep mountains of that wild country. Their first climb was the rocky peak just behind the homestead which Haast named Mt. Sinclair (7022 feet). It was there that the botanist discovered one of the gems of our alpine flora, the South Island Edelweiss, *Leucogenes grandiceps*, a miniature edition of its Swiss namesake with burnished silvery foliage and neat little golden flower-heads surrounded by grey flannelly bracts. There, too, grows one of the most remarkable of our plants, the Vegetable Sheep, *Raoulia eximea*. Sinclair must have been astonished to see the great woolly cushions, sometimes 4 feet in diameter, of a soft blue-

grey colour which, in the distance, gives them the appearance of sheep. The wet shady slopes were rich in plants and Sinclair got a fine haul, many being new to science. Haast remarks that the beautiful Mountain Daisy, *Celmisia coriacea*, with its foot-long silvery-white leaves was so plentiful as to form the chief sustenance of the horses.

They were camped at the junction of the Clyde and the Lawrence when, on the morning of March 28th, Stringer reported that the only horse had lost a shoe and that it would be necessary to go back to the homestead for another. The homestead was about nine miles away, across the Rangitata, and while Haast remained to complete his survey and collect some fossils on Mt. Potts, Sinclair, aged 67, and feeling the effects of the strenuous going, decided to go with Stringer. He hoped Butler might be back from Christchurch bringing any letters, and could easily occupy the week or so until Haast returned for drying and checking his botanical specimens, sketching and so on.

Parting from Haast with a kindly joke, the two men set out about 9 a.m. and about 1 p.m. a very agitated Stringer appeared with the news that he feared the doctor had perished in the river. They had found the Rangitata in flood, very dirty and turbulent from melting snow, and Stringer, according to custom, wanted to go down the left bank until opposite the homestead and there light a fire as a signal to send over another horse. But Sinclair would have none of that. He would cross where the river branches to form an island and without more ado crossed over to the island with the water coming up to the saddle flaps. He dismounted and sent the horse back for Stringer, but it was a badly trained horse and after a look at the swirling water, tossed its head and made off across the other branch, in the direction of the homestead.

Without any sign to Stringer, Sinclair plunged into the water after the horse while Stringer, who could not swim, set off downstream looking for an easier crossing. When he looked back he could not see any sign of Sinclair but noticed the riderless horse disappearing into the scrub. After calling out for some time and getting no reply, and still unable to find a safe crossing, Stringer hurried back to camp. They both rushed back to the river when Haast heard the news, but without avail. As they returned to the camp at dusk they saw a large fire near the homestead showing that the occupants, having found the riderless horse, were aware something had gone amiss.

They were at the river at daybreak and presently three men rode up at great speed. On hearing the news a search was made and soon afterwards Sinclair's body was found about 300 yards downstream from where he had entered the water. It was taken to the homestead, where a coffin was made, and buried that afternoon, Haast reading the burial service from the bullock-driver's Roman Missal because neither Bible nor Prayer Book could be found at Mesopotamia. Butler was to say later, with characteristic irony, that he must have taken them to Christchurch with him.

Haast wrote later, "Near the banks of the river, just where it emerges from the Alps with their perpetual snow glistening in the sun, amidst veronicas and senecios, and covered with celmisias and gentians, there lies his lonely grave. With almost juvenile alacrity he had climbed and searched the mountain sides . . . until at last, overtaking his powers and not sufficiently aware of the treacherous nature of the alpine torrents, he fell a victim to his zeal."

When he returned to Christchurch, Haast sent a portion of what had become their joint collection to Hooker at Kew, but when the relatives wanted a similar portion this was denied them because "the claims of Science could not be set aside from respect to their private wishes." What an interesting parcel that must have been for Hooker, several species of celmisia, the Edelweiss and Vegetable Sheep, a slender little daisy he called *Brachycome sinclairi*, a Whipcord Veronica, *Hebe lycopodioides*, easily recognised by the long tips at the apex of each leaf giving a characteristic club-mossy appearance to the four-angled stems, the fairy-like *Utricularia monanthos*, with its miniature purple flowers and that denizen of the steep misty gorges, *Helichrysum microphyllum*, and many more besides, all new. Then there were others like the Black Daisy, *Cotula atrata*, and the quaint *Haastia sinclairi* that extended the range of species found by Sinclair and others among the northern mountains of the South Island. *Haastia sinclairi*, in which the two friends' names are combined, is a very desirable, grey woolly plant forming widespread mats over the surface of more or less moving shingle. The large white flower heads are quite showy and everlasting. But the greatest thrill would have been produced by the first flowering specimens of the magnificent Mt. Cook Lily, which Hooker named *Ranunculus lyalli* in honour of its original finder. Away back in 1841 a few of the great circular leaves had been collected at Milford Sound by Dr. Lyall, who was Hooker's colleague in the Clarke-Ross Antarctic Expedition. But no one had the least idea to what kind of plant they belonged, the favourite supposition being that it must be some gigantic sort of Marsh Pennywort, or Hydrocotyle. Now it was found to be the finest buttercup in the world.

There is an interesting footnote to the Rangitata tragedy. Soon afterwards the Canterbury Provincial Government made arrangements for a massive tombstone of Port Chalmers bluestone to be placed on Sinclair's grave. In 1953 it became necessary to re-cut the lettering and the mason who did the job tells the following story. While he was at work a shepherd came up and asked if he thought Dr. Sinclair's bones really lay under the stone. The mason replied that he did not know and then he was told that the men who brought the stone were all drunk, when the bullock-wagon on which it was being carried capsized in a depression. The stone, estimated to weigh about a ton, had to be left where it lay.

I visited the grave with this tale in mind. It could be true. There

is a depression on the south side of the stone quite deep enough to capsize a carelessly driven cart. The stone is in a bare, uninteresting flat, near some matagowrie bushes, about a mile from the homestead and at least a quarter of a mile from the river, and some five miles downstream from the island "where the river emerges from the alps." If Haast's words are to be taken literally they are not at all descriptive of the present site, and I do not think they ever could have been. We may never know if there is any truth in the tale, but it seems odd that it should have arisen and hung around the countryside unless there is some foundation in fact.

Sinclair has his memorial stone in the valley where he was drowned and it matters little where his bones lie. He has far more enduring monuments in the fifteen or sixteen New Zealand plants that bear his name. In 12 B.C. the Roman Emperor, Augustus, raised a statue to Musa, his doctor, in recognition of his skill and about the same time the King of Numidia dedicated a plant to his doctor, Euphorbus, and wrote a treatise on its virtues. Two hundred years ago Linnaeus asked, "Where now is Musa's statue? It has perished! It has disappeared! But the memoriae of Euphorbus endures perennially and can never be thrown down." So it is with Sinclair. Stones may be defaced by the years and require re-lettering, but his memory will be kept green, so long as our civilisation lasts, by the plants that bear his name.

Some are dull and quite uninteresting; few would look twice at his little Ground Orchid, acianthus, or at the nothopanax, tillaea or carex named for him. But the great chestnut-brown plumes of his cladium waving on 5 feet stems from the damp cliffs of the north will always arrest attention. So, too, will the graceful jovellana, loveliest of all his plants. At one time known as a calceolaria, it is really a very refined and airy edition of the better known *C. violacea*, which comes from South America. A lover of the moist shady cliffs of the Ruahine-East Cape region, it grows to about 18 inches in height with loose panicles that flower for weeks. The odd, coal-scuttle shaped flowers are about $\frac{1}{4}$ inch in diameter, white or yellow and spotted with purple.

From Great Barrier Island comes his heath, a variety of the pretty white *Epacris pauciflora* notable for its broader and less pointed leaves. There, too, you will find his manuka, *Leptospermum sinclairi*, which also grows in some of the small islands of the far north. Never a tree like *L. ericoides*, it is somewhat similar but has larger flowers and hoary twigs and foliage. I should say the rarest of Sinclair's plants is the ewartia which seems to be confined to the gorges of the upper Awatere where he originally found it. A small tufted herb of under a foot high, it is clothed with dense white tomentum and bears its minute rayless daisy-heads in inch-wide corymbs. But the most interesting of all is *Meryta sinclairi*, the puka, a very fine foliage tree of 20 feet or so, with large leathery leaves that may be 20 inches long by 20 inches wide. Colenso heard about 1839 vague rumours of a tree with leaves "big enough to wrap a

codfish in," and at last traced the tree to the Paraparaumu Pa at the head of the Whangaruru Harbour. When he visited the pa in 1841 he found the tree, which according to the Maoris had been brought from the Poor Knights Island, was so tapu that he was not even allowed to see it, but he discovered that it was surrounded by a high fence.

Some years ago Major W. G. Mair was given a few leaves which he gave to Sinclair who sent them on to Kew. Then about 1860 Robert Mair managed to gather a fruiting branch which also passed through Sinclair's hands and was sent to Kew. Soon afterwards the Maoris cut down the tree, because, it has been said, Mair violated the tapu. In 1862 specimens were found on the Hen and Chickens Islands and later on the Three Kings, but so far as I know it has not been seen on the Poor Knights. Hooker named the plant in honour of Sinclair, much to the disgust of Robert Mair who thought it should have borne the name of his family.

PALMS AND THEIR CULTURE IN NEW ZEALAND

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

(PART II)

The first part of this article appeared in the June issue of "N.Z. Plants and Gardens" and dealt with the usefulness, climatic range, propagation, transplanting and pot culture of palms. Part 3 will be continued in the December issue with a discussion on the main characteristics of pinnate palms. Part 4 will appear in the March, 1958, issue with a similar discussion on palmate palms, species growing indoors, selecting species for outdoors and brief notes on cycads.

Culture Outdoors

Although palms can be successfully grown on a wide range of soil types, nearly all species thrive best when grown in a fertile clay loam. They are extremely sensitive to dry soil conditions, but reasonable soil drainage is necessary for most species. In selecting a site in which an outdoor specimen is to be planted, it is essential to know whether the species is hardy in the matter of tolerance to sun and wind or whether good shelter and shade is desirable. Species that are to some extent delicate can often be given the protection they require by planting on the shady side of a large evergreen tree and partially under the spread of the tree. Where this is done the overhanging branches can be cut away as necessary to allow the palm tree to develop height. Frost-tender varieties should, if possible, be given protection in this way unless the locality is frost-free.

Preparations for planting should be the same as for fruit trees. This should include deep cultivation and the placing of a liberal amount of compost or leafmould adjacent to the roots of the plant. As many palm

roots normally develop within one or two inches of the soil surface, cultivation to any appreciable extent is not possible after the plant has become thoroughly established, without injury to the valuable feeding roots. To compensate for lack of cultivation, mulching with dead leaves or other suitable material is important if healthy growth is to be maintained in relatively young palms.

The fertiliser requirements of palms grown outdoors vary greatly according to the natural fertility of the soil in which they are grown. They are not regarded as gross feeders and in good garden soils satisfactory growth can be expected without the application of fertilisers, either at the time of planting or subsequently. For less fertile soils, or when rapid growth is desired, a complete fertiliser should be used. A mixture such as the following, with a high nitrogen content, is advised:

Sulphate of ammonia	4 lbs.
Superphosphate	3 lbs.
Sulphate of potash	1 lb.

This mixture should be lightly raked into the soil using from 2 lbs. to 8 lbs. per tree according to size and vigour of the individual tree.

Culture in New Zealand

Probably the oldest palm trees in New Zealand are two magnificent specimens of *Jubaea chinensis* growing at Mansion House, Kawau Island. (See illustration.) This house was formerly the residence of the late Sir George Grey, a former Governor of New Zealand. It is presumed that during the period 1871 to 1882 when Sir George resided on the island he imported the seeds and raised these stately trees, in which case they would now be about eighty years old.

In the older residential areas of Auckland there are a considerable number of relatively old palm trees and some of these are believed to be now about sixty years old. Several of these old specimens have attained a height estimated at 70 feet. The great majority of palms grown outdoors in New Zealand are believed to be more than thirty-five years old and those planted in more recent years have, in the main, consisted of the less desirable species. This is accounted for by the fact that a good assortment of palm species has not been available in New Zealand since World War I whereas in earlier years they were available to the public. This is evidenced in the catalogue of one Auckland nurseryman, who listed twenty-one different species of palms in 1884. It is doubtful whether any New Zealand nursery catalogue at present lists more than a few common species.

Distribution in New Zealand

Growing outdoors in this country there are no fewer than twenty-four species of palms and within some of these species there are various forms or varieties. Nearly all of the species are to be found in the City of Auckland. There is a relatively large assortment of species to be found in Napier and a creditable number are also thriving in both

Tauranga and Gisborne. With the exception of odd specimens the palms grown in other parts of the Dominion are either the hardy giant species, *Phoenix canariensis*, or the common small fan palm *Trachycarpus excelsa*.

The odd specimens of the less hardy species thriving in Gisborne, Napier, and other localities that have a much colder winter temperature than Auckland amply demonstrate that the climate is not the principal factor that has limited the planting of more desirable species in at least most of the coastal towns of the North Island.

A considerable number of species that have not been available in New Zealand for many years past are now being raised for sale, but as most species take at least five years to attain a suitable size for planting outdoors, it may be several years hence before some of the most desirable kinds again become available to the public.

Errata.—Illustration caption in inset of June issue should read *roebeleni*, not *noebeleni*.

RARE SHRUBS AT "WOODLANDS," TAKAPAU

G. A. R. PHILLIPS

One of the great pleasures in a gardener's life is a visit to some garden where rare or unusual plants are grown, or where there are particularly well-grown specimens of more familiar ones. There is a selfless enjoyment shared among gardeners, for their entire admiration is centred on the plant itself. I have had many such occasions during a busy life and one of the highlights will be the day I spent last January in a Hawke's Bay garden. This was in response to an invitation to visit the garden of Mr. and Mrs. Russell Cook at "Woodlands," Takapau. My visit will always be memorable for the welcome I received and the many well-grown rare and choice shrubs I was able to see.

The garden lies on flat ground, protected partly by neighbouring plantations. The soil is light, well drained and loamy of a pH suitable for most shrubs, particularly the ericaceae. Although frosts up to 21 degrees have been known, the last few years have been comparatively mild, with nothing more severe than 12 degrees. There was one exception in 1955. A late frost occurred in October at a time when many hardy shrubs were producing new growth, very tender and succulent. This new growth was badly frosted and many a shrub suffered disastrously.

Snow can be another menace and this occasionally occurs in winter. While deciduous trees are rarely affected, evergreens can have their branches broken through the weight of the snow. Snow has also caused considerable damage among the hardy heaths. It not only breaks them down but bursts the bark at ground level, causing the plant to lose all

chance of recovery. Rainfall averages 55 inches and this is well distributed throughout the year as the west wind brings with it moisture from beyond the ranges.

On the question of hardiness or otherwise, Mr. Cook is of the opinion that no definite rule can be laid down. The Burmese Honey-suckle, *Lonicera hildebrandtiana*, is quite hardy at "Woodlands," which lies at 1050 feet above sea level, yet at lower altitudes near the coast where there is a maximum of 8 degrees of frost, it fails to survive. It is only by trial in one's own garden that one can test the hardiness or otherwise of a plant, according to its reaction to the existing environment and climatic variation.

There is no formality about this garden. The shrubs and plants have been established in carefully selected positions, in bold drifts with broad grass swards between and an occasional "dot" plant to form a dominant feature. Although, contrary to the all too common practice of overcrowding, generous distances were allowed between the shrubs for ultimate development, growth has been so free that the time has come when a certain amount of thinning out will be necessary so that those chosen to remain will not lose their contour. That this is only now becoming necessary, thirty or more years after the garden was first planted, speaks volumes for the care and forethought given to the original planning.

It was during this visit to "Woodlands" that I first saw some really good examples of Mr. Jan de Graaf's golden yellow trumpet lilliums. These were growing in the foreground of one of the shrub borders and stood fully 7 feet high. Their trumpets were large, could be called golden yellow without any exaggeration, and there were two or three on each stem. Presumably there would be a greater number as the bulbs became well established. During a visit to "Woodlands," this Dutchman, who has his nursery in the U.S.A., expressed his intention to raise his lilliums from seed only in order to maintain a virus free stock. Admirable as this intention may be, it would be a heinous sin to allow any particularly fine form to remain undistributed, and I feel fairly confident that here, in New Zealand, and elsewhere the best forms will be propagated vegetatively and given varietal names.

To find a rhododendron in bloom in late January is certainly unusual, and I was delighted when Mr. Cook showed me some blossoms still fresh on a small specimen of *Rhododendron rhabdotum*. This belongs to the *maddeni* series with large, rather tubular flowers of cream, striped on the exterior with red. It has the highest rating among the species and has been seen up to 12 feet in its native habitat. There are many more fine specimens of rhododendrons and I noted particularly a very well developed *R. fictolacteum*, with its attractive foliage and brownish down on the reverse. I will not write more about rhododendrons now, but I shall hope later to write on them at length, when I have been

privileged to see the many species and hybrids in their full glory in spring.

For the first time since I have been in New Zealand I saw one of the most gloriously coloured of all autumnal foliaged shrubs. This was a large and shapely bush of *Disanthus cercidifolius*, the first, and so far as I know, the only shrub to be granted the A.M., R.H.S. for its autumn foliage. The foliage, not unlike that of the Judas Tree, is glaucous green in summer and changes to amazing tones of claret and orange in late summer and autumn. The flowers appear in spring, are dark purple, a little less than the size of a threepenny piece and are secondary in importance to the foliage. This shrub is perfectly hardy and I had no difficulty in bringing it through the rigours of a Warwickshire winter. It is high time it was in general distribution here. *Tricuspidaria dependens* was in bloom at the time of my visit carrying many pendulous white, bell-shaped flowers. Although not so well known as the species *lanceolata*, it has the advantage of flowering at a time when there is a paucity of flower in the shrub garden and it is also a more rapid grower than the other species. A large specimen of *Tricuspidaria lanceolata* was destroyed a year or so ago but there are a number of young specimens coming along that should be magnificent a few years hence. It is curious how some gardeners have the impression that this shrub requires a cold climate. For many years I attempted to grow it in England but could never bring it through our Warwickshire winters. In the milder climates of Western England and in Ireland magnificent specimens were grown. The finest I have seen came from Newcastle, Northern Ireland, where 4 degrees of frost were considered severe!

The Moroccan species *Cytisus battandieri* is another shrub that should be widely grown in the North Island. It has the most distinctive foliage of all the brooms with unusually large leaflets covered with silvery down that lends an attractive silk-like effect. The fragrant flowers are yellow and appear later than the *scoparius* varieties. I was delighted to find my old friend *Eucryphia* x *Nymansay* (syn. *E. nymansensis*) making itself thoroughly at home in this garden. Its upright, rather columnar habit of growth, makes it tower above its neighbours, where its dark evergreen foliage and pure white flowers, like small camellias with yellow stamens, appearing in summer make it one of the most attractive of later flowering shrubs. It demands similar conditions of soil to that required for rhododendrons and camellias. Among the berry-bearing trees of late summer and autumn the sorbus stands high. We are mostly familiar with the Mountain Ash, *S. aucuparia*, noted for its bunches of red berries and its extreme hardiness. There are others that, although less flamboyant in their beauty, possess a charm and distinction peculiar to themselves. This is particularly true of *S. vilmorini*, which was growing well at "Woodlands." The berries are rosy red at first but change almost to white, in delightful contrast to its autumn tinted foliage.

In a corner of the shrubbery I came across a nicely developed specimen of the Golden Elder, *Sambucus nigra* var. *aurea*. This is a deciduous shrub up to 15 feet or more in height, valuable for its golden pinnate foliage. The maples are a wide family and they can vary from the fine leaved Japanese forms to the giants of Asia and North America. This genus has been collected carefully by Mr. Cook and is well represented in his garden. Many of the well-known ones are there but attention must be focussed on those that are not yet in free distribution. My own particular favourite is *Acer griseum*, a native of Central China, and one of the most elegant of the Asiatic maples. It develops into a small tree with foliage, not large but elegantly formed and rich in orange tints in autumn. Its most striking feature is its peeling bark, which lies on the stems in loose flakes, making visible the new bark, orange coloured, within. Its senior in cultivation, *A. nikoense*, is also in this garden where its rich red foliage in conjunction with many another autumn foliaged shrub can well be imagined. Its handsome striated bark makes *A. davidi* of outstanding merit. The beauty of its spring foliage, red tinted at opening, had passed at the time of my visit but it still remained one of the glories of its race.

One of the gems of this garden is the shrub, still rare in cultivation, *Philesia buxifolia*. This Chilean shrub is dwarf and reaches 3 feet high in its own country. It has rarely exceeded a foot in Britain although there is a specimen at Caerhays, Cornwall, 3 feet high. The plants I saw were growing in peaty soil in partial shade where the sun could not cause dryness at the roots. Its 2 to 3 inch long bells, lapageria-like and of waxy texture and a bright rosy crimson, were about to burst and I longed to stay and see them open. I shall hope to see these plants in future years and watch their development. The Wakehurst form of *Pieris foresti* was there, too. The last time I saw this was in Mr. Russell's nursery at Windlesham, Surrey, and thought it by far the best coloured form of this shrub I had seen. I was pleased to see also the more rarely grown *P. taiwanensis*. This also has brightly coloured foliage, with large racemes of lily-of-the-valley-like flowers in spring or late winter.

The more I see of *Cornus capitata* (syn. *Benthamia fragifera*) the more I feel that it deserves a much wider representation in gardens, particularly as it is freely procurable. There were still one or two of the showy, sulphur yellow bracts on the tree at the time of my visit, but its greatest attraction had yet to come when in autumn it would carry its bright crimson, strawberry-like fruits. There were two forms of *C. nuttalli*, considered the noblest of this race, famous for its rich tints in autumn. There were many buds on *Stewartia pseudo-camellia* which would soon burst into 3-inch flowers of cream with orange yellow stamens. This deciduous shrub from Japan is famous, too, for its red and yellow autumn foliage.

How often *Desfontainea spinosa* has been mistaken for some species

of holly I do not know, but any doubt as to its relationship with that genus is at once dispelled when its bright, waxy tubular flowers of red and orange appear in summer. The bush I saw at "Woodlands" looked perfectly happy, being nicely established in a position where the sun would not scorch its roots, an important consideration with many of the surface rooters. The best specimen I ever saw was in the gardens of Bangor Castle, near Belfast. The Ghost Tree, *Davidia involucrata*, is always spectacular although, of course, it is at its best when the long, white bracts droop from its branches, well earning for it its popular name at night when the moonbeams catch its ghostly whiteness. There is a particularly tall and well balanced specimen that Mr. Cook has tended over the years but I was a few months too late to see it in flower. There was, however, a particularly brilliant climbing plant in full flower at the time I visited this garden. This was *Berberidopsis corallina*, a Chilean plant with coral red to crimson flowers freely borne over a fairly lengthy period in summer. It is reputed to be a lime hater but I have known plants growing against a sunny wall in England where the roots must have penetrated well into the lime and mortar rubble that lay a foot or so beneath the surface. Allowed to ramble over the stronger growing shrubs, where it can cause no harm, it was indeed lovely in late January.

As one would expect, magnolias were well represented. There were, of course, *MM. campbelli*, *parviflora*, and others that are becoming quite the usual thing to see in any large garden, but I was particularly intrigued to find a large specimen of the rare *M. macrophylla* that must have been fully 20 feet high. The cream flowers, a foot across, are fragrant and are rarely seen on specimens less than fifteen years old. Then there was the Japanese *M. salicifolia*, in a good upright specimen. I was too late to see the fragrant white flowers that would have appeared on the naked branches in spring. The wood and the foliage of this species are aromatic.

Buddleia alternifolia has a refined character quite different to the flamboyant varieties of the *variabilis* group. When I saw it, the slender arching branches were carrying the small fragrant lilac flowers along the stems to good effect. There was also the tender *B. colvillei* from Sikkim, but I was too late to see its long pendulous panicles of rose coloured flowers. A Burmese Honeysuckle had climbed high up into a large *Cupressus macrocarpa* and there is no doubt that this is the way to see it to great advantage. *Tropaeolum speciosum*, too, was rambling over shrubs and producing freely its bright red flowers. These slender climbers can do no harm if they are allowed to ramble freely for their growths are not strong enough to cause strangulation. This method also makes it easy to provide the cool and shaded root run so many need.

A tree particularly attractive for its foliage and general character is *Sassafras officinale*, and there was a good specimen in this garden that promises to be a dominating feature as it develops. I felt at liberty, while amid such a wealth of shrubby charm and beauty, to ask if there was a

specimen of *Stewartia malachodendron* I could see. It should have been obvious that a shrub of this magnificence would never have escaped Mr. Cook. There it was in just the right position, where it could enjoy the sun so necessary to shrubs from southern North America and yet have its roots in cool shade. It was not in flower then but I can well recall seeing it in full flower in a Kentish garden where its white flowers, red stamened, were a sight not to be forgotten.

To mention all the shrubs I saw at "Woodlands" and to do them justice would require a small book, but I have selected some of the more rare items to be singled out for particular mention. Now there are one or two perennials that must not be missed. As we sat beneath the welcome shade of the spreading branches of a large flowering cherry on the lawn before the house my eye was attracted by a mass of large foliage and spikes of dull red. This was *Lobelia tupa* and it is only in a mass like the one I saw that it is really effective. Singly it is not so striking as the *cardinalis* or *fulgens* varieties, but in a mass such as is produced by a well established plant it leaves them far behind and gives the impression of a shrub rather than a perennial. *Allium sphaerocephalum* was another old favourite I found with its reddish purple flowers in close umbels on two to three feet stems. There was Hewitt's double form of *Thalictrum dipterocarpum* growing vigorously and many of the better known perennials.

There is, unfortunately, always an end to these events and, as I thanked Mr. and Mrs. Russell Cook for their hospitality, I did so with a feeling that I wished I was in easier reach of a garden that offered so much in every month of the year.

THE TALL CRESTED IRISES

JEAN STEVENS (*Wanganui*)

The Evansia, or Crested Irises, belong to the rhizomatous-rooted division, one of the two major divisions into which botanists have divided the genus iris. The rhizomatous-rooted division is a very large one, embracing irises of widely divergent sections and subsections. In fact it has been necessary to make three subdivisions in it to separate such unlike sections as the irises which are bearded on their falls, those without beards, and those which carry a crest on the fall in place of beard or beardless signal patch. These subdivisions are called Pogoniris (or Bearded), Apogon (or Beardless) and Evansia (or Crested). Comparatively speaking, the Evansia subdivision is a small one, containing only some eight or nine species. Some of these species are, however, very distinct indeed, and several have only the crest and a rhizomatous root system in common.

I propose in this article to treat of the tall species of Crested Irises, that is those whose flowering stems reach a height of 2½ ft. to 5 ft. These

tall species have a garden value which can be compared, and also have similar cultural requirements. The method of propagation is also similar, and, furthermore, their history is interwoven.

Broadly speaking, none of the Tall Crested Irises is commonly grown in this country, *I. japonica* being a possible exception, but even this species has a limited distribution. It will not therefore be out of place to give some general data about these irises. As has been mentioned, they are rhizomatous-rooted plants, but the rhizomes they form have a peculiarity shared by no other section of irises. Growth commences with the formation of sharply pointed subterranean shoots which, according to the species, travel from a few inches to as much as 2 ft. from the parent clump before emerging from the soil. These shoots develop into long rhizomes, but, surprisingly, do not produce leaves immediately after emerging. Instead, the rhizome continues to grow upwards away from the soil, in one species only a few inches, but in others as much as 2½ ft. The effect in the taller species is that this aerial part of the rhizome appears as a stem from the tip of which the leaves fan out. The leaves are broad and strap shaped, from 2 to 4 inches across, and up to 3 ft. in length. They are not held in an upright position, but droop over gracefully from each fan growth. It is from the focal point of these growths that the true stem is produced.

The flower stem of these tall Evansias is a distinctly characteristic feature of the subdivision. The bud growth emerges from the fan as a flat plaited point, quickly developing into a large, finely branched spray, each of the many points of which carries a sheath of buds. After flowering is over not only does the much branched stem die, but the whole fan of leaves, and that part of the stemlike rhizome which is above soil level. The next season's rhizomes then commence their underground running growths from the sides of the rhizomes remaining below soil level.

The rooting system is extremely shallow and the fibrous roots are short, not travelling far from the rhizome. The result is that even from established clumps the increase can be lifted out of the soil without the aid of a spade or other tool. The mass of fine roots is formed along the length of the rhizome below ground level. However, although it is extremely easy to lift the increases out of the ground it will be found that they are attached to the parent clump by a particularly tough, cordlike junction, which must be cut with secateurs or other sharp tool.

The species which has been the longest in cultivation, and incidentally the only one which is at all well known in New Zealand, is *I. japonica*, which was first introduced into Europe early last century by Thomas Evans, an official of one of the early commercial houses trading between England and India. Herbarium specimens of the species were already known but when the living plant was grown, it was realised that this iris was entirely distinct from any other known. Thereupon a new section was formed in the genus, and called the Evansia section, in

honour of the introducer. Since that time this species has been grown under several names, though these names are now recognised only as synonyms. Unfortunately two of these synonyms, *chinensis* and *fimbriata*, are still quite widely employed, a practice which should be rigidly discouraged, as the use of synonyms can cause much confusion.

I. japonica is the dwarfiest of the tall Evansias, the flower stems being usually not more than 2 ft. to 2½ ft. The delicate lavender-blue blossoms have finely frilled and serrated petals with a small toothed pale yellow crest on that part of the fall where the beard appears in the bearded irises or the signal patch or stripe in the beardless ones. All irises have two small petallike extensions above the stigma, just where the style arm curves over the fall. Rather regrettably these twin-pointed extensions are called the "crests" of an iris flower. So it is that the true Crested Irises have their own distinctive crest on the fall, but also the stigmatic crests which are the normal parts of an iris. In *I. japonica* these stigmatic crests are very prominent, and so are laciniated as to appear as points of delicate lace, adding considerably to the dainty fringed effect of the flower.

Unfortunately *I. japonica* is a temperamental plant, flowering well in some districts yet in others it has proved very erratic in producing flower stems. It usually prefers partial shade, when the handsome, slightly ribbed leaves are a rich deep green, slightly silvered on the under side. In sun, particularly in hot districts, the foliage becomes a yellowish green. It, like all the rest of the Crested Irises, prefers that the soil on the surface be light and friable. Despite its shallow root system it tolerates drought to a remarkable degree. But its demands are far from consistent. Instancing this, at Mount Maunganui near Tauranga, this iris flourishes in the almost pure sand of that sea coast town, growing in full sun and flowering so well each year that it is one of the main cut flowers used in spring in one of the local hotels. Some years ago I received a letter from Okaihau in Northland, "Can you tell me how I can induce *I. japonica* to flower? I have not had one flower stem in three years." I was therefore surprised to receive another letter just recently from another gardener in Okaihau, mentioning amongst other things that *I. japonica* flowered wonderfully well in his clayey garden. I have myself grown it in the Lower Manawatu, in alluvial loam, in the Rangitikei in a light loam, and here in Wanganui in a heavy loam over clay. In none of these gardens have I found it a consistently good bloomer, though in each garden it flowered well some years.

One of the most amazing successes I have seen with *I. japonica* was in Queen's Park, Nelson, where the local Superintendent of Reserves, Mr. Leigh, was using it as a ground cover beneath large trees in full shade where neither grass or other plants will grow. During a recent visit to Nelson I was able to see for myself just how successful this novel method of growing *I. japonica* is proving in these gardens. Instead of the 2½ ft. long leaves which the species usually produces, the leaves were

a bare 12 inches in length. The foliage was a most attractive dark green, and though the plants were no more than half their normal height (leaf fans) of 2 ft. they were obviously happy and had increased to entirely cover the bare ground. Mr. Leigh assured me that they flower regularly and well. He is so greatly pleased at *I. japonica*'s performance that he has now made plantings in similar sites of the other Tall Crested species and their hybrids. Use of this iris as a pleasing and ornamental ground cover would be well justified in many other gardens and parks, even if no flowers were ever produced, as plants which grow at all in such positions are few and far between.

Let us turn now to the other species in this group of irises. There is a strange story to be told of these plants which are comparatively new to cultivation. That great iris authority, W. R. Dykes, had been intrigued by a herbarium specimen of one of the Evansias which had been sent to Kew, by George Watt, from Manipur, in North-East India, in 1882. This specimen had never been certainly determined, and although Dykes was inclined to think it was *I. milesi*, he was not sure about it. *I. milesi* is a Crested Iris of intermediate height from the Himalayas, with ribbed green foliage and lavender flowers, in shape of blossom not unlike those of *I. watti*. Then in 1911, Dykes was sent some seed, which he was not able to recognise, of an iris from Yunnan-fu, in South-West China. Seedlings duly flowered in 1913 and 1914. Comparison made between the herbarium specimen and this new iris convinced Dykes that here at last was the plant which George Watt collected in 1882. New to horticulture, this iris was named *I. watti*. The plant was not truly hardy in England, and was given only a limited distribution there, and also in America. Twenty years went by, during which time hybrids of this new iris with the old *I. japonica* were made both in England and in America. The English plant was called *I. "Japo-Watt,"* following a time-honoured custom of naming a hybrid after both its parent species. The American hybrid was called "Nada." Then about 1930 or shortly afterwards, a well-known English horticulturist, Major Johnstone, was collecting plants in Upper Burma when he found an iris quite unknown to him. He already grew the so-called *I. watti* and *I. japonica*, but this was an entirely different plant—and yet it was a tall Crested Iris! When he returned to England comparison was made between this new plant and the old herbarium specimen of *I. watti* at Kew. There was then no doubt that here at last was the true *I. watti* and the plant raised by Dykes and grown as *I. watti* was quite another species. The herbarium specimen was *I. watti*, collected in 1882, and although it was not brought into cultivation until 1934 Major Johnstone's plant was the same species, and therefore was *I. watti*! But what of the plant being grown in England and America as *I. watti*? Well, the botanists solved that problem by changing the name of that plant to *I. confusa*! Never was a plant more truly named, and it is still living up to its name. A quarter of a century has gone by, but if a gardener in England or America mentions that he

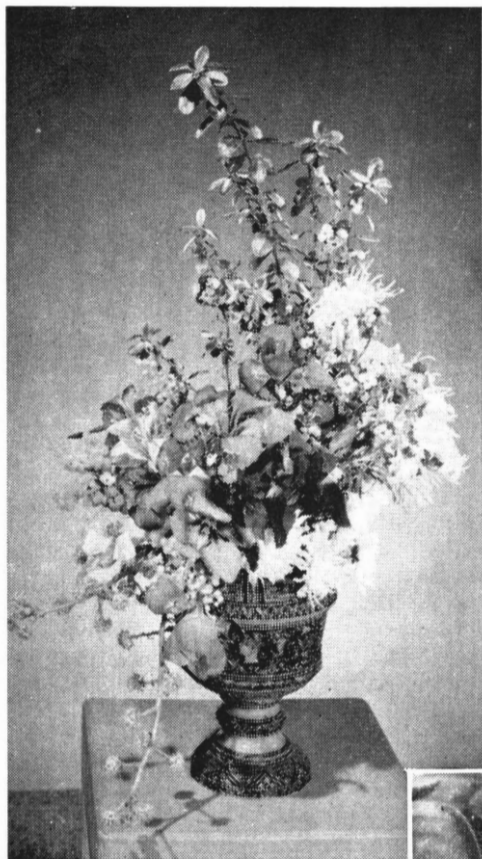
grows *I. watti* the chances are more than even that his plant is *I. confusa*. During a visit to the States last year I was shown *I. "watti"* in quite a number of gardens. One glance showed me that it was *I. confusa* still accepted as *I. watti*. Yet previous to my departure from New Zealand I had offered the true *I. watti* to the Evansia Study Group of the American Iris Society, a group whose main activities are based in southern California. I was then assured that they already possessed the true plant, which they had procured from the New York Botanic Gardens the previous year. This again proved to be *I. confusa*, and it was not until I visited a garden in Fair Oaks outside Sacramento, that I finally saw the true plant. It was of interest to me that this gardener had obtained his plant from the same source as I had in England, and both his and my stock of the species had come from Major Johnstone's garden in the first place.

A description of the two species concerned will show how widely distinct they are as garden plants, even though their herbarium specimens can be so alike as to quite deceive that most discerning botanist, the late W. R. Dykes.

I. confusa runs up its aerial rhizomes to 3 ft. or even 4 ft. Its growths at the tip of these bamboolike "stems" are truly fan shaped, giving a palmlike effect. The stems are slender, about finger thickness, and the leaves are nearly 3 inches broad and about 2 ft. long. They are perfectly smooth except at the point where they leave the growth tip. The flower scape is, when well grown, about 15 inches from fan to terminal budsheath. It is many branched but the branches are comparatively short and stubby, making the spray of flowers about 10 inches across at their widest part. The flowers are 2 inches across, bluish white with a single gold-tipped crest on the fall. Like *I. japonica* it spreads by sending out subterranean "shoots" and clumps rapidly increase in size year by year, and even month by month! *I. japonica* spreads rapidly but *I. confusa* can spread where conditions suit it until it quickly becomes an embarrassment in any garden border. Like all Evansias it prefers a loose soil, so to attempt to contain it in some sort of bounds I tried planting it in a position where the soil was heavy sticky clay. But *I. confusa* was not to be so contained and twelve months later the one plant was over 6 feet across and still travelling. I now grow it on the south side of a brick wall which leaves the concrete based house wall at right angles. Here it can be controlled.

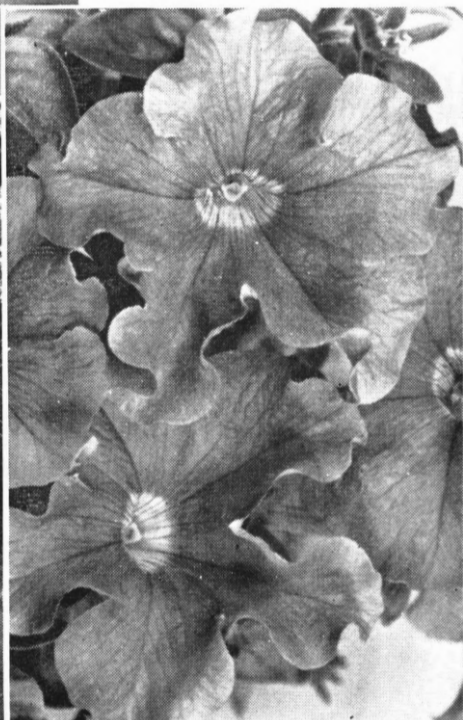
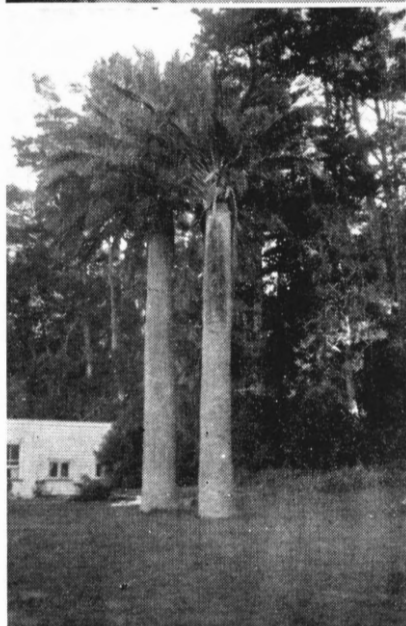
I. watti has very heavily ribbed foliage up to $4\frac{1}{2}$ inches broad and often the leaves are over 3 ft. in length. It has the habit of producing a few leaves up its stout, rather flattish, aerial rhizomes or "stems," making a noble looking plant which, if sheltered from the wind, will reach nearly 5 feet. So heavy are the fans of leaves that it is advisable to stake the clumps to avoid some of the growths from falling over. Stakes can be driven in around the clumps and the "stems" tied in such

*A Modern Floral
Arrangement
(see page 146).
(Bruce Watt Studio)*



*Bottom left:
Jubaea chinensis, Mansion
House, Kawan Island
(see page 152)*

*Bottom right:
Petunia Gipsy Ballerina
(see page 170).
(By courtesy of Carter's Tested
Seeds Ltd.)*





Phoenix canariensis, Ellerslie Race Course, Auckland
(see page 153).



Rock Garden at Godley Peaks (see page 176).

Leucogenes grandiceps
(see page 147).



Philesia buxifolia
(see page 156).
(Donald F. Merrett)

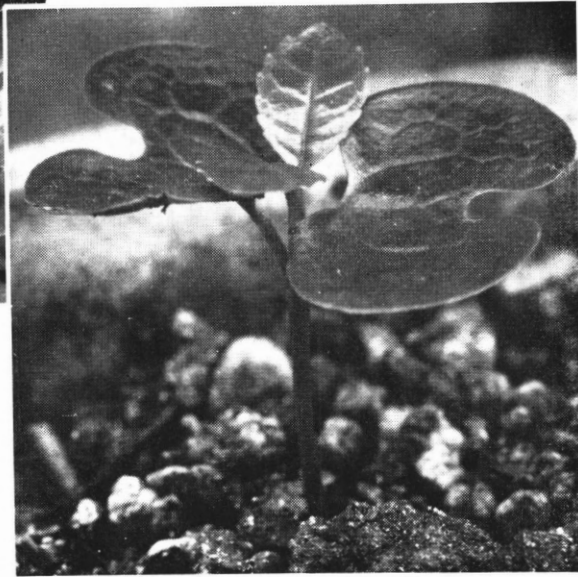
Rosa alba "Small
Maiden's Blush"
(see page 166).



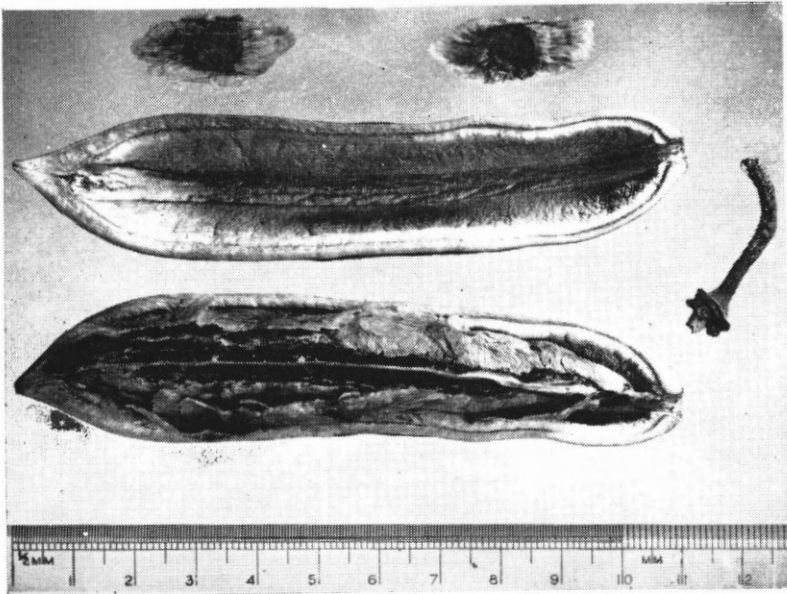


TECOMANTHE SPECIOSA
OLIVER (see page 177).
(S. A. Rumsey.)

Flowers and foliage



Seedling immediately after germination



Open Seed Capsule

a manner that the handsome leaves completely hide the fact that stakes and twine have been used. The flower scape of *I. watti* has a heavy central stem, often over 2 ft. from fan growth to terminal buds, with side branches in proportion. The growth is lax and informal, in an almost drapelike effect. The lovely 4 inch soft lavender blue flowers have deeply waved petals and long fringed stigmatic crests. A five ridged self-coloured crest is accented by haft dotting of light yellow. Unlike either *japonica* or *confusa*, the flowers are not flat, the blade of the falls being drooping. This the newest, and by far the loveliest of the Tall Crested Irises, does not have the fault of spreading out its growths year by year and so taking more than its share of garden space. *I. watti* takes a position about 3 ft. across, and after it has made its growth to fill that space, does not wander.

Propagation of any of these irises is a simple matter. They are ever-green, and in some districts even evergrowing, and increases can be taken off the parent clumps at any season, though it is advisable not to take them in winter in cold districts, nor in the heat of summer unless they can be kept watered for the first few weeks. There is a second method by which the plants can be quickly increased, a method which seems very strange with an iris. The bamboolike aerial rhizomes may be cut up into short pieces, each piece having at least one of the bamboo-like nodes or rings. Insert these cuttings into a loose soil and in a few weeks new leaves will appear from the nodes, roots being formed from the same nodes as the leaves.

I. japonica very rarely sets seed. I have never seen seed on *confusa*, even after hand pollination under ideal conditions, so propagation with these two species by seed is nearly if not impossible. In the case of *I. watti* I have had some interesting results from seed, but as this is a story in itself I propose to leave it for a future article.

Although *I. japonica* is perfectly hardy in most parts of New Zealand the flower scape itself will not stand more than a few degrees of frost. However, the fact that the plant welcomes overhead protection from sun means that it can often be flowered successfully in cold districts as the protection of the flower scape is given by the same means which protects the plant itself from summer sun. The species *confusa* and *watti* are yet too sparsely distributed to get much data on their hardiness, but they should prove easy in most districts. Strangely the lush growing, more tropical seeming, *I. watti*, is reported as hardier in England than *I. confusa*.

OLD WORLD ROSES IN AN AUCKLAND GARDEN

ROSA ALBA

NANCY STEEN (Auckland)

Just as France took the red *Rosa gallica*—the Rose of Provins—to her heart and made it her own, so did England adopt the white rose,

alba, which was thought to have been brought to her shores by the early Roman traders. The actual date of its introduction is not known; but old botanical and horticultural writings all refer to *Rosa alba* as one of the oldest known roses in England. Later, in 1597, Gerard, of Herbal fame, grew this rose in his garden and from then on it has been cultivated extensively.

Rosa alba is thought to have originated in the Crimea, Kurdistan area as a natural hybrid between *Rosa damascena* and a thornless pure white *R. canina*. The oldest types of this rose were the five petalled single, the semi-double and the double. All of these had white flowers; but, centuries later, many other exquisite hybrid forms began to appear with fuller flowers, and soft pink colouring; but still with the same exquisite scent. At the height of their popularity, over a hundred different forms of *alba* were listed; but today, less than twenty are available.

It is difficult to understand this neglect, when their unusual foliage alone would merit their inclusion in any garden scheme, to say nothing of the rare beauty of their flowers and their intoxicating perfume. These *alba* roses are often referred to as "tree roses" because of their tall, upright growth, which, in some cases, exceeds 8 feet, and so makes them useful for background plantings or informal hedges. They share the honour of having foliage of a very unusual colour with two other roses, *Rosa villosa* or the Apple Rose, which has very grey leaves, and *Rosa rubrifolia*, whose foliage is of a subtle shade of grey tinged with plum colour.

Rosa alba was used as a stock in the seventeenth century, and a useful one it must have been, as it does not sucker nearly as freely as other roses used for this purpose. It requires to be pruned lightly or not at all if it is to develop its full beauty, but, for a smaller garden, it can be cut back harder and this will make a much more compact bush. The flower display will not be so generous as on the plant that is allowed to develop naturally; but the individual blooms will be better. In England, today, *Rosa alba* is budded on to *R. canina* stock, with which it should have a close affinity on account of its parentage; but it is possible to increase it by cuttings also. Planted on its own roots, it will grow very vigorously and live to a great age.

In some varieties, particularly "Celestial," the young leaf shoots are noticeably tinged with pink, and the contrast, between this and the mature blue-grey foliage, gives a very pleasing effect. Another distinctive feature is that the leaflets, pedicel and hip are downy, and the deeply serrated leaves are held flat with the exception of those of "Celestial," in which they are cupped. The leafy calx, extending well beyond the petals, adds greatly to the beauty of the flowers, which are followed, in some types, by pitcher-shaped red hips.

These look charming against the glaucous-hued foliage and add to the garden value of the plant during the autumn. Unfortunately, the

Auckland climate is not conducive to the free development of hips as is the case in the south of New Zealand.

All over the British Isles, these roses grow by the roadsides, in cottage gardens, larger gardens and parks, yet they are rarely seen in this country, which is rather strange when one considers their fame in English history over the centuries—stranger still, when our early settlers introduced so many old roses to this new land. Travelling from the north down to the south, we have not, as yet, discovered any varieties of *Rosa alba* growing by the roadside, and few, indeed, in gardens. Yet there are *gallica*, Damask, *centifolia*, Mosses, Chinas, Bourbons, Noisettes, *spinosissima*, and ramblers of all types growing wild. It is obvious that, here and there, roads have been cut through the sites of old gardens, for roses are to be found on both sides of the road growing and suckering freely—this suggesting that they have been grown on their own roots: and they continue to thrive in spite of absolute neglect. South of Taihape there is a rose growing wild which, at first sight, appears to be an *alba*; but on closer inspection proved to be, not *alba maxima*, but “Madame Plantier,” the lovely white flowered Noisette.

Alba will thrive in sun or shade, in amongst the roots of other shrubs; and they are not fussy as to soil, though, like most plants, they do appreciate good feeding and will produce finer blooms in consequence. Their leaves appear to keep quite free from the mildew which attacks the *gallica* and Bourbon varieties in hot dry weather. This is indeed an asset in Auckland with its humid climate. The clusters of flowers open slowly and last well on the plant, which enhances its floral display. As for their perfume, it is wonderful and has been likened to the scent of white hyacinths, of spicy apples and of honey; but, whichever it is, and it is hard to say which, this fragrance is delicious in the garden, particularly towards evening or after rain.

Alba varieties are summer flowering only and possibly it is this that makes the bushes so sturdy, as so much strength goes into the making of leaves and stems instead of extra flowers.

The form *alba semiplena* or *suaveolens*, is the one that has been grown for centuries at Kazanlik in Bulgaria and used in the distilling of Attar of Roses. This rose has also become naturalised in England, where it develops into a very tall shrub and flowers so generously that, seen at a distance, it resembles a huge Snowball Tree.

In the fifteenth century, Botticelli painted his “Birth of Venus,” and in the picture can be seen flattish white flowers with yellow stamens. These have been identified as the blooms of *Rosa alba semi-plena*, this flat look being typical of the species. Today, unchanged, this rose graces our gardens and is admired by all lovers of old roses. It forms a sturdy bush, from 8 to 10 feet tall, that is useful at the back of a border, and its grey-green foliage sets off to perfection borders of pink and white flowers.

One of the best known white roses in history, especially history con-

nected with England, is *alba maxima*, the Great Double White or Cheshire Rose, so called from the fact that, having at one stage thought to have been lost, it was rediscovered in that county. *Alba maxima* has also been called the Jacobite Rose, as Bonnie Prince Charlie was in the habit of wearing it in his bonnet; but its lasting claim to fame arises from the fact that during the Wars of the Roses, in the fifteenth century, this double white rose was used as the badge of the House of York, while the House of Lancaster adopted as its emblem the red rose of France, *Rosa gallica*. Later, King George IV incorporated *alba maxima* in the floral decoration of his Royal signature; and, in 1846, the Prince Consort used it in a similar manner. Today, it is to be seen in the badge of the Grenadier Guards. Over the years this beautiful white rose has been a favourite of the English people.

Alba maxima has sometimes been mistaken for the Damask, "Madame Hardy," and the Noisette, "Madame Plantier," which is perhaps not surprising, as they all have some Damask in their make-up. The foliage of *alba maxima* is coarse and of leaden green colour, and the thorns are sparsely scattered along the stems. These are not so upright as in some of the other *alba* forms, but it still makes a fine hedge, if fairly closely planted, and has been used in this manner, both in England and on the Continent. King Christian IV of Denmark was so enchanted with the Cheshire Rose that he imported it from Holland, where it is grown commercially, and had it planted as a hedge in the Rosenberg gardens in Copenhagen.

"Madame Legras de St. Germain" (1848) is a beautiful hybrid *alba* with smaller, greener leaves than the type and almost thornless whippy stems, somewhat resembling those of "Madame Plantier." It has the typical flat flowers of *R. alba*, very full with an entrancing hint of lemon yellow at the base of the petals, an unusual colour combination in this group. The buds, as in all *alba* forms, are lovely, the calyx being long and very leafy. Mr. Graham Thomas considers that this rose is a rival to the incomparable Damask, "Madame Hardy."

Other hybrid *alba* roses that make attractive shrubs are "Small Maiden's Blush," "Celestial," "Felicite Parmentier," "Koenigin von Danemarck" and "Sophie de Baviere." All these flowers in varying shades of pink.

There are a great and a small "Maiden's Blush"; but the latter is more suited to a moderately sized garden. Bluish green coarsely serrated leaves set off perfectly the unusual buds. These, when beginning to open, look as if the tip had been cut off with a knife—leaving a bud with a blunt end. Whilst this may sound grotesque, the combination of the leafy calyx, the snub nose, and the underside of the petals, blush merging into green, gives a delightful and unique effect. When fully open the flower is flat, very full with a muddled centre and the colour is a delicate blush pink paling to cream at the edges. *Alba* "Maiden's Blush"

has been grown in gardens since the fifteenth century and, since seeing it in flower, it is easy to understand why it has been such a favourite for so long.

Rosa alba "Celestial" was created in Holland in the latter part of the eighteenth century and is sometimes called the "Minden Rose." It is thought to have been the rose picked and worn by the men of the Suffolk Regiment after their victory at Minden. The flowers are a deeper, clearer pink than those of "Maiden's Blush," and are semi-double, with the inner petals incurving at first around the yellow stamens. The shapely buds have been compared favourably with those of the *chinensis* hybrid, "Cecile Brunner" and *Rosa virginia plena*, Count D'Orsay's buttonhole rose, and this is confirmed by local observation.

The leaves of "Celestial" differ from those of the *alba* forms generally in that they are rounder and deeply cup shaped and quite pink in the young stages. This, together with the mature blue-grey foliage, gives the plant a distinctive appearance, which, once seen, can never be mistaken. The colouring of both leaf and flower makes this an admirable rose for planting in a pink border or garden.

"Félicité Parmentier" (1836) is a smaller growing rose than any of the others already described. It is less upright, with light yellow-green leaves, dark thorns and closely packed clusters of buds. All this points to a near relationship to the Damasks. The pink flowers reflex almost into a ball when fully open and in this way also it differs from roses like "Celestial" or *alba semiplena*. This is a rose that Constance Spry admires and recommends for use in floral work.

"Koenigin von Danemarck" (Queen of Denmark) 1809, was a triumph for the hybridisers of that day and Mr. Graham Thomas has featured it on the cover of his book "The Old Shrub Roses." It has the flattened bud ends of "Maiden's Blush," but otherwise the flower is very different, having a decided button eye, quartered inner petals of a deep carmine shade with paler outer petals that reflex back. The handsome foliage is of a dark blue-green against which the pink flowers stand out most effectively. This is a taller, more lax rose, than "Félicité Parmentier," and should be placed near a wall or a fence and given some support.

A newcomer to the present day list of *alba* varieties is the very tall growing "Sophie de Baviere," which has quite large flowers of a deep rose colour. These show a decided green eye and later reflex into a ball, as in some of the Damasks. The coarse leaves are large and glaucous, and, in form, though not in colour, they resemble some of the *centifolia* varieties. As the branches are inclined to arch over more than they do in the original types, sufficient space must be allowed if this rose is to be featured as a shrub. Grown in conjunction with pink and white long-spurred aquilegias, with a carpeting of *Omphalodes verna* and *Pulmonaria angustifolia*, it makes an attractive and showy picture, though

it cannot be compared for real beauty, with "Maiden's Blush" and "Celestial." There is something breathtaking in the first glimpse of the flowers of these lovely roses.

Alba roses, in spite of flowering only in the summer, can be recommended to add fragrance, harmony, grace and lasting beauty to a garden.

NOVELTIES AMONG THE ANNUALS

J. S. DAKERS, A.H., R.H.S. (England)

One of the major miracles of this world is surely that of the seed which, given the essential conditions of moisture and warmth, becomes in time a living thing. First just a tiny seedling developing according to its genus into a mass of foliage and flower within months, or maybe, in the case of a shrub or a tree, a matter of years.

It is a thought worth pondering, not alone because of its wonder, but because, by the use of seed, the gardener has his own command over a veritable world of beauty and brilliance. In no case is this better exemplified than in the easily grown group of annuals which within the calendar year germinate, grow, bloom, set and ripen seed. Gardeners are sometimes impatient and want their rewards quickly, so for them at any rate the annual must be the answer. For those who can wait, there is the whole range of the vegetable kingdom, from the perennial which often blooms the same year in which it is sown, to the tree or shrub which (as in the case of some magnolias) may be thirty or forty years before a flower is seen.

In this article I am dealing mainly with the newer annuals but thinking of the group as a whole it is clear that gardeners, at least in Great Britain, have yet to become familiar with a much wider range of subjects than is the case at the moment. Here we seem satisfied with what may be termed the old-time favourites and I can only hope that New Zealand may well be ahead of us in the growing of lesser known annuals.

One might have thought that seedsmen would have restricted their sales to those annuals which sold freely, but that has not been the case, for instead of doing just that, they have set out, since the end of the last war, to improve stocks and to hunt for outstanding new varieties. These have certainly been forthcoming and their appearance has gone some way towards stimulating interest in annuals.

There have also been excellent examples of whole borders given over to annuals, none being more notable than the annual borders in the Royal Horticultural Society's gardens at Wisley and by the Northern Horticultural Society in their gardens and trial grounds at Harlow Car, near Harrogate. Visitors to Britain from New Zealand who are interested, should most certainly visit one or both of these gardens during summer. Such examples, and others in public parks and gardens which

are open to visitors, have been encouraging gardeners to grow whole borders of these easily raised subjects and teaching the gardener something of the value of annuals.

The appearance of new varieties amongst the well-known favourites also makes every intelligent gardener sit up and take notice. Let me give an example. The ordinary old varieties of *Nicotiana affinis* were never very comely subjects during the day but their evening fragrance won a spot for them in most gardens, and it was at that period that the flowers themselves opened out and the whole plant looked beautiful. For years we said, "If only it would look like this in the daytime!" Suddenly, through the patience and ingenuity of the hybridist, such a plant arrived. It was pure white, excellent in growth and scented and the flowers remained fully open all day long. It was aptly named "Daylight" and this was but a beginning, for soon after this came a group of coloured forms called "Sensation," again with flowers open all day, and this was followed by one of the most serviceable of all tobacco plants, a dwarf, highly scented form called "White Bedder", its pure white flowers on stems not more than 18 inches high again being fully open all day long and very fragrant. These improvements altered the whole outlook on this particular plant and it is now one of the most popular of summer flowers.

Much too has been done for the antirrhinum and though this is not strictly an annual, I include it because it is, to all intents and purposes, treated as one in this country. For many years the disease known as antirrhinum rust spoilt millions of plants in Britain and elsewhere and seedsmen realised that something just had to be done about it and a few years ago we saw the first of a group of rust-resistant varieties. These are now well distributed and came as a boon and a blessing to those who feared they would never be able to grow antirrhinums again. One of the newer favourites is "Orange Glow," which really describes it and is the best of its colour. "Pink Freedom" is well known, having proved itself a fine garden flower but I consider "Roselight," which is a deeper shade with a tinge of salmon, one of the best of the novelties. This autumn will see the debut of a lovely white form; it is "White Freedom" and has larger flowers than most of the rust-resistant varieties. The seedsmen think a lot of this variety and I feel they are justified in this. It is likely to be very popular.

Other varieties, not claimed as rust-resistant are "Rose Candle," which grows about 2½ feet tall, a really vivid rose-pink, two brilliant reds, "Flambeau," which the raisers describe as the colour of a ripe tomato, 1½ feet high, and "Forest Fire" belonging to the tall group and certainly one of the most brilliant scarlets I know; "sizzling" is the raiser's adjective when describing the colour.

The annual asters form one of the most diverse groups for shape, size, height, colour and form of habit, so much so that one could hardly expect new types but such is the persistence of seedsmen that each year

new ones appear. I will mention three novelties which certainly have something worthy of note about them. The first is a variety called "Powder-Puff," which, as a plant grows rather thinly, carries its flowers mainly at the top of the growth. These are mainly double with rather thin, slightly rolled petals and the whole flower is rounded in a manner which does remind one of a powder-puff. It is ideal for cutting and here in Britain, where there is intense interest in flower decoration in the home, this new type of aster has been a most welcome addition.

From Denmark comes a colourful group of asters called the "Remo" strain, with red, blue, violet, rose and cerise as the most prominent colours. The flowers are semi-double with yellow centres and a curious feature about them is that they all come out together and make a remarkable display.

Another aster novelty to note is "Dwarf Waldersee," 9 inches high with a rounded bushy habit. This again has a wide colour range and should be welcomed by gardeners who find wind an enemy. The normal growth is very strong and, I think, it is to prove an excellent plant for heavy soils.

Petunias are not in the strictest sense annuals, but most of us think of and treat them as such. It is also a most important plant and a good deal of progress has been achieved both here and in America by improving strains and ensuring that practically every plant in any given variety grows to the same height and form. This makes the petunia more useful in gardens, for some of the older strains were a bit erratic as regards uniformity in height. For years seedsmen have been working towards the production of a really good red with a perfectly compact habit, carrying flowers of reasonable size throughout the season. This has been splendidly achieved in a most beautiful variety called "Gipsy Ballerina," which has rich scarlet flowers overlaid with salmon. It is the most outstanding petunia that I know and I think the best novelty of the genus for years. A small mountain of these was exhibited by Carters Tested Seeds and proved one of the high-lights of the great Chelsea Flower Show last May. I can write with some knowledge about its good points as I am growing it in the most difficult soil and find it to be all the raisers claim it to be.

I would also put in a word for the Pan-American All Double Strain, a novelty of importance because such a high percentage of the plants come perfectly double. For years the doubles have been neglected so I hope this strain will encourage those who loved the old-time doubles and those who have yet to make their acquaintance, to bring these highly scented doubles back to their one-time popularity.

The bedding salvias are well-known, widely grown and are for the most part dwarf forms of *S. splendens*. Now, however, there is an extra-dwarf type offered. Like most of the other bedding varieties it is brilliant scarlet but the small compact plant reaches only 6 or 8 inches in

height and has the extra virtue of coming into bloom very early. For pots or window-boxes it is certainly a splendid and useful introduction.

There are two varieties of *Godetia whitneyi*, namely "Vivid" and "Celestial," which, though not new this year, have yet to become known to the bulk of gardeners. The former is cherry-red with a white base and the latter is lavender with a pale centre to the flowers. Both grow a foot high and literally form a cushion of colour for weeks on end and even in heavy soil, when perhaps only 9 inches high, they are still a wonderful sight. Another and newer variety is "Salmon Princess," which looks like becoming a companion for "Celestial," having a particularly appealing tone of salmon as the basis of its colouring.

One of the major events of recent years has been the introduction of the 100 per cent. Double Stocks. Having passed their tests in trial grounds and gardens they have proved themselves true to their name and I have no hesitation in recommending them to anyone interested. Surely if we grow stocks we want them double and most of us know the disappointment caused when half or even more of the crop turns out to be single. With these new stocks, as the seed germinates, it will be seen that some have light green foliage, others being decidedly darker. These latter plants will give single flowers, so must be discarded, while the light foliaged ones will be double. To ensure that the difference in foliage colour is emphasised it is usual to raise the seed in a little higher temperature than usual. The colour range of the group is most satisfactory and each year seems to improve. Surely this novelty will save many headaches and disappointments for gardeners.

Another striking novelty is a group known as Trysomic Stocks. The doubles in this are estimated at 85 per cent., but when four or six leaves have been made, the single appear to be very weak and show up plainly amongst the more robust doubles. Again it is a question of destroying the weaklings in their youth.

For those who like the easily grown candytuft I mention a new white variety called "Iceberg." It is certainly not so prolific as the ordinary strains but what it lacks in numbers it makes up in size. I cannot remember any other strain with such large flowers and this new type should be of value to both garden lovers and those who want a good white for cutting.

If I began to review the sweet peas I would require a lot more space so I will content myself by saying that the most striking novelty for years is a rich salmon called "Mary Malcolm." When I first saw it I was certain it brought a new colour in this already multi-coloured group of annuals and I still think that way. If I may add another it must be "Lady Cherry," a very large flowered cerise, the colour being outstanding when seen against any collection of varieties. The colour is intense and will appeal to most lovers of sweet peas. Perhaps the one type that became a favourite, even in the first year it was sent out, is the

dwarf-growing bushy plant, almost like a cushion of green covered with sweet peas. Its name is "Little Sweetheart" and growing only 6 or 9 inches high was so revolutionary that British gardeners just accepted it, found it responsive and this summer it is in bloom in thousands of gardens.

Here then are some of the novelties, in one group of plants alone, but the work of the hybridist and the seedsmen goes on in other directions—in hardy perennials, biennials, tender subjects, vegetables. In general they are doing their utmost not only to offer something quite new but to improve and keep perfectly true those established favourites upon which their reputation depends.

MINIATURE ROSES

S. MASON (*Feilding*).

Although it is only during the last few years that these roses have become really popular they have been in cultivation for some time. Known as *lawrenciana* they are said to have come originally from the island of Mauritius. However, the first that we are really concerned with is *Rosa rouletti*, which was discovered by Dr. Roulett in a garden in Switzerland. He brought it into cultivation and from this have come the great variety of colours and shades that we have today. Incidentally, the *lawrenciana* class was the forerunner of the polyanthas or poly-poms, such as "Orleans Rose". Miniatures average 12 inches in height, some being slightly over this and some under. Colours range from deepest crimson through the reds and pinks, and there are also cream, yellow and white varieties, and it is safe to say that the colour possibilities are, as yet, only touched upon. Among the newer varieties, "Red Riding Hood", "Humpty Dumpty", "Jack Horner" and "Miss Muffet" are outstanding. "Baby Masquerade" is most attractive, but seems rather a stronger grower than many of the others. The plants seen were budded plants and these usually grow bigger than those on their own roots. Flowers also may be larger and coarser.

Two recent introductions are climbers—"Climbing Perla Rosa" and "Climbing Perla de Alcanada" ("Baby Crimson"). These make main growths of from 2 to 3 feet in length, and when trained along low trellises or over miniature arches, are a beautiful addition to the miniature garden. They have also been tried as miniature weeping standards, being budded on to 2ft. 6in. stock. They make a good deal of growth and some thinning out is necessary, the remaining leads being tied down to a frame, or held down with strings and pegs. As these flower on the laterals along the main growths the display has to be seen to be believed.

Bush varieties have also been budded on 12 inch stock to make miniature standards. These were also a great success, particularly "Cinderella", "Rosina", "Granata", "Oakington Ruby", *Rosa rouletti*, "Midget", "Perla Rosa", "Perla de Montserrat" and "Perla de Alcanada."

Standards may be grown in 12 inch pots for several years and if looked after properly in the way of feeding and pruning, will provide a show for many months. The best way to feed them is to give regular doses of weak liquid manure, and a little of one of the concentrated plant foods now and then. They can also be planted as focal points in the miniature garden, or to set off a bed of ordinary standards.

The bush plants may be grown in pots inside where they need plenty of light and fresh air, but no draughts. Feeding should be done in the same way as the miniature standards. They can also be planted in window-boxes where they are most effective. When the main flowering is over it is a good plan to take those that are growing in pots, out into the garden and put them, complete with pot, into the ground. Cut off all dead flowers and trim the growths back a little. They will soon make new growth and be ready to take inside again for another flowering.

The plants are, of course, subject to the blights and pests that most of their larger relations suffer from and should be treated with the same controls.

Two varieties that are often catalogued as miniatures are "Pinkie" and "China Doll". Strictly speaking these are *floribunda* varieties, though small growers. "Pinkie" is a delightful variety, and when grown from cuttings does not grow very large. Unfortunately it is rather hard to propagate in this manner. It is also rather susceptible to black spot.

Pruning of miniatures is done, more often than not, by merely clipping the plants back a little with a pair of scissors, to cut off any dead flowers and keep the plants a neat shape. However, it is a good plan to spend a little more time on the job, thinning out weak and dead wood and generally cleaning the plants up. Any strong shoots that come up should be cut back to about half their length.

Here is a list of some of the better known varieties:—

Reds: "Perla de Alcanada", "Midget", "Granata", "Oakington Ruby", "Mon Petit", "Mon Tresor", "Prince Charming", "Peon".

Pinks: "Bo-peep", "Perla Rosa", "Perla de Montserrat", *Rosa rouletti*, "Sweet Fairy" (scented).

Yellows: "Rosina" ("Josephine Wheatcroft"), "Estralita d'Oro", "Presumida".

White or Off-White: "Cinderella", "Para Ti" ("Pour Toi"), "Twinkles", "Pixie", "Anny".

NOTES FROM THE CHRISTCHURCH BOTANIC GARDENS

L. J. METCALF (Assistant Curator)

Like the hibiscus mentioned in the last issue, *Camellia sasanqua* and its varieties are valued in the garden on account of their flowering habit. They commence to flower in the autumn and some varieties continue

right on through the winter, and even as these notes are being written, one variety, *Camellia sasanqua* "Hiryu," still has quite a few flowers left on it. The flowering habit and ease with which *Camellia sasanqua* may be cultivated should combine to make it one of the most popular shrubs in the garden and it is really to be wondered at that it is so little seen in local gardens. In the wild state it has white flowers, but those of cultivated plants usually have pale pink to deep rose flowers. *Camellia sasanqua* is widely spread in China and in Japan is one of the most popular camellias and it is from the latter country that many garden varieties have arisen. Of the varieties grown in the gardens the following are worth mentioning. Perhaps the most outstanding is the variety "Hiryu" which has single rose red flowers in great profusion and produced over a longer period than the other varieties. It is a very strong grower and needs more space than some of the others. "Beni-suri" is another strong growing variety with deep rose flowers, as is "Momozona" which has shell pink flowers; it is a very strong grower, and although more common the variety *rosea* is not to be despised. "Onigoromo" has white flowers bordered with pink and is a very charming variety. However, it is to the whites that one must look for the finest flowers. The single white is not without its charm. It is of medium height, but undoubtedly the finest is "Moonlight," also of medium height, which has double flowers of pure white. "Fuji-no-mine" is another double white variety but it does not quite have the beauty of "Moonlight."

As a garden subject *Camellia sasanqua* is a superior plant to *C. japonica*. It has a more graceful habit of growth and does not have the heavy stiffness of the *C. japonica* varieties, and as soon as the flowers are past their best they fall and do not remain on the bush to form an ugly brown mess as do many varieties of the latter.

One shrub which is surprisingly hardy in the gardens is *Templetonia retusa*, a native of Western Australia. This shrub has been growing in the Australian border for several years and has proved itself perfectly hardy. Flowering commences in June and continues until August and it is only with very heavy frosts that the flowers have been harmed. It is commonly found in the regions north of Perth growing in low coastal scrub on limestone country. With us it is a rather dense scrub about 3 feet high with broad lanceolate leaves 1-1½ inches long with a slightly notched tip. The curious pea shaped flowers are dull scarlet and in most seasons are produced quite freely.

Although New Zealand flowers may not be renowned for their brilliance, some of our foliage plants are without doubt the finest in cultivation, and in the native section three plants serve to strengthen this view. They are *Pittosporum crassifolium* var. *variegatum*, *Podocarpus totara* var. *aurea* and *Dodonaea viscosa* var. *purpurea*. Growing together in a group as they are, they provide an extremely fine effect during the winter months as each offsets the other.

A GARDEN IN THE SOUTHERN ALPS

CONNIE SCOTT (*Lake Tekapo*).

At an altitude of 2600 feet, with snow lying at a great depth in winter, an average annual rainfall of slightly less than 29 inches, and frosts of 25 degrees or more in the winter months, gardening can be somewhat of a challenge, in addition to being a joy. These are the conditions here at Godley Peaks, Lake Tekapo, where the hot, dry summers are a poor combination with the attendant possibility of an out-of-season frost.

It is twenty years since we came to live at Godley Peaks, and I often have the impression that the garden appears to be very young, immature and a little raw after having paid a visit to some of the older, famous Canterbury gardens. Yet there is undoubted promise and much of it has been and is being fulfilled which makes me thankful that I am able to work in it at this period of its development.

The site of the garden had already been determined when we took possession, the homestead having become well established by that time. The garden lay nicely to the sun from the east and north, with the big Mistake Hill and a long belt of mature pines and larches providing grateful shelter from the nor'-westers. In common with many another homestead in the Mackenzie Country, willows have been a problem through having been planted so freely as to make it necessary for ceaseless war to be waged upon them to prevent further encroachment on the garden. Yet I would not be without some of them for their beauty and value as a background.

My husband has always been most generous with his own help and letting me have manpower when necessary. A mile away lies the Cass River and its banks comprise the deposits from many centuries of flooding. Hundreds of truck loads of this valuable river soil have been brought to the garden to make up the level where now there is a broad expanse of lawn before the house, nicely clad with climbing roses, wisteria and clematis. In the foreground lies the swimming pool, reflecting the glories of the rock garden and its plants. The deposits in the woolshed from ten thousand sheep have helped to solve the manure problem.

In a natural setting of hills and hollows, the rock garden has an ideal situation, and the abundance of natural rock easily available made its construction possible. Its setting in the lawn is ideal. For the greater part of the year there is colour in my rock garden and the high altitude seems to suit many of the plants. Just to take a few plants at random, *Erica carnea* provides a bank of bright pink as soon as the snow melts from July onwards. September ushers in one of the loveliest of daphnes, *D. mezereum rubrum*, and I have never seen it growing elsewhere quite so well as it does at Godley Peaks garden. It soon develops and makes a spreading bush 3 to 4 feet high. It seeds freely, too, and seedlings keep appearing everywhere. *D. burkwoodi*, with its free growth and many heads of fragrant, fresh coloured flowers over a long period is another that flowers a little later. I

have particular pride in *D. retusa*, one of the lesser known species and somewhat of a rarity. Not a tall grower, it carries clusters of rosy purple flowers in spring. Then there is another gem in *D. blagayana*, quite different from any other daphne that I know, with sprawling stems bearing heads of cream white in early spring. It is an easy plant to layer if you scrape the underside of one of the stems and keep it in position by burying in the soil and placing a stone over it. What a lovely thought it was to give the name of Garland Flower to *D. cneorum* with its pretty, deep pink, fragrant flowers just when the Japanese flowering cherries are in bloom, and the nearby masses of Forget-me-nots. *Anemone hepatica* is another spring flowering plant that has made its home at Tekapo. We started with only the blue and pink flowered forms and since they have seeded freely and the seedlings have given us a number of new colours. Masses of winter aconites, chionodoxa, scillas, hyacinths and crocuses help to make spring at Godley Peaks one of the loveliest times of the year.

The rock garden, too, does its part with the blue and pink varieties of the Rock Phlox, *P. subulata*, arabis in its white and pink forms, followed by masses of aubrieta. The rich blue trumpets of *Gentiana acaulis* mass themselves for effect and this is one of the gardens where this species flowers freely. Plantations of prunus, particularly the Japanese flowering cherries, provide an ideal setting. A dozen magnolias have been added last season and, with the space available, *M. campbelli* will be able to let herself go.

A part of the garden that it was intended should be reserved for vegetables has been pirated and there is now a display from some hundreds of tulips, followed later by roses that last until autumn. A particular favourite of mine is "Texas Centennial". In midsummer a blaze of colour comes from a massed planting of perennial phlox. I give cow manure freely to the roses, clematis, azaleas and rhododendrons but lime is forbidden within the garden gate. From February until frost we can enjoy the beauty of *Gentiana sino-ornata* with its masses of up-turned trumpets of heavenly blue. Our plants have increased considerably since it was first planted by the fountain where it is always damp but enjoys full sun. It undoubtedly likes our lime-free soil.

Of our native plants there are many. *Ranunculus lyalli* grows very well indeed with us and produces freely its large white flowers, incurving at the tips with a centre of golden stamens, rather like some exotic Japanese anemone. The hebes, that we used to call veronicas, are here in many forms. There are many other native plants, too well known to need mention. Our autumn display is brief but magnificent, with lovely tinted foliage on the deciduous trees. A scarlet oak with its vivid autumn colouring reflected in the pool at its base is unbelievably beautiful. The Japanese maples, too, are rich beyond belief and, were it not for the fact that winter lies ahead, autumn with us would be as delightful as spring.

Now the rock gardens are established, maintenance is easy. With the aid of a motor mower it is possible, if need be, for me to cope with the garden myself. I have further ambitions, too, and these extend beyond the garden to the pine trees, under which I hope to mass azaleas. There must be a hedge of *multiflora* roses by the garage, too. Dry summers hold no terrors for us now. By means of a power pump there is a ceaseless supply of water from the swimming pool of a temperature that will not chill the plants. With all the difficulties of climate, gardening at Lake Tekapo is full of enjoyment and most rewarding. The knowledge that two, at least, of our children take a keen interest in gardening gives us the happy satisfaction of knowing our work will not be wasted.

NOTEWORTHY PLANTS

Tecomanthe speciosa Oliver

J. A. HUNTER (*Plant Diseases Division, Department of Scientific and Industrial Research, Auckland*)

In the recent history of botanical discovery in New Zealand one of the most interesting events has been the discovery of *Tecomanthe speciosa* by Professor G. T. S. Baylis. Found on the Great Island of the Three Kings Group, the plant is a member of the tropical family *Bignoniaceae* which hitherto had no representative in the New Zealand flora.

It is a woody climber and in its natural surroundings has grown to 30 feet. The smooth young shoots, at first round, later becoming somewhat square in cross section, twine in an anti-clockwise direction. The robust glabrous compound leaves are opposite, consisting of from three to five leaflets produced in pairs with a terminal leaflet. This is often larger than the others, obovate, and usually emarginate, but may end in a short apicula. The other leaflets are conspicuously unequal-sided ovate or obovate, and usually emarginate. The leaf has a stout petiole and the midrib and veins are strongly developed. Indications of flowering appear towards the end of April when it will be seen that in common with other members of the *Bignoniaceae*, flowers are produced on the older stems sometimes at the base of the plant close to the frond. Flowers open during May and continue in succession until the end of July and often into August. Towards the end of the flowering season inflorescences may develop in the younger wood thus adding to the value of the plant for ornamental purposes. The number of individual flowers in the corymb varies from ten to twenty-seven, often borne in groups of three on a common stalk. The individual flowers are up to 2½ inches long and are creamy white overlaid with a pleasing tinge of green.

The calyx is cup-shaped and in fully opened flowers splits down one side almost to its base. The funnel shape corolla is divided into five-pointed lobes which are reflexed with their outer surfaces densely covered with woolly hairs. Four of these lobes are longer than the fifth

and are united to form a hoodlike covering over the anthers and stigma. There are four epipetalous stamens and one filiform staminode. The style is usually sharply bent just between the two truncate, stigmatic lobes. It has been suggested that this may be an impediment to fertilization, by obstructing, or at least hindering, pollen-tube growth. Certainly no seed has been observed on the original plant and no seedlings have been found on the island. Under cultivation seed sets with difficulty even when hand pollination is practised. The plant growing at Plant Diseases Division flowered first in 1954 but it was not until the 1956 flowering period that successful fertilization took place and five fruits developed. The fruit is a siliquiform capsule attached to the plant by a tough stalk about 3 cm. long. Dehiscence takes place first at the stalk end, the valves opening leave the stalk attached to the plant. The valves are oblong, acuminate, varying from 11 cm. to 19 cm. long and from 2.4 cm. to 3.6 cm. broad. They are slightly curved, smooth, dark green without, light yellow ochre within, woody. The broad and thickened vertical septum, attached until dehiscence to the centre of each boatshaped valve where it leaves a distinct herringbone pattern carries many densely packed seeds. The seeds are heart shaped and flattened with wings extended laterally. Seed number varies between 100 to 260.

Habitat and Discovery

The Three Kings Islands, lying about 40 miles north of Cape Maria Van Dieman, have always been of great interest to botanists. The primitive forest had been modified by two centuries of Maori occupation which ended about 1840. In this century further modification was caused by a thriving colony of goats which were the progeny of four animals landed on the islands in 1889 to provide food for possible castaways.

Although several botanical expeditions had visited the islands from 1887 onwards it was not until 1945 that Professor Baylis discovered this remarkable plant in swampy soil in the bed of one of the tributaries of the Tasman stream. Only one specimen was found on the island although all suitable habitats were examined. No evidence of flowers or seed was observed when the plant was first seen.

Six months later in May, 1946, a member of a party, organised by the Wild Life Branch of the Department of Internal Affairs for the purpose of destroying the goat population, noticed that the plant was in flower. Mr. E. G. Turbott, of the Auckland Museum, collected material for the herbarium and this was used by Dr. W. R. B. Oliver to make the original description. This description with other interesting details of the plant's discovery and habitat are given in the Records of the Auckland Institute and Museum (Vol. 3, Nos. 4 and 5), December, 1948.

Establishment and Propagation

When visiting the island again in 1950 Professor Baylis recorded that the single vine of *Tecomanthe* had layered itself at one point well removed from the original base, but no seed or seedlings could be found.

Cutting material brought back on that occasion failed to establish although profuse callus was formed.

In 1951 fresh material was procured by Professor Baylis. From a large cutting with a small piece of root attached the first plant to be grown away from the solitary original parent was established and planted in the grounds of the Plant Diseases Division, Mt. Albert. This plant flowered in 1954 and was figured in the "Gardeners' Chronicle" of August 21, 1954.

By using mature wood and brisk bottom heat cuttings have been struck. Air layering, using polythene film as the wrapping material, has been found to be a convenient method of propagation. Grafting on to pieces of its own root has also been successful.

From flowers pollinated in July the capsules are ready to dehisce towards the end of March thus taking eight months to mature. Fresh seed germinates in fourteen days producing kidney shaped cotyledons and simple, ovate coarsely serrated seedling leaves having no resemblance to the compound leaves of the mature plant. In mild climates such as that of Auckland the plant will no doubt prove to have garden merit. Its vigour and handsome foliage indicate that it could be used as a screen or background while its winter flowering habit is an additional attraction. Although growing naturally in the bed of the Tasman stream, swampy conditions are not necessary under cultivation. The plant established in a sheltered position at the Plant Diseases Division receives no other cultural attention than periodic soakings during January and February when the weather is usually hot and dry. Towards the end of summer and during early autumn thrips and a small looper caterpillar may disfigure the foliage. The use of DDT is an effective control measure should it be required.

Acknowledgement

The assistance given by Dr. R. C. Cooper, Botanist to the Auckland War Memorial Museum, in describing the fruit is gratefully acknowledged.

Two New Perennials

Dicentra eximia "Bountiful" of American origin, now covered there for sales by patent rights, comes to this country as one of the most unusual and free-flowering of herbaceous plants introduced for many years. The plant in growth somewhat resembles the well-known *D. eximia* with its compact, robust habit and dark blue-green fern-like foliage. A two-year-old plant forms a clump up to 18 inches in diameter, carrying 30 to 40 20-inch flower stems held well above the neat 12-inch foliage. The pendant elongated heath-like bells, restricted at the mouth, are brilliant fuchsia-red and quite twice the size of the much paler parent, *D. eximia*. This display commences late October or early November and continues with odd spikes during the summer but

blooms profusely again in the autumn. *Dicentra eximia* "Bountiful" seems to possess all the qualities of a good all-round hardy, easily grown, free-flowering perennial and is destined to become one of the most popular of all lower-growing herbaceous plants. It is equally happy in full sun or half shade, withstanding heavy winter frosts, but requiring reasonably good drainage. Increase is from natural divisions of established clumps during winter, or from spring cuttings of young shoots detached from the base of the parent plant, when 2-3 inches long.

Kniphofia zululandiae var. "Winter Cheer". There still seem to be some arguments current as to the name *Zululandiae*, some botanists claiming that it is just a form of *K. uvaria*. Whether this is so or not, we have in the introduction of this species (or variety) a most valuable garden plant, in that the brilliant display of bloom persists throughout the late winter and early spring months. Of a strong, robust habit, soon forming a bold clump with broad, deep green leaves 24-30 inches long, *K. zululandiae* commences to throw its 4-5 feet spikes during late June, and if undamaged by heavy frosts, matures into bold heads of deep red, salmon-red or orange-red flowers, the variety Winter Cheer being a selected form. Seedlings vary in colour slightly, a few being rather a dull red, but all forms are winter-flowering and in other respects are identical in habit. In districts where winter frosts exceed 8 degrees, the soft flower heads are prone to damage, but usually a succession of blooms will eventuate in a display being secured, either after the worst frosts are over, or else during mild spells in between. The plant otherwise appears to be quite hardy, the flower buds only being subject to damage at a critical stage. A field seems open for some hybridist to cross this species with other winter or early spring-flowering species, so as to enlarge the range of colour. In this country, we have a large-flowered bright yellow form of a species known as *K. ensifolia* which blooms very late in the autumn, with odd blooms during the winter. There is also the more globular-flowered red and yellow species, *K. aloides*, considered to be a form of *K. uvaria*, which flowers from August till October. These two, at least, could be used as parents and expected to produce an interesting range of colours.

—R. E. Harrison

BOOK REVIEWS

CURTIS'S BOTANICAL MAGAZINE, Vol. CLXXL, part III, edited by W. B. Turrill, D.Sc., F.L.S. (Published by the Royal Horticultural Society, England.)

As one who has been a subscriber to this classic in gardening literature for many years, I find a great deal of satisfaction in seeing it still the leader in its particular field. This magazine is now being issued biennially and the April issue, received too late for review in the June number of this journal, contains eleven very excellent coloured drawings of plants as follows: *Anoda cristata*, *Berberis prattii*, *Correa backhousiana*, *Cyclamen libanoticum*, *Encyclia atropurpurea* var. *rosea*, *Genista lydia*, *Helleborus x sternii*, *Meconopsis delavayi*, *Orosotachys japonicus*, *Rhododendron inaequale*, *Tulipa edulis*. Of particular interest to Southern Hemisphere gardeners is the plate of *Correa backhousiana*, from Australia, a species I have not seen in cultivation in New Zealand. The lovely *Cyclamen libanoticum*, under cultivation in a number of New Zealand gardens is one of the gems of the miniature species of this genus.

THE CAMELLIA, edited by Beryl Leslie Urquhart, with 3 reproductions from paintings by Raymond Boothe, and 17 reproduction from paintings by Paul Jones. (Published by the Leslie Urquhart Press, Sussex, England.)

This sumptuous volume, measuring 13 in. x 18 in., is intended to be the first of a series dealing with the camellia from the literary and artistic angle. It is also an endeavour to clear up the existing confusion in nomenclature and, by means of life-size coloured paintings, provide a sure means of identification. The twenty reproductions of camellias are delightful and comprise 18 *japonica* varieties, *Camellia x williamsii* and *C. sinensis*. There is a chapter dealing with the history of the camellia. Mr. E. G. Waterhouse writes of the camellia in Australia and Mr. Ralph Peer writes of the camellia in America. Each illustration is accompanied by a full description and history of the variety, with details of synonyms and any other information. One feels the lack of a table of contents and illustrations but, as further volumes are to be issued from time to time, it is to be hoped this will be rectified by a full index in the final volume.

DISTRICT COUNCIL REPORTS

SOUTH TARANAKI DISTRICT COUNCIL

On the evening of May 8, in the hall decorated with many very attractive floral arrangements, members, visitors and the executive from Hawera were fully occupied for three enjoyable hours.

Mr. Houston opened the meeting with an address on the affairs of the R.N.Z.I.H.

Mrs. B. Joll, Hawera, spoke on her trip to Tahiti and Samoa, exhibiting a map of the island of Tahiti illustrating the geographical features. It is really a mountain covered with dense tropical vegetation, with innumerable streams radiating to the coast around which a splendid road, approximately 60 miles, has been made. The populated areas are coastal. The soil is fertile, producing food with very little effort; a lovely island with an agreeable climate and friendly people.

Coloured slides taken at various points along the road displayed scenes similar to any well kept park; lawns, palms, shrubs and colourful trees. At points further away from the residential area, the road wound through luxuriant vegetation. One scene showed the road and roadside littered with leaves, and white down, and empty pods from the tall kapok trees.

A few of the slides shown were of specimens of hibiscus, Flamboyant Tree, *Poinciana regia*, pandanus, coconut palms, vanilla. The Flamboyant Tree

(*leguminosae*) has large leaves, broad and up to 2 ft. long, spreading abruptly pinnate with 11/18 pairs of pinnae about 4 inches long. The flowers are bright scarlet, in loose racemes, terminal and in the axils of the upper leaves.

The coconut palms each had a tin foil band, approximately 1 inch wide, 3 to 4 ft. from the ground, around its trunk, supplied by the government to protect crops from rodents.

The pandanus is a seacoast or marsh plant, having tall stems with flying buttress roots. The stems are branched and often twisted, hence the common name "Screw Pine." The stems have aerial roots. The leaves are parallel veined, long, narrow, corrugated like a palm leaf. Natives use them extensively. The fruit is quite unusual. The flowers are on a racemose spadix without bracts, calyx, or corolla and are unisexual. The spaths are sometimes highly coloured. Stamens are arranged in a raceme or umbel. The female flowers consist of many carpels in a ring, the resultant fruit being a many celled drupe about the size of a pineapple, bright orange red. In some species it can be cooked and eaten. The natives cut them in a certain way and use them for floral decorations.

It was interesting to see the vanilla vine with its bunches of green pods. It is an epiphytic orchid (an epiphyte grows upon another plant but derives no nourishment from its host, whereas a parasite grows and lives on its host). The vanilla is remarkable in being the only genus of the orchid family which possesses any decided economical value. The pods of *Vanilla fragrans*, *V. planifolia* produced the best flavourings used so extensively. Most of our vanilla essences are produced synthetically now, the reason being that the demand is so great that not sufficient vanilla could be cultivated. Under cultivation artificial pollination is required.

The Rev. J. L. Freeman, of Waverley, gave an illustrated talk on his liliiums, including *auratum*, *speciosum* and hybrids. There were some very beautiful forms.

Mr. Reader gave a general garden talk advising members to take stock of last year's problems and to give attention to poor ground. A choice of plants suited to the district was essential. Two species suitable for Patea were hibiscus and camellias. Camellias were fairly resistant to wind and salt spray with the added advantage of flowering heavily in the season when flowers were scarce. Specimen blooms of *Hibiscus* "Tahiti Queen" and "Mrs. Tonkin" and several camellias were shown. There followed a demonstration of preparing cuttings; cut base cleanly and squarely across; small cuttings and, in evergreens, reduce the leaf surface by having only 3 leaves, cut each by half to reduce transpiration yet leaving enough leaf for photosynthesis (the assimilation of CO₂ during sunlight in the parts of the plant containing chlorophyll). One exception to the rule was for gooseberry cuttings. To produce a standard type of bush, easy to crop, and easy to weed around, Mr. Reader chooses a long new wood shoot 18 in.-2 ft., removes all but 4 buds at the top and plants firmly. In his garden such plants have been free of the disease which has taken such a toll of our gooseberries these last few years.

Mrs. Anderson displayed a box of fuchsia blooms in variety. A specimen of the Swan plant, *Gamphocarpus fruticosus*, was shown and pods given to any members interested. This season has produced many monarch butterflies in our district with the result that the swan plants have been mutilated by the caterpillars. No doubt next year this will be repeated, as children have been so interested in watching the transformations in the life circle of the monarch they have canvassed for leaves and bred and cared for the pests. However, those fortunate enough to see the monarch emerge from the chrysalis thought the sight worth the loss of their shrub.

MRS. J. H. ANDERSON, F.R.N.Z.I.H.

WELLINGTON DISTRICT COUNCIL

The annual general meeting of the Wellington District Council of the Royal New Zealand Institute of Horticulture was held recently in the Lecture Hall of the Central Library. Following the formal business of the meeting, Mrs. R. M. Arlow, of Kelburn, who is a most unassuming personality with a wide and long-standing interest in horticulture, particularly the home garden, spoke to the members on the subject of the popular tree marguerite daisies of the chrysanthemum family, in the cultivation of which she has been very interested for many years.

Although twenty-five years ago these daisies were rather despised their value as a cut flower over the winter months is now being recognised. Even so, the old single yellow and white varieties used to be sold by the florists who now greatly value the newer varieties.

Despite the fact that Mrs. Arlow has not practised any designed breeding she has become known by the chance seedling which she has allowed to be placed on the market. This daisy is named "Margaret" after her daughter, who discovered it, and is a fully double light pink with a pronounced centre of deeper shade. It is thought to be a seedling from "Mrs. Sanders" (a white anemone-centred variety) and "Pink Beauty" (a bright pink form).

Members of the Institute were privileged in that Mrs. Arlow offered for sale for the first time cuttings of what she considers to be a newer and even better variety. This variety is called "Pamela," after another of her daughters, and plants are only being sold for charitable purposes. "Pamela" is an anemone centred variety of a very rich pink hue. The long clean stems, the ease of propagation, the strong growth and the floriferous nature of the plant are some of its outstanding qualities.

Specimens of other varieties were shown and it was stressed that these tree daisies will grow well in most conditions. They do not require a good soil but thrive anywhere. It is best to take fresh cuttings each year as the bushes tend to become old and woody and need replacing, said Mrs. Arlow.

The evening concluded with the showing, by Mr. L. Arlow, of an excellent collection of coloured slides of horticultural and general interest from England, the Continent and New Zealand.

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 horticulture.
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.

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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 the 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).

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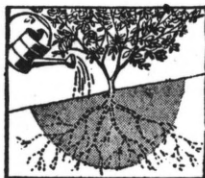
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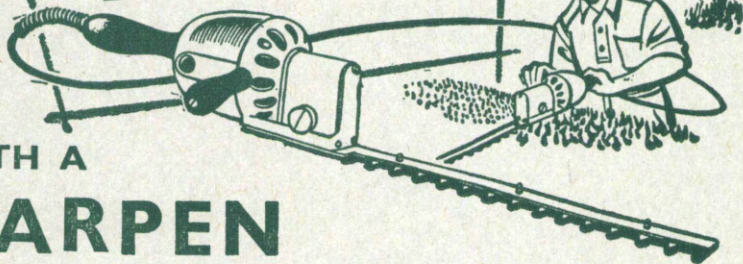
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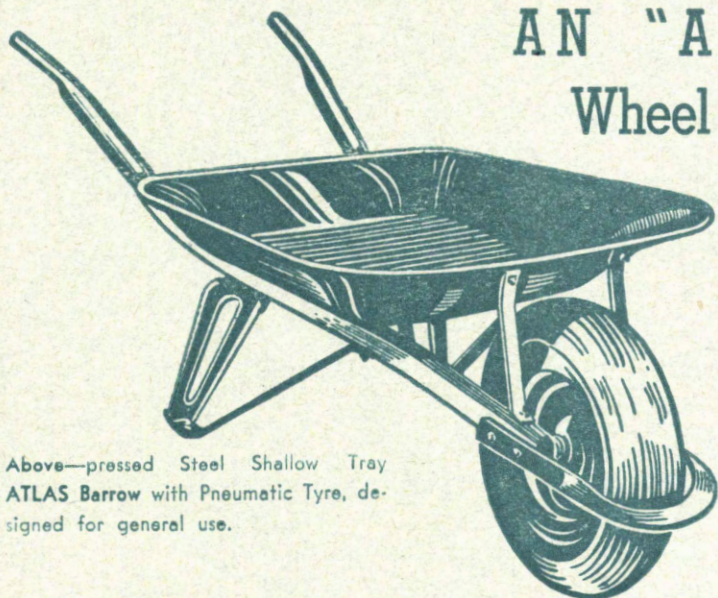
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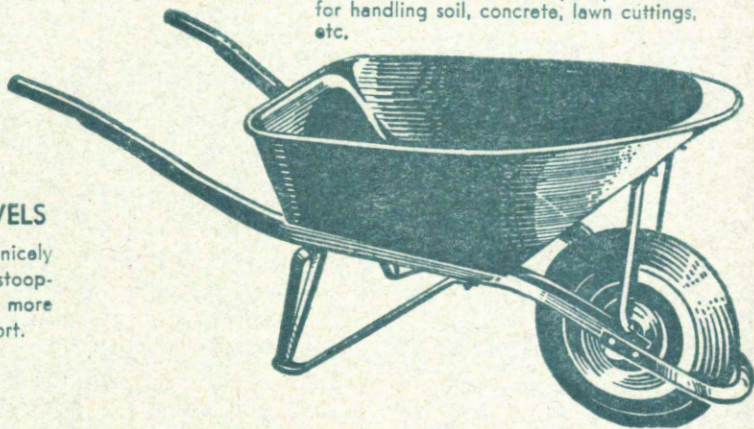
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