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NEW ZEALAND PLANTS AND GARDENS

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(INCORPORATED)

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 Dominion Secretary.

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NEW ZEALAND PLANTS AND GARDENS

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

Volume IV. *JUNE, 1961.* *No. III.*

OUR PRESIDENT HONOURED

Officers and members of the Royal New Zealand Institute of Horticulture, Inc., will feel gratified at the inclusion of our President, Mr. John Houston, LL.B., A.H.R.I.H.(N.Z.), in Her Majesty's birthday honours recently, when he became an Officer of the Most Excellent Order of the British Empire (O.B.E.).

To those who are familiar with the immense amount of public service that has characterised Mr. Houston's way of life the conferring of this honour cannot come as a surprise. During his six years as our President many members have had the pleasure of meeting Mr. Houston and his charming wife on the occasions of the annual conferences. His quiet, unruffled and authoritative personality and his insistence upon the maintenance of correct procedure has given the right impression of competence and dignity to the annual conferences, Dominion Council meetings and other deliberations of the Institute where he has presided.

For a decade, Mr. Houston served as President of the South Taranaki District Council and he is now its Patron. Since 1956 he has been a member of the board of the Pukeiti Rhododendron Trust and, since 1954, President of the Floral Festival (Taranaki). He is also a member of the Hawera Horticultural Society, of which he is Patron. He has long been an acknowledged authority on Maori arts, crafts and lore, and he possesses a most interesting and unique collection of Maori artifacts. Naturally, he is a member of the New Zealand Archaeological Association.

Among his many other activities, he is Patron of the New Plymouth Historical Society, a member of the Whakatane and District Historical Society and a life member of the Palmerston North Polynesian Group. Mr. Houston's greatest work in this particular sphere has been in connection with his membership of the Polynesian Society since 1929, during which period he has contributed many articles to its Journal. He is a life member of the Polynesian Society. He has also been a member of the Friends of the Alexander Turnbull Library since 1939 (the year that Society was formed), and has served on the Hawera Library Committee since 1926.

Mr. Houston served overseas in World War I as R.S.M. (W.O.1), Medical Corps. During World War II he served as Major commanding the

Hawera Battalion of the Home Guard. He was subsequently transferred to the New Zealand Temporary Staff, and appointed to command Zone 8B Central Military District (Okato to Maxwell). In 1955 he was posted to the Retired List with the rank of Major. A past president of the South Taranaki R.S.A., of which he is an elected Life Member, he is the Association's representative on the South Taranaki Patriotic Council. He is also a member of the Gallipoli Association.

Long may our Institute continue to enjoy his wise counsel and leadership.

LODER CUP AWARD, 1960

On the evening of 9th May, 1961, the presentation of the Loder Cup Award for 1960 to Mr. William Martin, of Dunedin, was made by the Hon. T. L. Hayman, M.P., Minister of Agriculture in the Council Room, Municipal Chambers, Dunedin. Among the many guests assembled, who numbered approximately eighty, were members of the Otago District Council of the R.N.Z.I.H., representatives of the Forest and Bird Protection Society, the Otago branch of the Royal Society, the Dunedin Naturalists' Field Club, the Dunedin Amenities Society, together with personal friends of Mr. Martin. Among the audience were also senior pupils representing the secondary schools of Dunedin.

Mr. J. Passmore, chairman of the Otago District Council, presided. At the opening of the proceedings he asked for a moment's silence as a mark of respect to the late Minister of Agriculture, the Hon. W. H. Gillespie, who was to have made the presentation and whose name appeared on all official documents pertaining to the 1960 award.

His Worship the Mayor of Dunedin, Mr. T. K. S. Sidey, said how appropriate it was that a function of this nature should be held in the Council Room and spoke of Mr. Martin's worth as a citizen and of his influence with young people in interesting them in New Zealand flora. The Citation for the nomination of Mr. Martin was read by the Secretary of the Otago District Council.

Mr. William Martin was, by profession, a teacher of agricultural science at the Dunedin Training College. He is known throughout New Zealand as the author of a school text book, used by the pupils of the upper classes of post primary schools *The Flora of New Zealand*. He is also the author of *New Zealand Nature Study*. He has spent most of his life in Dunedin, where he has been active in the Dunedin Naturalists' Field Club. Before moving to Blenheim in 1928 Mr. Martin was the Club's botanical leader and the author of *Flora of Dunedin*.

Mr. Martin is regarded as being one of the last active all-round naturalists. Since 1924 he has contributed scientific papers regularly, published in the transactions and proceedings of the Royal Society. Recently Mr. Martin has specialised in flowerless plants, such as mosses and lichens and is now a widely recognised authority. His private herbarium of dried New Zealand mosses and lichens (a group known as *Cladonia*) is probably the largest in the world. Since his retirement

in 1945, Mr. Martin has spent six years investigating the flora of Stewart Island and has recorded 400 bryophytes or flowerless plants, not previously known on the island. A moss has been named after him viz. *Blindia martinii*. From all parts of the world universities have sent their collections of New Zealand mosses to Mr. Martin for checking. During 1959 and 1960 he has sent over 1000 specimens overseas. He has donated a collection of native flowering plant specimens to the Dominion Museum, Wellington, also 7000 specimens of native mosses to the Botany Division of the D.S.I.R., Lincoln and these form part of the Dominion's herbarium.

Mr. Martin has been Secretary of the Canterbury and Otago branches of the Royal Society, Secretary of the First New Zealand Science Congress in 1919 and President of the Dunedin Naturalists' Field Club. He was Hon. Botanist to Native Plant and Preservation Society of Wellington, and obtained information from all over New Zealand from which was compiled a paper giving the present state of rarity of the rarer plants, published in the Journal of the R.N.Z.I.H. in October, 1941. In 1960 he was elected President of the Otago Branch of the Royal Society of New Zealand, and also Grand Master of the Masonic Lodge of New Zealand. He is an authority on the genus *Cotula* which forms the green of many bowling clubs, especially in Otago and Southland.

When presenting the Cup to Mr. Martin, Mr. Hayman spoke of his outstanding record as a naturalist and of the inspiration he was to the younger people of New Zealand in giving them a love for the native flora of their country. In his reply Mr. Martin told of his life-long interest in native plants. The Chairman of the Loder Cup Committee, Mr. A. M. W. Greig, then spoke of the background and history that surrounds the award of the Loder Cup, with particular reference to the donor, Lord Wakehurst, and the composition and duties of the Loder Cup Committee itself.

BERRIED PLANTS OF NEW ZEALAND

MARGARET M. MARTIN, F.R.I.H.(N.Z.), (Whangarei).

If comparatively few New Zealanders have an extensive knowledge of our wild flowers, the most impressive displays of which are seen in the high country above the forest line, still fewer know the beauties of our berried plants, many of which are distributed throughout the country. It is true that some are found a good deal above sea level, but even these are in places quite easily accessible to any vigorous walker or amateur climber.

Certain genera of plants are quite remarkable for the profusion of their fruits and, at the same time, they are hardy, wind resistant and frequently of such form and foliage that they would grace any garden, either as alpine or scree dwellers, or simply as subjects on the lawn or

in the borders. Some have proved adaptable in Britain and it is certain that plant connoisseurs the world over would seek them, were they better known.

The genus *Coprosma* which is represented in New Zealand by 44 species, is remarkable for its fruits—technically drupes—which range in colour from white through yellow, orange red to purple and black, shining and in the pale colours translucent.

One of the commonest and most easily grown is *Coprosma robusta* which is found throughout the country and in the Chatham Islands, from sea level up to 2500 ft. It should be possible to grow it in the milder parts of England and Ireland. This is a small evergreen shrub up to 6 or 8 ft., its leaves often bronze-purple tinted and its branches arching and well laden with reddish orange fruits.

As coprosmas are dioecious, having male and female flowers on different plants, it is desirable to grow several plants to obtain the rich reward offered by the female plants. Recently I saw some beautiful floral arrangements which featured branches of *C. robusta* encrusted with its fruits.

Another *Coprosma* which is common throughout the country is *C. rhamnoides* which might look attractive in an alpine garden, as it makes a tightly interlaced twiggy bush firm enough for a child to sit upon, firmer and tougher the more it is exposed to wind and cold, though apt to straggle a little if in shade and shelter. Its bronze bolster or ball like forms were common on windy hillsides of Marlborough and Wellington and its bronze twigs and leaves were enlivened with masses of red and shining berries.

C. lucida another member of this genus is a taller shrub with shining green leaves and is, or was a very noticeable member of the roadside communities on the West Coast of the South Island. It has large half inch reddish orange fruits, and even without them is a good garden subject on account of its bright green glittering leaves.

Along the sandy coastlines of New Zealand from North Cape southwards to Bluff and Stewart Island grows the sand lover *C. acerosa* It forms mats and hummocks of golden brown, its slender bronze stems, encircled with tiny narrow leaves bearing on the under sides strings of sky-blue drupes. Apart from the beauty of its friuts this plant is attractive in colour and form and most admirably adapted as a sand binder.

But for really outstanding beauty, we must go to the mountains where *C. brunnea* is found in its full glory, without doubt the most spectacular of the genus. It inhabits mountain sides in the North Island—Egmont, Tongariro and Ruapehu, up to 5000 ft., but is commoner in the Southern Alps. It is found on scree and gravelly slopes and has rapidly clothed the stony embankments of the railway lines about Arthur's Pass. Small slender stemmed plants flattened against the gravelly rubble form bronze mats which when lifted show masses of

bright shining blue fruits set along each wiry stem. The blues vary in depth from pale to dark but are of such a clear and shining quality that they are reminiscent of a jewelled necklace, and indeed might on their thread-like stems serve as such.

In the same area but not often seen is *C. repens* (Hook *Flora Antarctica*). I give the reference as there seems to be some doubt as to the status of this plant, but those I have seen were known as such. These small plants favour the earthy, not stony, banks of small mountain rivulets, their trailing stems set with shining bright green leaves about 1/3 inch long and almost as broad and ornamented with glittering scarlet fruits. Seen against a background of emerald green moss this plant makes an unforgettable picture.

Better known, and quite frequently used in alpine gardens is the little creeping ground cover *Nertera depressa,* a close relative of the *Coprosma*. It is common throughout the country, but should be looked for in hilly and mountain country up to 4000 ft. or so. It often covers large patches with its slender rooting stems which travel over a variety of surfaces, stones, rotting logs, clay, and dripping roadside banks, and giving good measure with its little scarlet fruits.

Pratia is another genus which, rather unexpectedly perhaps, gives us decorative fruits, as well as quite pleasing flowers. They also make very good ground cover and are especially good on shady banks even of a rather wet and clayey nature. *P. arenaria* and *P. angulata* are perhaps the largest and showiest, with white lobelia form flowers and fat purple red berries ½ inch long and plentifully bestowed. *P. macrodon,* not nearly as well known has pale yellow scented flowers and is found only in the South Island up to 5000 ft., and has slightly smaller fruits.

A large flowered form of *P. angulata* which has been called '*Pratia Treadwellii*' has caused some speculation in England as to its botanical status (See *R.H.S. Journal,* June, 1960—*Alien Lawn Weeds*). The late Dr. Leonard Cockayne, F.R.S. was unwilling to grant specific status to this plant, a larger flowered form than usual of *P. angulata,* which was found and cultivated by a Mr. Treadwell of the Hutt, Wellington. It is a good plant pleasing in flower and fruit.

A well known and deservedly popular plant is our little *Fuchsia procumbens* which has the distinction of carrying its flowers upright and not drooping. It is not such a hardy subject as many, but inhabits the coasts of the northern half of North Island, sometimes forming large patches, creeping over rocks and stones near the sea, but in cultivation looks better in a hanging basket, trailing down a bank or making a bolster form grown over a narrow stump. It then displays to better advantage its fat cerise red fruits covered with a glaucous bloom.

An attractive little liliaceous plant, which should be grown more often in gardens is *Dianella intermedia.* It has grassy inch wide leaves

up to 2 feet long, the young ones very pleasingly tinted bronze, and tall fine stemmed panicles of quite insignificant flowers, which however are succeeded by a crop of sky blue fruits. I am familiar with this plant in many parts of the country but those plants which grow beneath manuka scrub north of Kaitaia were larger and taller in all their parts, and bore the most magnificent panicles of glorious blue fruits that I have ever seen. So many and so dense were the plants that I thought they must surpass in effect the blue bell woods of England.

A tall climber of the lily family with showy fruits is our much despised and often cursed supplejack, *Rhipogonum scandens,* which often forms a mass of tangled stems difficult for man or beast to negotiate and more difficult for the bushman to cut and clear. These stems are generally quite leafless below but when they have climbed to the light at the tree tops, put forth side branches clothed with very handsome leaves, and in season with small greenish scented flowers. The berries which follow are in large panicles, bright red in colour and $\frac{1}{3}$ inch long exceedingly decorative and very long lasting in water. Though not a suitable plant for the average garden it has a place in any piece of forest reserved for private or public use.

The epacrids give us several small shrubs or herbs which are worthwhile as garden plants. *Cyathodes acerosa,* a small shrub of dry sunny ridges up to 2000 ft., bears masses of red or white drupes about a third of an inch in diameter, which look well among its golden green sharply tipped leaves. The bushes are not often more than 4 feet high and are generally neat and compact in form, whilst their golden colour provides a pleasing contrast to the green of their neighbours.

Tiny little *Leucopogon fraseri* is another prickly little plant common on clay banks and in alpine meadows, among the sparse grasses and between the mounds of New Zealand bluebells, *Wahlenbergia albomarginata.* It lifts its little 6 inch spires of creamy white, deliciously scented flowers among the alpine herbage, and develops yellow fruits rather large for the size of the plant. Patches of this little unobtrusive plant may scent the air for yards around.

Among ericaceous plants one or two of the gaultherias produce showy fruits—the most dependable being *G. depressa,* a creeping and rooting plant of alpine and subalpine meadows south of East Cape. Its slender stems thread their way through the grasses and mosses displaying lovely globes of pure white or glowing red between the small green leathery leaves, a sight to gladden the heart of any gardener.

Among our taller shrubs and forest trees there are many with notably striking fruits. Who has not admired the shining red and black fruits of the titoki *(Alectryon excelsus)* or those of kahihatea, *(Podocarpus dacrydioides)* or the cerise globes of the miro *(P. ferrugineus)* or the blue black plums of the Tawa and Taraire spp. of *Beilschmiedia,* and the lovely fruits of the karaka, so plentiful that they pass almost unnoticed. The pittosporums too give in quantity

as well as quality and with the others mentioned provide abundant and unusual material for the floral artist.

Among the trees there is one comparatively small coastal inhabitant that deserves special mention. It is comparatively rare, and occurs here and there on rock headlands along the northeastern coasts as far south as East Cape and on the west of Mangonui Bluff. It is the tawapou, *Sideroxylon novo-zelandicum* most of whose relatives live in the tropics many of which have edible fruits — the sapotes and star apples being well known. Our New Zealander is a small round-headed tree generally less than 40 ft., with rather large shining green leaves, and very small flowers, but about May the large and handsome berries mature. They are fat and shining, over an inch long and run through an extraordinary range of colour—pure bright green, yellow, reddish purple and almost black. It is most surprising that this unusual and beautiful colour range has not merited any mention in our leading botanical publications although a lack of colour sense seems often to mark the scientist. This small tree merits inclusion in our milder coastal gardens, both public and private, before it becomes extinct. It is easily raised from seed.

Returning again to shrubs there are two which deserve special mention, and would stand comparison with any that we have been at such pains to import from other countries. The first is a myrtle—*Myrtus pedunculata,* a tallish shrub up to 15 feet, but generally of less than half that size, with small thick obovate leaves, small fluffy white flowers suspended on inch long stalks which hold the globular fruits of golden orange. Two shrubs I have seen were captivating spectacles—one whilst walking down the Otira Gorge and the other in the Tongariro National Park. The first I came upon while plant hunting among the rocks and roadside cliffs. In such places where neither browsing animals nor human cultivators can penetrate one often finds a treasure. Here behind a tall rock, well screened from view stood a perfect speciment of *Myrtus pedunculata,* 6ft. high compact and symetrical in form, and glowing with its little balls of gold. The specimen in National Park was in a little dell in the centre of a piece of subalpine scrub. I saw it standing within a circle of lesser lights, like some glorified Christmas tree bedecked with golden fruits gently swinging on their thread like stems. A sight to enchant any beholder.

Our last plant is also little known, but perhaps the most beautiful of all. It is a hybrid between two very common species of wineberry —*Aristotelia serrata* and *A. fruticosa* and occurs wherever the two meet, which is in subalpine localities from Thames southwards.

A. serrata is one of our commonest shrubs, coming up rapidly after forest is burned. Its largish thin leaves are reddish beneath, and its many flowered panicles are of three colours, white, pink and red, according to their age. The berries of pea size are quite attractive and dark red in colour. When it crosses with *A. fruticosa* there is quite a different tale to tell.

A. fruticosa is a much smaller, more densely branched shrub with smaller multiform leaves, and in general occupies a slightly higher altitude than *A. serrata*. Where their growing places merge and they hybridise, a great range of forms is produced, generally of low growth and bearing fruits quite distinct from those of either parent, larger and more showy in colour. Those which I have had the good fortune to see were twiggy, foot high bushes dark leaved and studded with large rose pink and white berries—rose pink on one side and white on the other. The effect among the dark rocks and scrub of a subalpine slope can be better imagined than described. These plants would be ideal for an alpine rock garden in the colder parts of our country.

Indeed such treasures if better known would be seized upon by the adventurous gardener or nurseryman in any country, and might well excel in popularity the lovely forms of *Leptospermum scoparium* which are now of world wide fame.

DUMONT d'URVILLE, 1790 — 1842

Captain and Botanist

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

When Dumont d'Urville was 17 years of age he left home to join the French Navy as a midshipman and this decisive action shows that even as a youth he knew where he was going. In 1807, two years after its disastrous defeat at Trafalgar, the navy was definitely under a cloud and Napoleon gave it no consideration or support, but young d'Urville realised perfectly well that he was more likely to survive in a moribund navy than if he sought glory on the field of battle.

A scion of the minor aristocracy, he had been born in the village of Conde sur Noirau in Normandy, in 1790, at a time when the Revolution was developing towards a climax. Within a short time the family had to seek sanctuary elsewhere, and when the father died two years later the boy was brought up by his mother while her brother, Father de Croisilles, acted as tutor. Madame was very conscious of her aristocratic origin and did her best to bring up her son in the ways of his fathers but young d'Urville realised that the old days had gone forever, and, much against her wishes gained a scholarship in the recently established Lycee Malherbe at Caen. We are told that he deliberately sought renown by enrolling in a class lower than that to which he was entitled by his pass marks, so as to be able to collect several prizes at the end of the year.

Jules Sebastien Cesar Dumont d'Urville knew where he was going all right. Life in a disgraced navy might be dull in the extreme but he had a remarkable capacity for work and, always having had an interest in natural history, he set about training himself as a highly efficient officer who was also a competent naturalist. This com-

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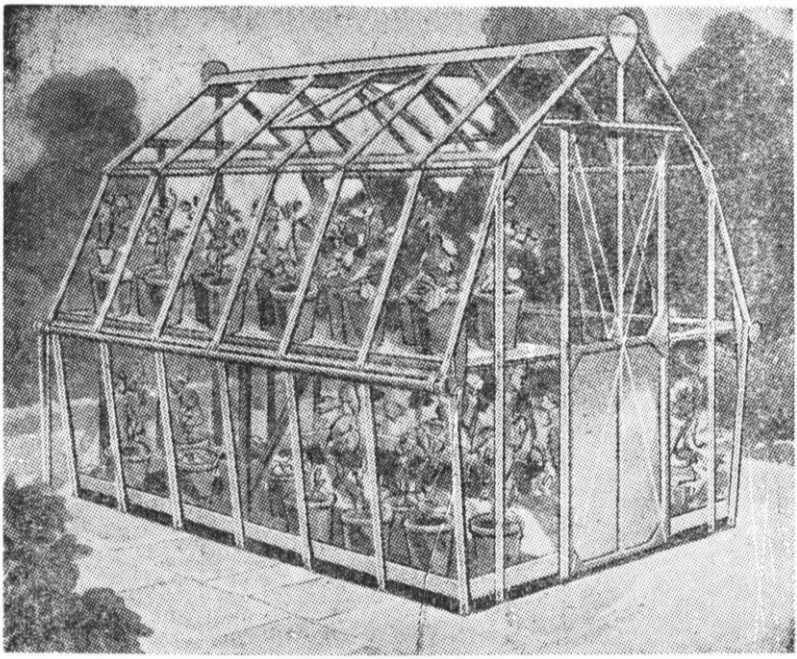

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bination should ensure that he would not be overlooked when more peaceful times would allow scientific expeditions to be sent to distant parts of the world.

His First Chance

D'Urville had hopes of being included in Freycinet's expedition to the South Seas in 1817-1820 and was bitterly disappointed when he was passed over. His chance came in 1820 when he was appointed to the 'Chevrette' expedition to the eastern Mediterranean and the Black Sea. Sure enough, in addition to his duties as an officer he acted as botanist of the expedition and was so successful that he brought back a large collection of plants which was donated to the Paris Museum. This formed the basis of his work *Enumeratio Plantarum* which had to be published at his own expense, 'with the only money I should have had to leave to my wife and child had I perished on the voyage'. He knew it was no use hiding his light under a bushel and fortune was with him. As a result of all this effort he was promoted Lieutenant and made a Chevalier of the Legion of Honour.

Strangely enough the Louvre Museum in Paris owes one of its greatest treasures, the Venus de Milo, to this enterprising mariner. While the 'Chevrette' lay at anchor near Melos word reached her that an ancient statue had been dug up in the town. A party of officers went ashore to see it and d'Urville realised something of its beauty and tried to buy it, but the captain thought it would take up too much room on the ship. Thinking the opportunity too good to miss, d'Urville managed to persuade the French ambassador at Constantinople to acquire it for the nation.

In August 1822 d'Urville was off on his travels again. This time to the South Seas on the 'Coquille' where as executive officer he had to attend to all the manifold duties pertaining to the equipment and provision of the ship, but nevertheless undertook the botanical work. His assistant was a third grade surgeon, Pierre Adolphe Lesson who is commemorated in the houpara, *Pseudopanax lessonii,* a small tree of 20 feet or so with dark compound leaves which is confined to the coast of the Auckland province. It was collected during their second expedition, in summer of 1827.

The 'Coquille' was at the Bay of Islands in 1824 but comparatively little botanical work apepars to have been done. Perhaps d'Urville was too busy with his *Flora of the Falkland Islands* which was ready for publication by the end of the voyage, in March 1825. As a result d'Urville brought back some 3,000 botanical specimens of which about 400 were thought to be new to science.

In New Zealand Again

In April of the following year Captain d'Urville set sail again on the same ship, now renamed 'Astrolabe' and although now commanding officer he again undertook to be responsible for the botanical work,

with the assistance of Lesson. In January 1827 he dropped anchor in what is now Astrolabe Bay, on the western side of Tasman Bay where he named the nearby Adela Island after his wife. He and his officers spent a very pleasant time there and an entry in his journal for 18th January is typical of several. 'After wandering for nearly eight hours in these wild hills and going right round the crest of the mountain, I came down to the shore again through the woods overlooking the Fresh Water beach, and I was back on board again about 4 o'clock in the afternoon, bringing with me several new kinds of plants and birds.'

But difficulties could arise as happened two days later when he went ashore with Lesson and another. They sent the boat back and intended to return along the beach, but the tide had come in, and 'we had to pick our way painfully first, through gullies, then across steep hills bristling with scrub and so it went on. Half-way back we walked right through a promontory that runs well out to sea, by means of a natural tunnel more than a hundred paces long which pierces it from one side to the other; but the next bluff presented incredible difficulties. We had to climb a veritable precipice, clinging as well as we could to wretched little bushes or fragile fronds of bracken, every minute running the risk of being dashed on to the jagged edges of the rocks, if these weak supports failed us. At last after frightful exertions we reached the beach where the observation post was, and there we found a boat.'

From Astrolabe Bay

A list of the plants collected around Astrolabe Bay during that summer of long ago is not without interest. The French botanist, A. Richard, named and described them in his *Essai d'une Flore de la Novelle-Zealande* of 1832 but few were new to science in the sense that they had not been seen before, because most of the commoner sorts such as the manuka, kanuka, rimu, koromiko, kamahi, toe-toe, stinkwood and mahoe had been collected by Banks and Solander and some had been described by the Forsters.

Among the new plants were the shiny leaved taupata, *Coprosma baueri,* so deservedly popular as a garden hedge in exposed coasta' gardens; the pretty white climbing rata known to the Maoris as the aka and long familiar to us as *Metrosideros scandens,* but now referred to Richard's name *M. perforata; Pimelia urvilleana* a neat little *hebe*-like shrublet of a foot or so in height which may be distinguished from its relatives by the silvery hairs on the young branches. Then there is *Dracophyllum urvilleanum* with its grassy brown leaves and racemes of small white or pink flowers, in its best forms an unusual looking plant well worth a place in the garden. Richard's *D. lessonianum* is regarded as no more than a well defined variety of *D. urvilleanum* by Cheeseman, but it is very distinct as a garden plant with more sturdy growth, somewhat bigger leaves and longer racemes with more and bigger flowers.

D'Urville left Astrolabe Bay on 22nd January and after a troubled night, at the mercy of the current in an inlet which he called Croisilles Bay, in honour of his mother's family, dropped anchor in Currents Bay on the western approaches to French Pass. Having discovered that the land to the north was an island his officers, eager to perpetuate the memory of their commander, wished his name to be attached to this portion of the discoveries of the voyage, and he did not think it right to refuse this mark of esteem on the part of his brave companions. The name d'Urville Island can therefore remain attached to this part of the land until such time as the name given to it by its inhabitants be discovered.

His Own Island

On 25th January d'Urville went plant hunting on his own island. 'I went on to a beach of the island not far from the channel where I spent an hour wandering about and collecting plants. Once again I was struck by the resemblance that there is, in a general way, between the vegetation of this part of the world and that of Polynesia. On the other hand, it cannot be denied that New Zealand produces several Australian species, in spite of the difference that appears at first sight in the flora of the two countries. These two facts naturally give rise to the idea that, in spite of its high latitude, New Zealand represents a scheme of vegetation intermediate between that of Polynesia and that of New Holland a sort of transition from one to the other.'

So far as I can find out d'Urville brought back nine species of plants from his own island. Besides two grasses they included *Gnaphalium japonicum* now a well known weed; *Nasturtium palustre,* a native water cress plentiful throughout the country; *Scleranthus biflorus* a tiny cushion plant of little merit, and four that were completely new to science viz. *Hebe angustifolia* an attractive 8ft. shrub with narrow leaves and long racemes of lilac-blue blossom, *Suttonia australis,* the red mapau, which was described as *Myrsine urvillei* by De Candolle in 1834 and was long known under that name before the duplication was discovered, *Vittadinia australis,* an interesting little daisy-flower. The only fern from d'Urville Island was *Polypodium dictyopterus* which Richard confused with an Australian species and the error remained undetected for about fourteen years.

After a hair-raising passage through the narrow strait between his island and the mainland, named French Pass in honour of the occasion, d'Urville sailed up the eastern side of the North Island and spent some time exploring and charting the Hauraki Gulf. A short stay at the Bay of Islands and the 'Astrolabe' sailed away to the north, having spent just under three months in New Zealand waters.

It was almost a year later that d'Urville cruising about among the Pacific islands came across anchors, cannon balls and some other relics marking the site where the French explorer, La Perouse, had vanished from human ken forty years before. D'Urville erected a simple monu-

ment to his countrymen from some of the kauri timber he had bought at the Bay of Islands and taking the relics home to the Naval Museum in Paris, sailed for home.

A Third Visit

In the summer of 1840 d'Urville visited this country for the third and last time. Leaving Hobart in January, he visited the Antarctic, made a brief call at the Auckland Islands, visited Stewart Island and sailed up the east coast to the Bay of Islands. The botanical results of this expedition were published ni 1853 but no new flowering plants had been discovered. Those that were found had already been named and described by other botanists.

On his return home d'Urville was promoted rear-admiral and awarded a gold medal by the Geographical Society of Paris and immediate steps were taken to begin publishing the scientific harvest of the expedition — very different from the voyage of the 'Chevrette' when he had to seek recognition by publishing his botanical paper at his own expense. He was at the height of his fame and honours lay thick upon him when, in May 1842, he and his wife and child were killed in a railway accident near Paris.

As we have seen, d'Urville is commemorated in several species of our flowering plants, but none of them are specimens of any great garden merit. Less well known than most of the others is *Peperomia urvilleana,* a small pale green succulent herb with thick fleshy leaves and quaint spiky inflorescences. It has always been regarded as a plant of little importance, but the modern fashion for house plants will bring it into its own. Very easy to grow and propagate, it makes a very attractive pot plant.

THE SUCCULENT EUPHORBIAS OF SOUTH AFRICA

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

Having decided to write an article on the *Euphorbia* for my gardening friend in New Zealand, I turned to my bookshelf just to refresh my memory. I at once came up against a formidable obstacle, namely, here was a genus of over 6000 species spread all over the world, namely, Europe, North and South America, West Indies, Asia Minor, Arabia, Java, Malaya, Himalayas and Australia. Royal Botanic Gardens, Kew, actually grow about 33 hardy and 30 tender species. Even our *Poinsettia,* that showy winter shrub is really an *Euphorbia,* besides several soft wooded weeds.

So I quickly came down to earth and decided to talk about South African species. Here there are some 193 species, so again I climbed down and have now focussed my talk on the succulent euphorbias found in my own area, namely the Eastern Province of the Cape, with one or two exceptions.

Whilst a student at Kew, I had charge of a section of the herbaceous grounds. In a specimen bed near the Jodrell Laboratory was an attractive hardy shrub labelled *Euphorbia wulfenii* (Europe), with bluish-green foliage with yellow bracts. Why don't we see more of this?

Euphorbias are grown, not for their flowers, which are mostly small, some densely packed, and mostly yellow, but for their attractive and often weird shapes.

They range from the small ground level species, namely *E. gorgonis, E. stellata, E. globosa* and the more spreading *E. esculenta,* then on to the globular species, the size and shape of a cricket ball, namely, *E. meloformis* and *E. obesa* with the somewhat larger *E. valida.* Next in stature come the clumps, sometimes huge, namely *E. pulvinata* and *E. mammillaris,* these are often a mass of shoots packed tightly together, 4 to 5 ft. wide and some 2 to 3 ft. in height.

Next in stature come the two local ones, namely *E. ledienii* and *E. coerulescens.* The first is found some 20 miles inland from Port Elizabeth and this suddenly ceases and in comes *E. coerulescens* for many miles. They both occur in dense masses, acres and acres of them, some 3ft. high, very prickly, almost impossible to make any headway through them on foot. To this group must be added *E. polygona,* much rarer, only occurring in isolated groups as will be seen in the illustration with Mr. Thorogood, one of my student horticulturists, standing by.

Finally come the tree euphorbias, namely *E. triangularis, E. grandidens, E. curvirama, E. cooperi and E. ingens* (the last two from the Transvaal). Now these are grand subjects, they are South Africa personified like *Aloe bainesii.* The first two are seen literally in their tens of thousands on the gentle slopes and hills of the Eastern Province. Recently I motored to Queenstown, some 200 miles north of Port Elizabeth, and there, on the roadside, were miles of these grand tree euphorbias. The only drawback is that they are too common.

Now in making these artificial groups, I wish to emphasize that there is no botanical significance in this method but only an insight into the horticultural side to this magnificent group of South African succulents. It is intended to show the wide range in the genus from a gardening angle and to assist the keen succulent collector how and where ot grow the various and widely different species.

CULTIVATION. Generally speaking all the species mentioned are found in fairly good soil, that is to say, good natural loam, very well drained and never over watered, in fact many are in areas with only 12 - 13 inches of rain. Some of our locals, still found within the municipal boundaries of Port Elizabeth, such as *E. globosa, E. gorgonis* and *E. stellata* are to be found growing in loose gravelly, stoney soil on steep hillsides in full sun.

Some can withstand dry frost such as *E. coerulescens* but soon succumb to wet cold conditions.

All, without exception, make ideal and interesting subjects for the rockery, small and large. As mentioned above one must not expect a colourful display; it is the shape, so varied from one species to another, that is the attraction in euphorbias. The large treelike forms will grow up to 20 - 30 feet as *E. grandidens, E. triangularis, E. cooperi* and *E. ingens.* It is obvious to the gardener that deep soil well drained is a necessity here. A bold group in a semi-cultivated portion of a park, with perhaps some of the large aloes, is the ideal setting. I have seen some of our epiphytic orchids growing happily in the branches.

In the local groups of *E. polygona,* I have seen the rare Mistletoe *Viscum minimum* growing. The berries are deposited in the ridges of the *Euphorbia* by birds, where they germinate and grow into the flesh of their host plant. It is said that *E. polygona* has been in cultivation in Europe since 1790.

Most species may be grown from seed but it is not always easy to obtain a supply. Some branching species can be increased by cutting but it must not be forgotten that cuttings should be dried off before being inserted in very sharp sandy soil. All euphorbias have a latex or milk-like juice. This must dry off and harden for a few days after the cutting is made and before insertion into the pot or tin.

An attempt was made to collect latex in Zululand during the last war when the supply of plantation rubber *(Hevea brasiliensis)* ran short. The percentage of resin, however, was too high and the percentage of caoutchouc too low to make it a successful venture. Latex of certain species is poisonous and care must be taken not to get it near one's eyes.

Seeds are usually flung many yards when ripe. The bursting capsules develop power to explode (one form of many ways that nature has of distribution). In one case I came across, a farmer heard that the rare *E. obesa,* one of the cricket ball shapes, was in great demand in Germany and France, so he collected old plants and planted them in a glazed garden frame. Every day he sent his native gardener to hunt for the exploded seed that had hit the glass and fallen on the ground. He made quite a bit of money by selling the seed — 5 for 10/-.

Incidentally, *E. obesa* is a rare species only found in a restricted area near Graaff Reinet. It had to be protected as some enterprising fellow was exporting it to Europe and getting a big return on the plants. Its extermination was only just averted.

Another and similar species is *E. meloformis.* This occurs within 10 miles of Port Elizabeth and was at one time plentiful on the roadside, but more people out for unlawful loot quickly exterminated the plant. This one sometimes developes side globular offsets but is usually the

size and shape of a cricket ball. A somewhat larger species, found by Dr. Dyer near Grahamstown, is *E. valida;* it is somewhat elongated.

On one of my earlier collecting trips near Keiskama Hoek in the Eastern Province, I saw what I thought was a flock of sheep lying down on the hillside. As I approached the sheep did not move. No wonder, they were not animals but huge plants of *E. pulvinata* scattered over the hillside. They looked like an enticing seat for the weary collector, but no, they were thick with sharp thorns !

Travelling on the road from Port Elizabeth to Uitenhage and thence north to Graaff Reinet, one soon comes across the upright *E. ledienii* growing in dense masses always about 3 ft. high, the habit of growth and spread being not unlike that of cannas. Then suddenly as one goes north *ledienii* disappears and *E. coerulescens* takes its place, a similar plant in habit but is easily distinguished by its blue-grey colouring and more angular joints. Both have clusters of yellow flowers at the apex of the growths.

On *E. coerulescens* I once found the fascinating but weird looking parasite *Hydnora africana* which I proudly mounted and added to my herbarium.

In times of drought *E. coerulescens* is cut down, chopped up into pieces, dried and fed to stock. It is hoped that the coagulated latex did not remain in the poor animals' insides. Should this have proved a first class feed for animals I am afraid this particular species would have disappeared long ago. As it is, there are literally thousands of acres growing more or less packed together to the elimination of most other vegetation. I, however, came across clumps of the beautiful *Haworthia arachnoides* growing in partial shade up against this *Euphorbia.*

Another species used as stock feed is *E. esculenta* as its name implies. This is a flat growing one a few inches in height and some 18 inches in diameter.

I cannot close this article without mentioning once more the Tree Euphorbias. They are all very handsome and well worth growing in any large garden or park. The two local species *E. triangularis* and *E. grandidens* are to be found in their hundreds. They are easily grown providing they have well drained good soil. Perhaps the most attractive species is the Transvaal *E. cooperi* with its outstanding angular, much divided sections of its branches.

I well remember passing by a small hill on the way to Pietersburg (Transvaal) with several plants of this species growing almost in a park like lay-out. What a grand and a true South African scene!

Euphorbia curvirama makes a very dense tree with countless numbers of branches. It is also a grand subject for the larger garden.

So there you have a small cross section of some of the species of *Euphorbia* — the succulent ones — mostly of the Eastern Province

of the Cape. To the enthusiast I would strongly recommend the book *The Succulent Euphorbiaceae (South Africa)* by Alain White, R. Allen Dyer and Boyd L. Sloane, published by Abbey Garden Press, Pasadena, California, U.S.A. (1941). This is a real treasure and like *The Stapeliaceae* is profusely illustrated. Dr. Dyer, our Chief of the Government Botanical Department, has made a grand job of the botanical part. Collectors cannot do without this book.

HIGH ALPINE FLORA

L. J. METCALF, N.D.H.(N.Z.).

(A lecture delivered by Mr. Metcalf to members attending the Conference at Greymouth, 1961).

My talk this afternoon is on the high alpine flora of the Southern Alps, and as Mr. Kennedy will this evening be giving the Banks Lecture on the forest flora of Westland it was thought that it would be appropriate if this talk dealt particularly with the alpine flora of the western side of the Southern Alps. For those who have never been up in the mountains let me first explain that above the bushline there exists a wonderful alpine flora and the herbfields of the Main Divide and the western ranges present a wonderful sight. Although we have not the bright colours such as are found in Europe, the Himalayas and the Americas, our own alpine herbfields and meadows have a wonderful variety of foliage and form and are equal to any in the world when in flower.

Before I commence showing slides let me tell you something of the various plant associations which are to be found above the bush line. Immediately above the bushline is the sub-alpine scrub which in Westland forms a particularly thick barrier. This scrub may vary in height from 4 - 12 feet and is composed of species of *Olearia, Senecio, Dracophyllum, Coprosma* and *Hebe* and a few herbs growing underneath. Sometimes this sub-alpine scrub may be so dense as to become almost impenetrable. In fact on an expedition in Fiordland, which I accompanied, at one stage four of us cutting could make no more than 100 yards an hour. As altitude is gained the scrub becomes lower and denser until it ends in low bushes hugging the ground and as it intrudes into the tussock grass the clumps of bushes become scattered with snow-grass tussocks in between.

In the snow-grass association the large tussocks of *Danthonia flavescens* or *D. cunninghamii* predominate and numerous small alpine plants grow in between. Here the beautiful Mountain Buttercup *(Ranunculus lyallii), Ourisia macrocarpa* var. *calycina, Celmisia coriacea* and many other herbs appear. The snow-grass itself is most handsome and when in flower has very graceful plumes. As the large tussocks become fewer the various herbs become more abundant until the herbfield proper is reached. Characteristic plants of the herb-field are

the Mountain Buttercup, *Celmisia* spp. *Aciphylla* or speargrass, the beautiful *Senecio scorzoneroides, Ourisia* and many others. Along with the herb-felds at altitudes of 3,000-5,000 feet and bordering streams are the alpine meadows which are among the most wonderful sights to be seen in the mountains. The dominant plants are the mountain buttercup and the last two mentioned.

On the tops of mountain passes and in similar situations are the alpine bogs. Usually found in and around the bogs are the two bog pines, *Dacrydium bidwillii* and *D. biforme* while in the bog itself are the small cushion plants, sundews, and a little purple-flowered insectivorous plant, *Utricularia monanthos.* Higher up, the bog becomes different in character and the predominence of cushion plants gives it the name of cushion bog.

Further up the mountain the vegetation becomes more open in character as stones and rocks break up the dense covering of the herb-field, until finally the plants occur as clumps or singly in crevices among the rocks. This association is known as the fell-field and extends from about 5,000 feet to the upper limits of the vegetation. The vegetation of the fell-field is often quite striking and characteristic plants are *Ranunculus sericophyllus, Ourisia sessilifolia, Senecio scorzoneroides* and *Hebe macrantha.*

Above the fell-field there are the shingle screes, talus slopes and finally the bare rock on which the vegetation finally disappears. On the shingle screes only a few specialised plants live and it is the same on the more stable talus slopes where the rock fragments are larger. Here among the large rocks of the talus slopes the peculiar *Haastia sinclairii* may be found, and as it is found at over 6,000 feet it is one of the last plants to be seen. Probably the last plant seen by anyone climbing a mountain is *Ranunculus sericophyllus,* a very beautiful species of buttercup with finely cut foliage and large yellow flowers which usually completely hide the plant. It grows in among the rocks on high mountain tops and finally disappears between 7,000 - 8,000 feet.

Before showing the slides I must explain that they will be shown in the order that a person climbing a mountain would see the plants. That is commencing down at the bush-line and gradually making our way up through the various associations until finally the top is reached.

The first slide by way of an introduction is *Metrosideros umbellata,* the southern rata which at present is making such a brilliant display in the Otira Gorge. The second shows a typical river valley in the Main Divide region. It depicts the stable river bed with plants colonising it, the beech forest and the high snow capped mountains, in the background, upon which the many beautiful alpines grow.

The rest of the slides were shown in the following order:—

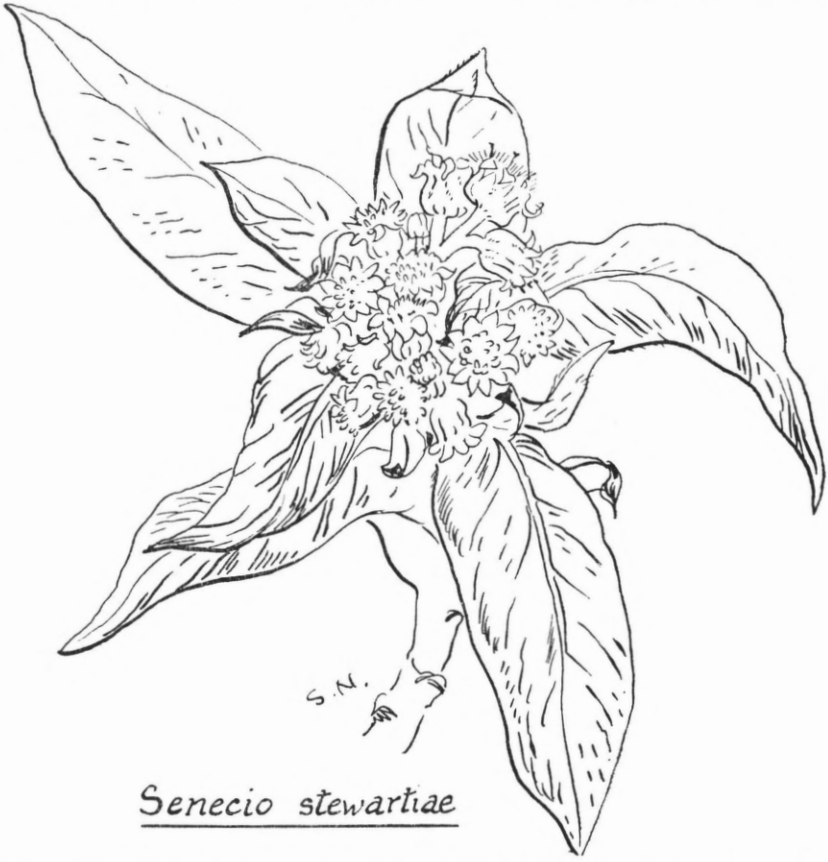
Raoulia haastii
Raoulia haastii showing winter colouration.

Coprosma brunnea
Dracophyllum traversii
Dacrydium biforme
Utricularia monanthos
Gleichenia circinata v. *alpina*
Snow grass association and bluff vegetation.
Gentiana bellidifolia
Aciphylla maxima
Olearia nummularifolia
Hoheria glabrata
Astelia cockaynei
Blechnum procerum
Podocarpus nivalis
Podocarpus nivalis in fruit
Aristotelia fruticosa
Coprosma pseudocuneata
Gaultheria depressa
General view of the Herb-field and tussock vegetation.
Ranunculus lyallii
Senecio lyallii
Senecio scorzoneroides
Helichrysum bellidioides
Celmisia petriei
Celmisia spectabilis and *Danthonia flavescens* in flower.
Coprosma pumila
Celmisia coriacea
Ourisia macrocarpa v. *calycina*
Senecio scorzoneroides growing beside a waterfall.
Celmisia walkeri
Celmisia discolor
Forstera sedifolia v. *oculata.*
General view of Curly tussock *(Danthonia crassiuscula)* association.
Pentachondra pumila
Euphrasia cockayniana
Ourisia sessilifolia
Myosotis macrantha
Cotula pyrethrifolia and *Leucogenes grandiceps.*
Aciphylla monroi
Ourisia caespitosa
Anisotome pilifera
Leucogenes grandiceps
Hebe tetrasticha
Pygmaea pulvinaris
Haastia sinclairii
Ranunculus sericophyllus
Ranunculus lyallii close up of flowers.

STEWART ISLAND PLANTS
(2)

SHEILA NATUSCH, M.A. (Wellington).

Now for a quick look at the plants on their own ground. Beginning with the outlying islands, we find the rocky muttonbird islets of Foveaux Strait, only a few miles off-shore, covered with dense scrub and bush, where huge stinging-nettles, threading upwards to tree-top



level, and large-leaved juicy-stemmed punui (*Stilbocarpa*) growing in great patches like waist-high rhubarb, make track-slashing a seasonable necessity. As on other offshore islands about the New Zealand coast, there is a strong element of large-leaved plants. An endemic confined to these islands is the small green daisy-tree, *Senecio stewartiae,* with its sticky rosettes of leaves tipped with white terminal buds like upright cigarettes, and its bright yellow flower-heads.

The shores of Half Moon Bay, where we land, carry vegetation typical of the N.E. area, the bush forming a more or less wide fringe round the edge, rising to the foot-hills. On this side it is mixed rimu-rata-kamahi bush, with thin-bark totara, miro, broad-leaf, *Nothopanax*

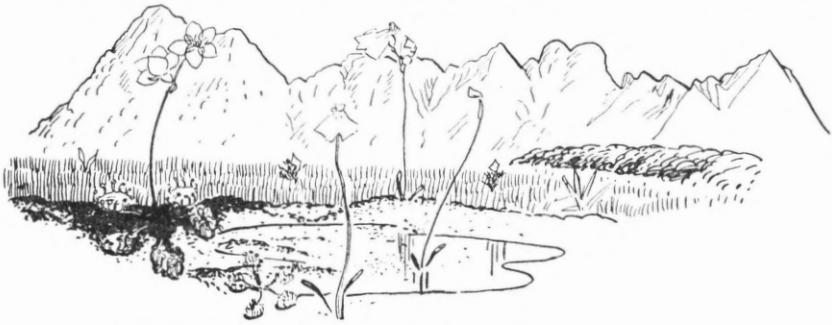
Gentiana saxosa

spp , patete, putaputaweta, and stinkwood. South of Paterson Inlet head, yellow bog-pine (*Dacrydium biforme. D. intermedium*) replaces rimu as a dominant. Matai and kahikatea are rare and local. Lawyer, supplejack and the tree-ferns *Cyathea smithii, Dicksonia squarrosa* and

Senecio rotundifolius scrub and bush (coastal)

D. fibrosa are common, but mamaku is found on only a few parts of the coast. Various undershrubs, ground-ferns and floor-plants grow more or less thickly, according to the state of the deer-population. We get some idea of the original heavy growth by visiting small islets in Paterson Inlet, where for many years the deer have been kept hunted off by the former ranger, R. H. Traill. The wet bush gullies support

a green wealth of delicate mosses and ferns; lichens and fungi are well represented, and not unexpectedly there is a vigorous shore population of salt tolerant ferns and other halophytes. In the most sheltered bays



Sundews and Bog-Flowers

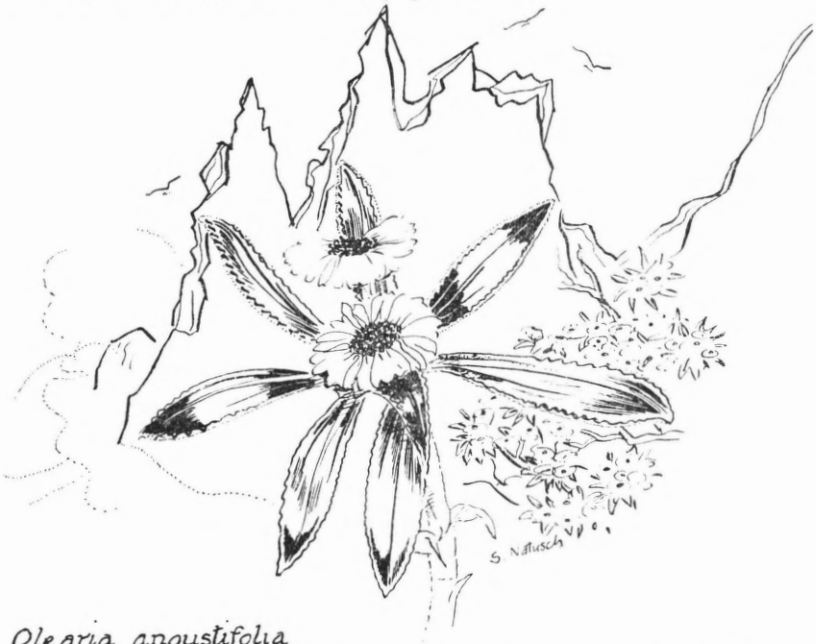
of the Inlet (a drowned valley), the bush meets the water or hangs out over the beaches; overhanging branches are clustered with filmy ferns, liverworts and perching orchids. Wave-cut platforms carry a damp

Herbfield

salty turf of rock-primrose, matted succulents like the tiny reddish-leaved *Tillaea,* and bright green *Selliera* with its white half-flowers, and *Gentiana saxosa*.

Where there is less shelter, we find, instead of bush proper, mutton-bird bush dominated by the tree-groundsel *Senecio rotundifolius* with

its round white-backed leaves and fungus-blackened trunks. Curiously, muttonbird is free of this fungus on the west coast, but tete-a-weka (*Olearia angustifolia*) is not. On exposed headlands is a tough scrub of wind-gnarled manuka, tupari and tete-a-weka; beneath these daisy-trees we often see patches of the velvety-leaved, white-flowered forget-me-not, *Myosotis albida*. The cliffs, headlands and islands of the south and west are high and often fantastically jagged. Titaki grass droops from the crevices in the rocky headlands; coast-flax, tupari and tete-a-weka cling to the granite-derived soil. Here too grow rosettes of native carrot and an endemic native daisy; once at Ruggedy I found the curious succulent orchid *Bulbophyllum*.

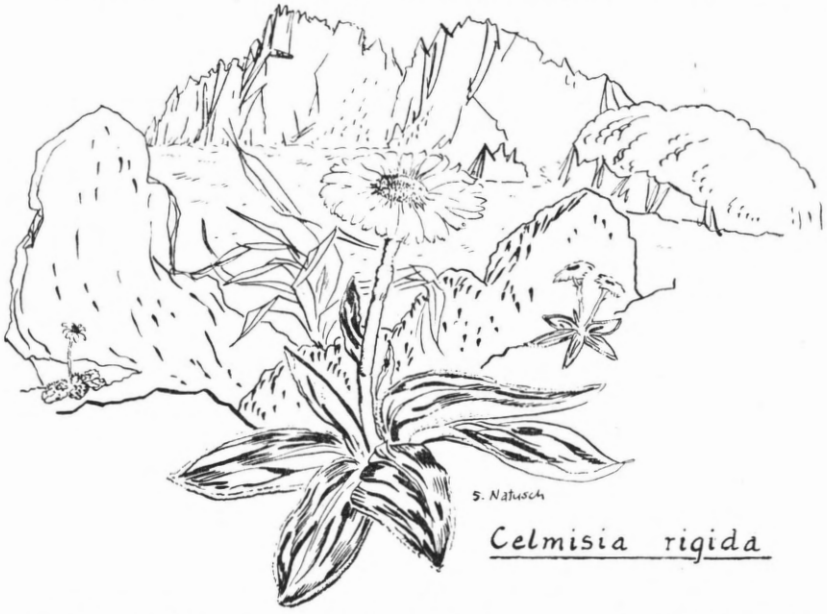


Olearia angustifolia

Towards some parts of the coast are many miles of duneland, occupied by pure bush, or lower thickets of manuka, mingimingi and flax; small creeping heaths are common in this formation which continues along the old sandy ridges and island-hills of the flats. The most extensive of these flats spread from Mason Bay and the Hellfire-Ruggedy coast to the upper reaches of the Freshwater River; smaller versions occur in the Rakeahua and Toitoi River valleys. Along the riverbanks we are likely to see bog-pine, lowland and shrubby rib-bonwood, narrow-leaved muttonbird toe-toe and flax. The Rakeahua Valley has small-leaved wineberry and some curious *Olearia* shrubs.

Though these flat areas have in part been used for running sheep, no amount of burning off seems to modify their aspect much. Peaty

bogland, sandy ridges, swamps and deep brown creeks support thickets of flax, red tussock, tauhinu, native broom and manuka; we tread over wet springy bog matted with wire-grass, scrambling *Lycopodium,* and umbrella-ferns, and in places mushy with sphagnum moss. There are bog-gentians growing weakly through blackened tussock-stumps; a yellow endemic buttercup; bronze-leaved *Gunnera* flat to the ground; tiny plants like *Actinotus;* white coral-lichen contrasts with the dark green prickly leaves and bright Christmassy berries of creeping heaths; we walk



among blue and mauve *Thelymitra,* yellow-green cobra hooded *Lyperanthus* and other orchids, slender white daisies, sky-blue grass-lilies, furry red sundrews, and bright-eyed lilac bog-flowers; the last two prey upon small insects. Bog pincushions dot the swamps, and the higher sandy ground carries armies of stiff orange leaved *Libertia* with its creamy-white flowers. Tiny and hard to see, native mint scents the flats with its sour-sweet fragrance.

Encircling the flats are the foot-hills leading back to the high ranges. The bush-line fluctuates between 1,000ft. and 1,800ft., stunted bush gradually giving way to more and more stunted tupari scrub, with low-growing manuka and inaka, the latter appearing as a series of species (if they *are* all separate species) from the tall *Dracophyllum longifolium* to the matted cushion-forming *D. politum.* Intermediate stunted forms are known as *D. urvilleanum and D. pearsonii* (endemic); ming-tree-like growth-forms and hybridism complicate the picture. Mt. Anglem has a distinctive species, the broad-leaved *D. menziesii,* associ-

ated with another localised shrub, *Archeria traversii* var. *australis*. Kirk's party found this on Anglem; Cockayne did not rediscover it, but it is there all right.

The alpine meadows and herbfields are gay in summer with their massed patterns of grey-green, silver, snowy white, and tawny gold. On Table Hill there are white, cream and yellow *Senecio* daisies and several species of white *Celmisia* daisies. Among the higher rocks, great hard masses of bright green *Phyllachne,* starred with white flowers, jam up against equally hard masses of knobby grey vegetable sheep.

The endemic Maori onion, *Chrysobactron,* pokes its yellow turban of flowers above a rosette of curled back leaves. We must avoid sitting down on the sharp points of *Aciphylla traillii* or *Danthonia pungens;* one of our dogs was lame for days after a run along these tops. Mt. Anglem has some extra plants of its own; in places inaccessible to deer we still find the Mt. Cook buttercup, South Island edelweiss, and several species of *Ourisia* not known on the rest of the Island — though some of these plants are thought to occur also on Mt. Allen.

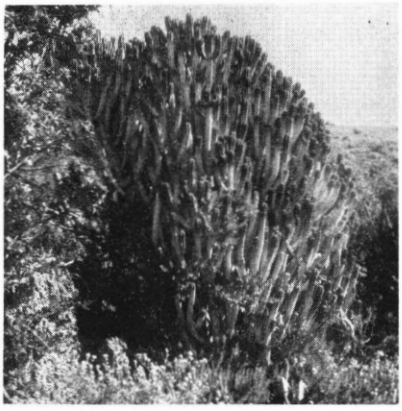
The warm months are the best time to view Stewart plants. Most of the orchids of bush, mountain and plain flower between November and February, except for the sweet-smelling Easter Earina. Once in every few years comes a magnificent display of rata bloom: I have seen an entire islet massed with glowing red. The coastal *Olearia angustifolia,* with its white-rayed purple-centred daisy flowers, whitens the western headlands and crags in November; there seems to be a second flowering in January, when the centres of the daisies pale to lilac or cream. (A very similar plant of N.W. Otago and the West Coast Sounds always has buff-centred flowerheads.)

One of the best ways to learn about plants, as men like Cockayne and 'The Firm' very well knew, is to know them on their own ground, and to bring specimens back alive. 'Grow it, and grow plenty.' said Mr Simpson when I told him about *Ranunculus crosbyi*: alas! In growing Stewart Island plants, as with any others, the safest rule is to imitate the stations where they flourish, unless we are experimenting rather than gardening. *Senecio rotundifolius* is grown successfully as an ornamental tree in many Southland gardens and reserves; most of the shrubby olearias and senecios are seen in botanical gardens up and down the country, though they will not always consent to flower. When Miss Baker's Stewart Island garden was abandoned for some years, the most conspicuous survivors were the shrubs, and the endemic coastal daisy, *Celmisia rigida.* Growing the small alpines is a tricky business in any but near-alpine conditions: they stand a better chance in the Christchurch Gardens than they do at Otari, Wellington.

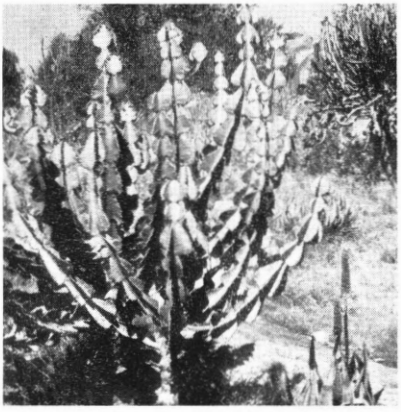
The southerlies that occasionally hurtle into Ohiro Bay, Wellington, where I live, make life impossible for all but the toughest plants. The hardy Stewart Island daisies survive, and flower regularly: *Celmisia*

Mr. John Houston, LL.B., A.H.R.I.H.(N.Z.), O.B.E., President of the Royal New Zealand Institute of Horticulture, Inc. (see page 121).

Olearia angustifolia foliage, looking eastwards towards Mason's Bay and Mt. Rahiahua from Ernest Island at southern extremity of Mason's Bay
(see page 142). (Dr. J. Findlay).

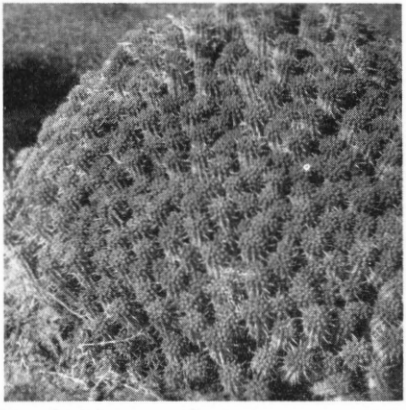


Euphorbia curvirama (see page 135).



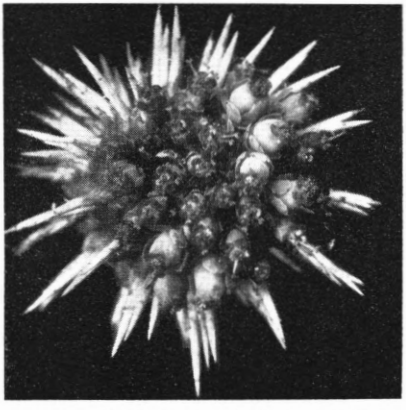
Euphorbia cooperi (see page 134).

Euphorbia pulvinata (see page 135).



Euphorbia mammilaris (see page 133).

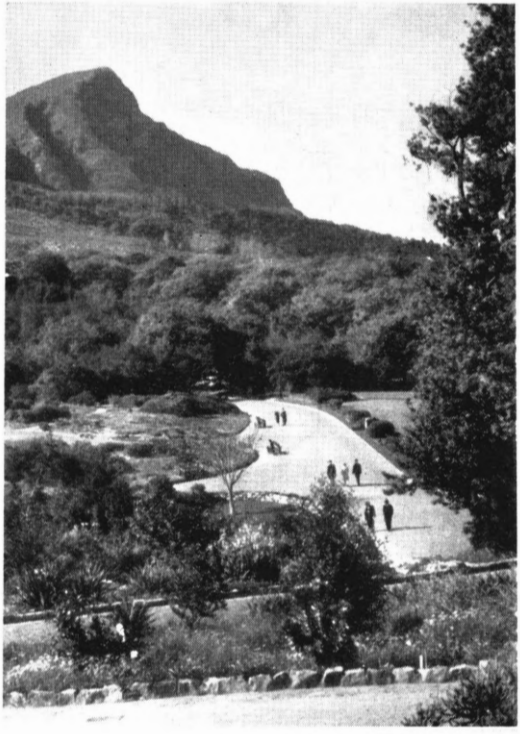
Euphorbia grandidens
(see page 134).



A typical flower head of Euphorbia
(see pages 132-136).

Dunedin Botanic Gardens: Araucaria excelsa
(see page 158).

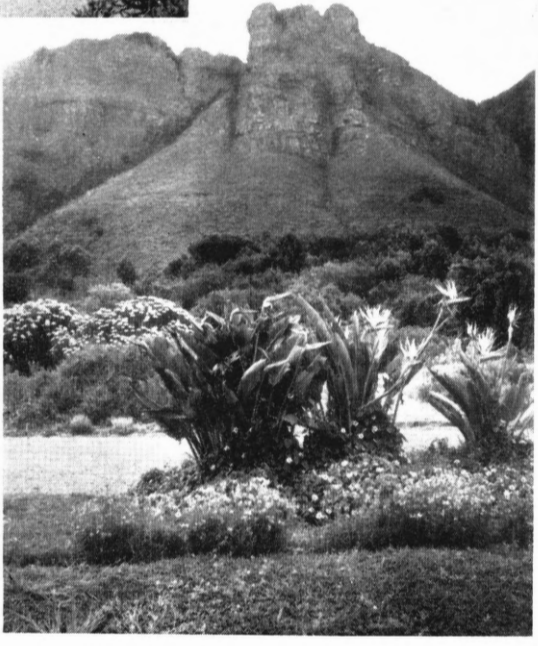
Euphorbia ledienii
(see page 133).



National Botanic Gardens of South Africa, Kirstenbosch. Panoramic view with Table Mountain in the background

(see pages 145-148).

(National Botanic Gardens, Kirstenbosch).



National Botanic Gardens of South Africa, Kirstenbosch: A part of the Gardens with Strelitzia in the foreground.

(see pages 145-148).

(Cape Peninsula Publicity Association).

rigida, Olearia angustifolia, Olearia colensoi var. *grandis* (Simpson). These last two, tete-a-weka and tupari, sometimes cross, the hybrid having been formerly known as *Olearia trailii.* My plant of this, unlike others I have seen in flower, produces attractive lilac 'daisies' with purple centres; this may be worthy of horticultural notice. But no mountain tupari, from Stewart Island, the Orongorongos or the Tararuas, has ever been induced to survive here.

KIRSTENBOSCH — THE NATIONAL BOTANIC GARDENS OF SOUTH AFRICA

An Onlooker's Impressions

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

PART I.

A botanical garden took many years of hard work to get under way. To induce the Government and our general public sufficiently to support a home for our glorious heritage — our flora — was hard work. It has long been known that there are several indigenous species bordering on extinction, and, alas, many that have been lost altogether. These facts alone made it imperative to create a home where rarities could be preserved and kept growing before they were lost altogether. This was only one of many reasons why a national botanic garden should be established.

It was not until the year 1913 that a site was chosen for such a garden. And what a lovely site it is! Close to the City of Cape Town, it is situated on the eastern slopes of Table Mountain. Actually the gorgeous rocky buttresses rise out of the gardens, the boundaries of which run far up the mountain side. It is indeed a lovely floral sanctuary enhanced by mountain streams flowing through the gardens.

The rainfall is considerable for South Africa, in the neighbourhood of 50 inches per annum. This fact excludes the satisfactory cultivation of most of our very extensive genera of succulent plants. So the authorities have established a Karoo Garden at Worcester, situated some 100 miles inland in the higher altitude of 1000 ft., with far less rainfall. Here most of our succulents from the arid areas of the North and North West flourish.

The Gardens have been fortunate in having three outstanding botanists and organisers as Directors, namely Professor Pearson, the founder in 1913, followed by Professor Compton, retired but now carrying out a botanical survey in Swaziland and now we have a live wire in Professor H. B. Rycroft who has recently returned from a study trip at Kew, and the Continent, to finalise many points on *Proteaceae.* We look forward to his treatise on this subject.

The National Botanic Gardens were established in 1913 by unanimous resolution of the Parliament of the Union of South Africa. Kirstenbosch, part of the Groote Schuur Estate at Cape Town bequeathed to the nation by Cecil Rhodes, was chosen as the site and reserved by the Union Government for this purpose.

The Karoo Garden at Whitehall was established by private benefaction in 1921. A new site was given by the Worcester Municipality in 1945 and the work was transferred there in 1946.

The Upper Kirstenbosch Nature Reserve, Table Mountain, was placed under the same control in 1922 for the better protection of the native vegetation.

The Harold Porter Botanic Reserve at Betty's Bay was bequeathed by the late Harold Nixon Porter and placed under the control of the National Botanic Gardens of South Africa in 1959.

The Darling Flora Reserve and the Cape Flats Flora Reserve were acquired by private donation in 1957.

The Gardens are controlled by a Board of Trustees appointed by the Union Government, the Botanical Society of South Africa, the Cape Town City Council, the Cape Provincial Administration and the South African Railways. The Director is one of the professors of botany in the University of Cape Town and is appointed jointly by the University and the trustees.

The funds of the Gardens are derived from (1) grants made by the Union Government, the South African Railways, the Cape Town Corporation, the Cape Provincial Council, the Cape Divisional Council, the University of Cape Town and the Worcester Municipality; (2) private benefactions, either direct or through the Botanical Society; (3) sales and miscellaneous.

The primary objects of the Gardens are scientific and educational; the collection, cultivation, study and display of the indigenous flora of South Africa; the preservation of the native vegetation of South Africa.

Kirstenbosch, the Karoo Garden, Harold Porter Botanic Reserve, Betty's Bay and the Darling Flora Reserve are open to the public during daylight every day of the year. The Cape Flats Flora Reserve may be visited with permission from the Director.

Botanical Society of South Africa

The Society, founded in 1913, and now consisting of over 3000 subscribing members in all parts of the Union and in other countries, exists primarily to give general and financial support to the work of Kirstenbosch and Worcester. The whole of its annual income, after paying expenses, is granted to the trustees of the Gardens for current expenditure; and the sums accumulating in its fund from the subscriptions of life members are also granted to the Trusetes for special

pieces of development. Members of the Botanical Society enjoy certain privileges which include participation in the scheme of free distribution of surplus seed from Kirstenbosch and the Karoo Garden.

The President of the Botanical Society is Mr Dudley R. D'Ewes; the Vice-Presidents are Mr. C. J. Sibbett, Professor H. B. Rycroft and Professor R. H. Compton and there is a council of fifteen.

The area which is now Kirstenbosch was part of the farm established by Jan van Riebeeck in 1660 onwards. Then large plantings of the exotic European oak were made with the result that these have had to be eliminated to make way for indigenous plants. But the sale of acorns and the timber from them has been the means of bringing in much needed revenue, about £450 per annum.

So the stage was set. Mr. J. W. Mathews, a Kew man, a keen horticulturist with botanical leanings, was appointed curator of a garden that was to cope with South African Flora only. There were to be no exotics, only plants indigenous to the southern part of the African Continent. It is well known that the only exotic allowed in these gardens is a lovely bush of the Australian 'Waratah,' *Telopea speciosissima.*

The result of this early work and subsequent hard endeavour is a lovely garden, full of thousands of growing South African species, a herbarium, a museum and lecture room, besides a refreshment room and ample car parking space, together with a fine nursery with plant houses, also homes for the Director and the horticultural staff.

Visitors, specially those calling in at Cape Town from New Zealand, Australia and the East, should make a point of taking the short drive through the lovely Cape scenery to visit these gardens. They are not to be disappointed. Nearby is Groot Schuur, the Cape home for the Prime Minister. The exquisite views of Table Bay with the close-up of Table Mountain towering above can be seen from the Rhodes Memorial which is skirted as one drives along the picturesque highway.

In the year 1916, the writer spent sick leave from Malaya in Cape Town and naturally often visited Kirstenbosch, then being slowly developed. Mr. Mathews at that time constructed the attractive lay-out rising up from the lower part of the gardens to the sides of the mountain. Many small paths in all directions faced with large pebbles was Mathew's idea to allow the public a close-up view of the plants which he then proceeded to establish. The stone facing gave permenancy. He was also busy in collecting a living display of the 500 species of ericas that are to be found in South Africa. His method was to sow in situ. As soon as the winter rains fell, usually in May, he sowed a few seeds in each of the small, previously prepared holes, dotted all over the mountain slopes. In this way he contended the plants suffered no root interference and I think he was right for it is not always easy to raise the tiny seedlings in pots and then transplant.

Another feature of these gardens is the way in which the natural water has been treated and developed on attractive natural lines. There is a small lake to accommodate our blue water lily, *Nymphaea capensis,* arum lilies, *Aponogeton,* bulrush, *Typha* and many *Juncus,* etc. The streams have also been developed and these, mostly with falling miniature rapids, have been fully used.

Near at hand, on Table Mountain itself, is the home of our lovely orchid, the red *Disa uniflora,* a national emblem. Here in these stream banks it has been established after many failures. It is a most difficult plant to grow. It seems to love sphagnum moss growing over running water, that is to say, the water flows under the roots. Clear mountain acid water is called for. Another beauty is the mauve blue drip *Disa, D. longicornu,* growing under similar conditions.

I have stated that Kirstenbosch is controlled by a Board of Trustees. To become a member of the society is to become a supporter of Kirstenbosch. Membership is open to anyone.

The subscriptions are as follows: Benefactors £500, patrons £100, life £25, corporate £5 p.a., family £2/10/- p.a., ordinary £1/10/- p.a. Additional subscriptions are payable voluntarily in support of the Wild Flowers Protection Section of the Society. The Secretary and Treasurer is Mrs. W. N. Hall, Kirstenbosch, Newlands, C.P., who will supply full information and to whom applications for enrolment should be addressed.

There are many advantages to be gained by becoming a member. Many lectures and outings are arranged, a wild flower show is staged in September, but the most enticing prize for overseas members is perhaps the free issue of seed every year. Family 25, Life 15, Ordinary 15 and Associate 5 packets of seed are distributed on application free of any cost.

A yearly list of seed is issued, covering over 60 species of bulbous plants, 30 annuals, 60 perennials, 120 shrubs, 30 trees and climbers and 200 succulents, all indigenous to South Africa. For instance there are, I notice, 15 *Aloe* app. 10 *Gibbaeum,* 35 *Proteaceae* and 12 *Erica* available in the current list, taking a few at random.

Members of the Society also receive the annual Journal always full of interest. Then there is the *Journal of South African Botany* to be had for an additional 25/- per annum. This contains descriptions of all recent discoveries, up-to-date revisions of various genera and interesting botanical-historical write-ups. This is published four times a year and no keen botanist can afford to be without it.

The powers that be are ambitious to create other botanical gardens in other parts of South Africa. With the exception of the Karoo Garden at Worcester, the Harold Porter Botanic Reserve at Betty's Bay, and the Darling Flora Reserve and the Cape Flats Reserve, all in the Western Cape area, little progress has been made in this direction. This is a national slip-up, for our huge country has several distinct climates. What you can grow in one is a failure in another, hence the need for more botanical gardens.

FUCHSIAS AND OLD ROSES

NANCY STEEN (Auckland).

Fuchsias and Old Roses, both popular flowers of the Victorian era, have come into favour again. Their colours harmonise perfectly, and they make a charming picture when planted together. Both plants look their best when grown quite informally, either as shrubs or semi-climbers, the fuchsias providing the necessary colour when the old roses are not in flower. With dwarf azaleas for early spring bloom, when the roses and fuchsias are cut back, and a carpeting of low-growing perennials and bulbs, parts of a garden planted in this manner can be attractive throughout the year; and both are equally at home in the small and the large garden. We keep to soft shades as much as possible, so fuchsias in the orange to flame tonings, though most striking, have to be barred. This makes for restfulness and people seem to appreciate the subtle, muted colours.

Just as the wild roses all came from the Northern Hemisphere, the original fuchsias came, either from New Zealand and Tahiti, or, from the West Indies and Central and South America. Right down from Mexico in the north to the Mountains of Magellan and Tierra del Fuego in the far south, wild fuchsias abound — the hardier varieties coming from Peru, Chile, and Magellan. There are beautiful fuchsias growing in the equatorial countries of Venezuela, Colombia and Ecuador; but these are tender, with softer, larger leaves and would not thrive out-of-doors in districts where there are heavy frosts. On the other hand, there are many fuchsias growing in the American countries near the tropics of Cancer and Capricorn which will grow in colder districts if planted in warm, sunny and sheltered spots. There are over ninety Fuchsia species, and of these, Tahiti produced one and New Zealand five — all the rest coming from the countries previously mentioned. Though our native fuchsias have not been used for hybridising, New Zealand did produce the tallest, as well as the lowest growing forms, though the beautiful garden varieties available today, were all bred from American types.

Leonard Fuchs, an eminent Professor of Medicine at Tubingen University during the early part of the sixteenth century, and author of one of the finest early herbals, was particularly interested in plants, as well as medicine, the two interests overlapping in those days. Nearly two centuries later, a new plant was introduced into Europe from Chile by the French botanist and plant explorer, Plumier, who named it *Fuchsia* in honour of the German Professor. This plant was one of a large group, *triphylla,* and had very short stamens, unlike the extra long ones seen in many wild, as well as most garden fuchsias.

Three forms of this native of Bolivia, Peru, Guatemala and Mexico grow well in our garden and are quite trouble-free. The small Bolivian *Fuchsia triphylla* ' Sanctae Rosea ' is more like a herbaceous plant than

a shrub and visitors are keenly interested to learn that it is a *Fuchsia.* Glabrous leaves appear in whorls of three or four on the soft, sappy new shoots, while the red flowers, with typical short stamens, spring singly from the upper leaf axils. This easy plant grows well in a pocket towards the back of a sloping rock garden; and so does a low-growing *Rosa rugosa* hybrid with large sprays of deep maroon coloured flowers with pale yellow stamens. The buds of this rose are particularly attractive as they have long, pointed calyx lobes, and the grey green foliage is abundant and healthy. This *rugosa* flowers all season if the spent blooms are removed; but we like to leave several sprays untouched so that visitors can admire the large, pendant, glossy red hips adorned with persistent sepals, the combination of the flowers and the hips on the bush at the same time being most striking.

A taller growing Peruvian species, *Fuchsia serratifolia,* has lax stems and is inclined to flop, so we train it, espalier fashion, along a wall where it looks very attractive between the roses 'Paul's Scarlet Climber' and 'Crimson Conquest.' Both the leaves and the flowers are long and narrow, and once again the blooms spring from the upper leaf axils. These have slender pinkish tubes ending in green-tipped sepals, which almost cover the short red petals. Two young Cornish brothers, William and Thomas Lobb, were sent to South America on a plant hunting expedition by the firm of James Veitch & Son, of Exeter, and one of the many plants they introduced was this *Fuchsia.* It arrived in England in 1843, along with several other species. It is interesting to find that our 'Old Velvet Moss,' a rich looking rose with petals of purple, shot with cerise and lavender-grey is called after William Lobb, the young Cornish plant-collector.

The third type, *Fuchsia splendens,* which grows wild in Mexico and Guatemala, is a new acquisition which came to me from my aunt's garden near Paremata. Instead of the long, dark leaves of *F. serratifolia,* this species has broad, softly pubescent leaves, sharply pointed, and mid-green in colour. The flower is rather unusual, as the broad scarlet tube is finished off with short, vivid, green sepals and petals. We have planted *Fuchsia splendens* in a shady corner behind a bush of rosemary, hoping that the narrow metallic-looking foliage of this shrub, will make a pleasant contrast to the large, light green leaves of the *Fuchsia.*

One of the most spectacular and satisfying species is *F. arborescens* from Mexico. It is found also in Guatemala, Panama, and Costa Rica. This plant has large sprays of lilac-like, tiny, rose purple flowers — hence its other name, *Fuchsia syringaeflora.* The healthy, glossy green foliage is always effective in the garden and the bush is generally smothered in bloom. *Fuchsia arborescens* harmonises well with several of the Japanese forms of *Rosa rugosa,* so we grow it as a shrub in a bed of these large-flowered and attractive-leaved roses. Espaliered along a fence between the silvery-pink *Rosa sempervirens* hybrid 'Flora,' which Gertrude Jekyll used so freely, and the slatey-mauve *R. multiflora* rambler 'Veilchenblau,' this *Fuchsia* species is most arresting,

especially when trails of the roses weave through it. One of the best known of the hardy fuchsia species is *magellanica*. As the name implies this plant comes from the Mountains of Magellan, as well as from Tierra del Fuega, Chile and Peru. It will stand cold and frost, which the larger leaved forms from the north will not tolerate. Apparently, fuchsias growing near the equator are to be found at a higher altitude than many of the Southern ones; but, even so, they will not stand up to extremes of cold. We used to grow the tall *Fuchsia magellanica* var. *alba* with its myriads of small, blush and lavender tinted flowers — not really white as the name implies; but, with its roots kept cool and moist amongst rocks, it grew so tall and lush that it was always being damaged in storms. In the end, we reluctantly discarded it in favour of its lovely hybrid, 'Mrs. W. P. Wood.' The flowers of this shrub are larger than those of the wild type, and their pink and mauve tonings blend in well with the semi-double blooms of the tall, grey-leaved, double form of *Rosa pomifera* 'Duplex,' or the 'Apple Rose' of England, which grows nearby. This rose was known also as 'Woolley Dod's Rose' and was named in honour of an English clergyman who was an authority on roses. A coarser form of *Fuchsia magellanica,* called *riccartonii,* hangs over our fence from a neighbour's. This is the red and purple flowered *Fuchsia* which is used so extensively for hedges throughout the British Isles; but we do not admire it as a garden plant. Two smaller forms of this southern *Fuchsia* are far more worth while. One of these is the dwarf, tiny leaved *pumila,* which makes such an excellent rock-garden subject for planting with the small, wiry, red China roses such as 'Fabvier' and Miss Willmott's 'Crimson China.' Both plants have red flowers and both bloom perpetually. *Fuchsia pumila* if cut back hard each year, and kept compact, can be grown with even smaller roses such as the miniatures 'Perla del Alcanada,' 'Midget,' 'Granada,' and 'Oakington Ruby.' We originally confused this plant with *Fuchsia* 'Tom Thumb' until a kind friend gave us a true 'Tom Thumb.' This little beauty has fatter, larger blooms of red and lavender and is a real acquisition; now we grow it in a trough in front of a rock wall with roses of the 'Seven Dwarfs' series, and it is always greatly admired. Slightly taller growing forms of *magellanica* are 'Gracilis' and 'Gracilis Variegata.' These useful plants thrive in sun and shade and can be used to highlight larger rock pockets. For lower growing hedges, they are ideal and look most attractive — especially when well trimmed back just as the new spring growth begins to appear. We have trained one plant of *Fuchsia magellanica* 'Gracilis Variegata' on to a low trellis where we grow the taller red China rose 'Cramoisie Superieure,' and the richly scented 'Stanwell Perpetual' — a *spinosissima* hybrid with ferny foliage, and exquisite pale pink flowers.

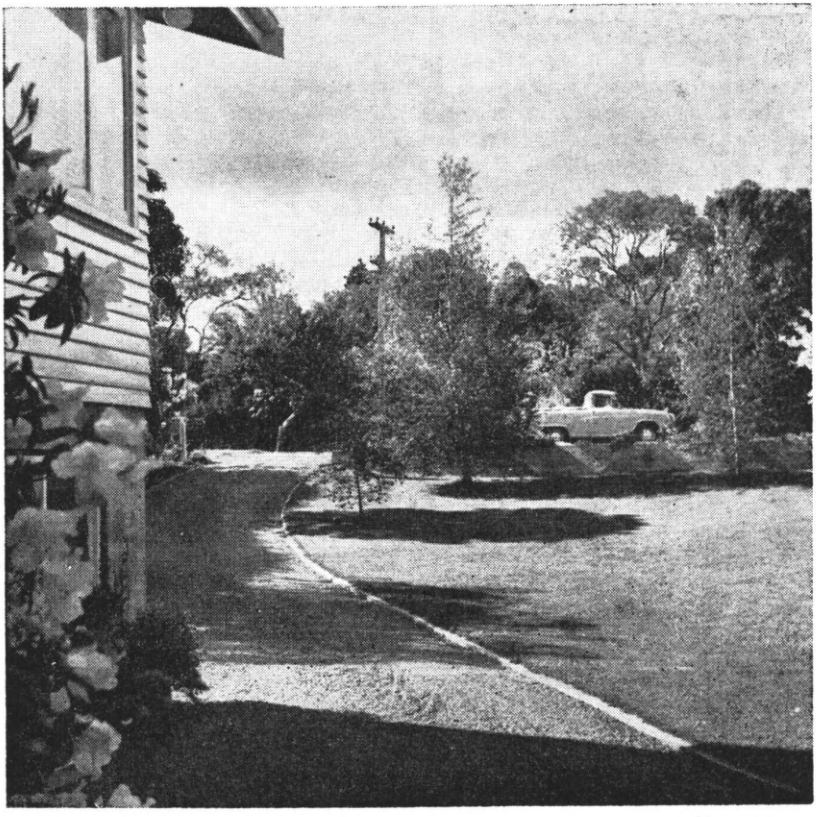
The trailing *Fuchsia procumbens,* one of our own native plants, is useful for draping over rock walls. The tiny flowers, tinted yellow, green and purple, are held erect and have distinctive bright blue stamens. Apparently the pollen from these blooms was used as a dusting powder

by Maori maidens. Large cherry-coloured friuts add to the attractiveness of this wiry, useful plant which, if left unchecked, will soon cover quite an area in this warm climate.

For providing colour in the garden throughout the year, modern fuchsias have few rivals. They come in lovely shades which blend in perfectly with old roses, and some of the really new ones in tones of lavender and mauve — roses such as 'Magenta,' 'Stirling Silver,' 'Prelude,' 'Lavender Lady,' 'Lavender Pinocchio' and 'Royal Tan.' We grow our fuchsias as trailers, bushes, or semi-climbers, and at one time we used to grow them as standards. Cutting off spent flowers, and gathering long sprays for the house, helps to keep the plants from becoming too straggly, though they benefit from a harder pruning at the end of the winter. A strong growing variety like the cerise coloured *Fuchsia* 'Beauty of Exeter,' can be cut right to the ground each year. After this harsh treatment, new shoots quickly appear and soon clothe a wall between strong growing climbing roses like 'Chaplin's Crimson Shower' and 'Zephirine Drouhin.' Every few years we take out the old plants, break them up, and replant with fresh, shapely pieces. By doing this, and renewing the soil, fuchsias, even such strong growing ones, do not harm the roses. In summer, they need to be kept well watered and sprayed occasionally, to guard against insect pests which may damage the leaves. We find with fuchsias, as we do with camellias, that the lighter the colour of the flowers, the more shade they will require; and the deeper the tones, the more sun they will tolerate.

Exquisite white fuchsias do excellently in full shade along with white camellias and forms of *Rosa alba,* the *alba* roses all flowering well away from the sun. In the Auckland climate and in heavy clay soil, we have found the best white fuchsias to be 'Barbara Matthews,' a sport of the graceful 'White Spider' which we grow up a rock wall behind the creamy China Rose, 'Rival de Paestum' and the pink 'Hermosa,' 'Flying Cloud,' 'Sleigh Bells,' 'Snowball,' 'Paper Dolls' and 'Lace Petticoats.' These also thrive in semi-shade alongside the *floribunda* roses 'Summer Snow,' 'Irene of Denmark,' and 'White Bouquet.' Pale coloured fuchsias will not stand severe pruning, so, in case of accidents, it is wise to strike a few fresh cuttings each year.

Among low-growing French roses, moderate sized bush fuchsias can be planted, but neither in size nor in colour must they swamp the roses. Harmony must be the keynote — a harmony of softly blended shades. Near pink roses, such as the lovely 'Duchesse de Montebello' and the 'Duchesse d'Angouleme', fuchsias 'Crinoline,' 'Cameo,' and 'Whitemost,' a very strong grower, — are delightful, while 'Treasure,' 'New Horizon,' 'Mona Lisa' and 'Flirtation' all blend with rosy mauves and purples of many of the old *gallica* roses. There is even a striped *Fuchsia,* 'Lucky Strike,' to go with the striped roses. In fact, there are suitable fuchsias to tone with each old rose in the garden.



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NATIONAL CAMELLIA DISPLAY

MEMORIAL HALL — WANGANUI
24th - 25th AUGUST
1961

The tall red-purple *gallica* rose 'Charles de Mills,' needs the backing of strong growing red and purple fuchsias, such as 'Victor Hugo' or 'Uncle Jules,' while fuchsia, 'Othello' and the burgundy coloured rose 'Cardinal Richelieu' look well together. Four particularly strong fuchsias, in the pink and rose tonings are 'Azalea,' 'Marie Louise,' 'Pink Quartette' and 'Colonial Dame.' These all make a continuous and lovely show in the garden and are delightful near such roses as the Bourbon 'Honorine de Brabant,' the Portland 'Jacques Cartier,' and the Damask 'Marie Louise.'

'Boudoir' with large double flowers of blue and cream, and 'Ecstacy,' with mauve and rose blooms, both tall growing fuchsias, can be trained on walls between climbing roses that flower only once. Such roses make a magnificent display during the height of the season, but need the colour of the fuchsias near them when the blooms are over. The 'Seven Sisters' rose, a *multiflora* rambler, is such a one. This unusual Japanese rose originated as a natural hybrid between the double pink *multiflora* 'carnea' and a form of *Rosa rugosa* — the large, handsome, *rugosa* leaves being inherited from the latter parent. Large sprays of double flowers shading from purple through cerise, to lavender, rose and blush distinguish this famous rose from all other multifloras. We grow fuchsias 'Lilibet' and 'Forever Yours' alongside this rambler, with 'Potentate' further along the wall. 'Aunt Juliana,' has extra large blooms of cerise and lavender, and tones well with another *Rosa multiflora* hybrid, 'Russelliana.' This rose has double cerise flowers which fade out to lilac-grey and the two plants, the rose and the fuchsia, look very well together. Another *Fuchsia,* 'Violet Gem,' could also be grown with these two, to add depth of colour to a useful planting.

Many fuchsias naturally trail or weep, and such plants are invaluable for clothing rock banks — especially if the position is partially shaded. One of the hardiest of these is the old rich crimson 'Marinka.' This effectively covers a rock wall alongside a tennis court. Twice a year it gets cut hard back, and in a very short time, it is full of leaf and flower again. There is a golden leaved form of this *Fuchsia;* but we do not grow it here. 'Meteor,' a variegated *Fuchsia,* also grows over low walls and the interesting leaves highlight many otherwise dull corners. This season we have added two more pink toned fuchsias to our list of trailers. These are 'Pinto' and 'Mayflower' and they are to weep over a shady rock wall in front of a bed of Japanese *Rosa rugosa* and a wild pink rose from the Caucasus, *R. pendulina* 'Oxyodon.'

The combination of roses and fuchsias is very satisfying as well as providing valuable material for floral work over a long period. We grow many other fuchsias, but have only mentioned those that do really well in our hot climate and on our heavy clay soil — and ones that have stood the test of time.

NOTES FROM THE CHRISTCHURCH BOTANIC GARDENS

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

During the period from February until these notes were written the weather improved considerably and not since 1937 has a more sunny April been recorded. Although March was a dry month it was still cooler and cloudier than normal. However, the latter part of the month was somewhat more sunny. April turned out a very sunny month and with a rainfall of 0.67in. (1.99in. average) was also very dry. Temperatures were at times high and 86.2° on April 16th exceeded the previous highest of 83.2°. One or two light frosts were recorded but they did very little damage.

The brilliance of autumn colouring in Christchurch is, due to seasonal variations, often rather disappointing. However, once again the autumn colouring was very good and the Gardens provided many brilliant displays. At the time of writing the most outstanding tree in the Gardens is the specimen of *Metasequoia glyptostroboides* in front of Townend Glasshouse. Standing about 28 feet high it has turned various shades of brown and orange which make the *Metasequoia* so distinctive in the autumn. A specimen of the Norway Maple (*Acer platanoides*) near the Cherry Mound never fails to produce a fine autumn display and this season was no exception. With this particular specimen the leaves turn a brilliant yellow.

No less brilliant were the linden trees *(Tilia vulgaris)*, there being several very fine specimens in the Gardens. However the avenue of lindens known as Beswick's Walk are without any doubt one of the notable features of the Gardens during the autumn. Other plants which were good during the autumn were *Ginkgo biloba*, the various species and varieties of maple, *Sorbus* and some species of *Quercus*.

At this time of the year the conifers start coming into their own and in particular the varieties of *Chamaecyparis lawsoniana* and *C. obtusa*. Some of these may be seen in the conifer border near the rock garden and others in the border near the Cashel Street gates. The most outstanding are the well known varieties of *Chamaecyparis lawsoniana* such as 'Stewartii' 'Allumii' and 'Lutea,' and C. *obtusa* 'Crippsii' which is often erroneously called 'Crippsii aurea' in this country. As *C. obtusa* 'Crippsii' is the golden form it is both unnecessary and wrong to tag 'aurea' on to the name. In the conifer border near the Cashel Street gates there is a specimen of a small and little known conifer; it is *Fokienia hodginsii* and it comes from East China. Although it grows about 40 feet high in the wild, here it has so far made only a small rounded bush. In character it is intermediate between *Chamaecyparis* and *Libocedrus* and strongly resembles one of the latter in foliage.

An interesting shrub which flowers in the autumn is *Colletia paradoxa (cruciata)* or anchor plant. It is native to Chile and Argentine

and belongs to the *Rhamnaceae*. Also there is a fairly strong resemblance between it and the New Zealand *Discaria* and is most noticeable when it is in flower. The plant is quite leafless and the curiously flattened spines which give the anchor plant its common name are most unusual. During March it literally covers itself with small, white, sweetly scented flowers and it is then a rather attractive shrub. It is almost unknown in New Zealand gardens but where space and situation permit would make an interesting specimen.

In the glasshouses there is always much of interest and at present the main displays in Townend house are *Cyclamen, Primula obconica, Capsicum,* winter flowering begonias and *Smithiantha zebrina.* Other plants which add colour and interest to the displays in this house are *Haemanthus albiflos, Plectranthus behrii* and *Coleus carnosus.* In Cunningham house some of the bromeliads are very attractive at present, the most outstanding being *Billbergia amoena* var. *amoena, Vriesia carinata, Pitcairnia pulverulenta, P. maidifolia* and *P. tomentosa.*

NOTES FROM THE AUCKLAND PARKS

G. F. FILLMORE (Auckland).

Planning and planting of gardens both public and private is now proceeding apace, the autumn and early winter rains following what might be termed a truly Indian Summer reminding one that the season for planting is upon us.

To many people the main problem is, of course, what to plant, and a stroll through our public parks is well worth while. Bedding for the spring display is now well in hand. In Albert Park and at the Auckland Domain, beds of *Anemone, Ranunculus, Polyanthus, Viola, Cineraria,* tulips, stock, Iceland Poppy, *Iris* and *Calendula,* to name only some, are coming away well. To get the best out of annuals they should be used in combination, this spreading the flowering of a bed over a much longer period, and enabling one to use short-flowering choice plants which in themselves are not suitable for bedding, such as *Iris,* tulips or daffodils.

A few combinations worthy of mention for the spring display are: Iceland poppy with *Iris* 'Imperator': *Viola* blue or *V.* yellow with *Iris* yellow or *I.* blue; tulips with blue *Viola*; *Primula malacoides* 'Brightness Edge', *Alyssum* 'Lilac Queen', wallflower 'Purple Edge', *Primula malacoides* 'Melody.'

Naturally at this time of the year colour is lacking in the garden, autumn colouring in the form of tree foliage not being outstanding in Auckland. Some of the exceptions to this are the scarlet oaks, *Quercus coccinea* and Pin Oak, *Quercus palustris,* in the Domain and the ginkgos in Albert Park. Colour at this time, therefore, has to be

found in shrubs such as *Protea, Callistemon, Bougainvillea, Cassia, Lantana, Tibouchina, Luculia, Acacia, Cestrum, Poinsettia, Cuphea, Beloporone,* and late-flowering *Hibiscus.* Shrubs can also be used in combination in the same manner as annuals thereby prolonging the flowering period for a bed. A particularly fine display was achieved in the Auckland Domain this autumn by using *Cassia corymbosa* underplanted with *Lantana sellowiana.*

Cassia is a genus comprising over 400 different species of annuals, shrubs or small trees and comes from warm or tropical regions. It will not stand heavy frosts and does best in a free open sandy loam with plenty of light. Cassias are easily propagated from seed or by half-ripe cuttings taken in the autumn. The plants must be pot grown as they resent having their roots disturbed, it being almost impossible to transplant established specimens. Young plants once planted out make very rapid growth and a good flowering specimen is possible within 12 months. The *Cassia* is known as the 'Buttercup Tree" because of its clusters of buttercup-like flowers. Beside *Cassia corymbosa* (syn. *floribunda*) which made such a show in the Domain another *Cassia* is also widely grown, namely *C. didymobotrya.* There is a marked difference between the two species, *C. corymbosa* growing to a height of approximately 6ft. with 3in. to 4in. leaves composed of 3 or 4 pairs of leaflets, while *C. didymobotrya* has leaves 10in. to 14in. long composed of 10 to 16 pairs of leaflets.

Tibouchina semidecandra (Lasiandra) is a plant which can be used in association with another as ground-work such as *Podalyria sericea.* The genus *Tibouchina* comprises some 150 species all of which are natives of tropical South America, mostly Brazil. *T. semidecandra* 'Grandiflora,' which is the species mainly grown, is raised from cuttings under glass. They make rapid growth when planted out attaining a height of some 10ft. to 12ft. Their rich purple, wide open flowers some 5in. across, produced in terminal panicles during late autumn, winter and spring, make a magnificent display over a long period. Another *Tibouchina* which is to be seen climbing up walls and on trellis is *T. scandens,* or climbing *Lasiandra.* It produces an abundance of small purple flowers over a long period. To keep them in shape all of the *Tibouchina* require a light yearly pruning.

Another shrub which is beginning to show itself with its terminal rounded clusters 4in. to 8in. across, of fragrant soft pink flowers is *Luculia gratissima.* There are about five different species of *Luculia* all of them coming from temperate East Asia. *L. gratissima* grows to about 8ft. in height and should be pruned back to about half its height in the early spring after flowering. It is easily propagated either from freshly gathered seed or from cuttings. The advantage of the cuttings is that these plants should flower the following year while those that are raised from seed will take two years. Another *Luculia, L. tsetensis* is also in flower, this one having larger leaves and large white flowers. The foliage of *L. tsetensis* turns a purplish red shade in the autumn. All

luculias are very frost-tender. Plants under glass still, of course, provide the main splash of colour at this time of the year, the cool house at the Winter Gardens being particularly gay with masses of *Cyclamen, Chrysanthemum* and *Begonia rex.*

Of special interest is a little plant called *Crossandra undulifolia.* The genus *Crossandra* consists of some five species all of which are beautiful, everygreen, free-flowering stove shrubs. Flowers are large in terminal four-cornered spikes with broad bracts and narrow bracteoles. Of the five species one is a native of the East Indies the remainder coming from tropical Africa and Madagascar. All are of easy culture and may be propagated at almost any time from cuttings. *C. undulifolia* has rich reddish-orange flowers which are very distinctive and attractive. The plant grows to a height of from 1ft. to 2ft.

Another plant in the cool house worthy of mention is *Clerodendron fallax* with its bright orange flowers borne in terminal pannicles. It is a native of Java and makes an ideal pot plant for giving colour at this time of the year. There are some 300 species of *Clerodendron* distributed mainly throughout Asia and ranging from tropical to temperate growing plants. Two other species which grow and flower well here are *C. balfourii,* which is a tropical plant from Africa with its scarlet and white flowers, and *C. ugandense* which is the best of the half-hardy species withstanding as it does a reasonable amount of frost. It is commonly called the Blue Butterfly Bush and bears its dainty pale blue flowers in terminal panicles of bloom some 8in. to 10in. long and nearly as wide at the base. The species grows to a height of 6 feet and prefers a dry situation.

In the Tropical House orchids are at present contributing to the main display, and the cattleyas, zygopetalums, vandas and calanthes (the last mentioned being one of the few deciduous orchids under cultivation) make a visit to the houses worthwhile. As in the Cool House there are also one or two other plants which are outstanding, of which the chief is a batch of pot-grown *Plumbago rosea.* The flowers of this plant are rosy-scarlet 1½in. to 2in. long, and are carried in long terminal spikes. It is a native of the East Indies and grows to a height of 2 to 3 feet. Flowering occurs in the very early stages of growth and for this time of the year it is ideal for indoor decoration. *P. capensis,* with its blue flowers, grows well outside in most Auckland districts being treated either as a shrub or encouraged to grow up a trellis.

Also at their best now are several species of *Gesnera. Gesnera* comprise a genus of some fifty species of stove perennials, natives, for the most part, of Brazil. A few, however, are to be found in Columbia and Peru. In many cases the foliage is as attractive as the flower with its mottled appearance. Flower colours are predominately pinks, orange, reds, yellows and purples. Gesneras require ample drainage and should be kept on the dry side until pots are well furnished with roots.

NOTES FROM THE DUNEDIN BOTANIC GARDENS

R. W. BALCH, N.D.H.(N.Z.).

At this time of the year, when flowers are scarce and there is little bright coloured foliage, it is possible to appreciate more readily the framework of garden and landscape design. The permanent plants particularly evergreens, which form the background and skyline to give height and depth to the colourful pictures we attempt to create with herbaceous plants and flowering shrubs, are more obvious than at other seasons. For these mature trees and large shrubs we are usually dependent either on those which have been retained from the original native forest and bush or, more commonly, on plantings made by those generations of gardeners who have gone before us. So often is there cause to bless the skill and foresight shown in former days which have given us today so many grand specimens and groups of trees around which it is possible to create our own idea of pleasing design and artistic layout. In our modern garden planning we are stimulated by the results of these older plantings to endeavour to do likewise for the enjoyment of future generations.

In the Dunedin Botanic Gardens, where level ground is at a premium, and where so many of the hillsides are still clothed with native trees and shrubs, there may not be the quantity or variety of large exotic trees that the more spacious parks and gardens of cities and towns of the plans can often display. But there are many growing here which are worthy of mention. Among the indigenous trees natural to this part of New Zealand, those of particular merit are *Hoheria angustifolia, Plagianthus betulinus* (Ribbonwoods), *Griselinia littoralis* (Broadleaf), *Sophora microphylla* (Southern Kowhai), *Pseudopanax ferox* (Lancewood), *Leptospermum ericoides* (Kanuka), *Fuchsia excorticata* (native *Fuchsia*) all of which are freely distributed through the Botanic Gardens. Many of these were probably large trees when the early settlers first landed. They now tower over the hillside collections of rhododendrons, azaleas, camellias and magnolias, or mingle with the exotic trees in the more formal layout of the Lower Gardens. Of native trees, not found growing naturally in the Dunedin district, which have been planted in past years, and are now fine specimens, the most prominent are *Metrosideros tomentosa* (Pohutukawa), *Metrosideros robusta* (Northern Rata), *Knightia excelsa* (Rewarewa), *Corynocarpus laevigatus* (Karaka), *Agathis australis* (Kauri).

Though the range of large introduced conifers is somewhat limited, two stands of *Pinus radiata* (Monterey pine) on the hillside slopes are quite spectacular. In the same locality, a group of *Pinus ponderosa* (Western Yellow Pine) and one of *Sequoia sempervirens* (Californian Redwood) are most impressive. Many single specimens of *Sequoia gigantea (Wellingtonia)* are doing particularly well. Younger, though none the less interesting conifers which are developing into good trees, are *Araucaria excelsa* (Norfolk Island Pine), *Taiwania cryptomerioides, Cryptomeria japonica* (Japanese cedar) *Taxodium distichum*

(Swamp cypress), *Metasequoia glyptostroboides* (Dawn cypress). The last mentioned is a deciduous conifer, as is also *Ginkgo biloba* (Maidenhair tree), a slow grower, attractive for its yellow autumn foliage; these are always of interest, being survivors of pre-historic times.

Although lone well-grown and shapely trees are often most impressive in the right setting, with many species, conifers in particular, a group or grove of the one type can be even more satisfying to the eye, which fact is well demonstrated in the Dunedin Botanic Gardens with *Pinus ponderosa, Pinus radiata, Sequoia sempervirens* and *Acer pseudoplatanus* (sycamore), all of which are planted in smaller or larger groups on hillsides.

Of the many exotic broadleaved evergreens which were planted in the early days, *Quercus ilex* (Holm Oak) is now a massive rounded tree, unpopular perhaps with gardeners in spring, when it sheds its old leaves over a six weeks period, but nonetheless worthy of a prominent place in any public park or garden. A number of large untrimmed hollies *(Ilex aquifolium),* both green and coloured leaved forms, make a sight seldom seen elsewhere in New Zealand. *Arbutus menziesii* (Madrona) with polished brown barkless trunk and branches, and lily-of-the-valley type flowers, is a good example of its kind. On the sunny slopes *Casuarina stricta* (Australian Sheoke) is a graceful tree with pendulous branchlets. *Michelia doltsopa* from the Himalayas, a recent introduction allied to the magnolias, has already flowered at a height of nine feet and is growing rapidly.

Deciduous trees of the Northern Hemisphere provide the main lawn specimens in the Lower Gardens. The gently curving avenue of English Beech *(Fagus sylvatica)* is now a sight most visitors to the Gardens appreciate. *Fagus sylvatica* 'Purpurea' (Purple Beech), a fine tree in the Rose Garden, serves to show just how much space should be allotted to trees of this type, for some rose beds are gradually being eliminated by its steadily increasing spread. *Liriodendron tulipifera* (Tulip tree) near the Winter Gardens, with its large truncated leaves and rich yellow foliage in autumn, is a handsome tree. By the Shakespeare Garden fountain, *Fraxinus excelsior* 'Aurea' (Golden Ash) is always the first to display autumn colouring and as well is the first to drop its leaves and one of the latest to break into leaf in the spring. It provides welcome colour in the winter, with its golden trunk and branches. One of the most effective of the larger flowering trees is *Aesculus hippocastanum* (Horse Chestnut), with its masses of large flower heads in late spring. It provides a source of interest in autumn to small boys, who delight to knock down the prickly coated conkers. It is a massive tree near the Aviaries. A somewhat uncommon large tree is *Populus canescens* (Grey Aspen) growing hard by the Fernery.

Every park or botanic garden has its historic trees planted by famous persons or to commemorate some significant event. In these gardens there are several worthy of mention. *Morus nigra* (Mulberry),

planted in 1914 by Dame Ellen Terry, fruits prolifically each summer, and associates well with the old fashioned knot garden in the Shakespeare Garden. Close by is *Betula pubescens* (Silver birch) planted by T. W. Whitson, President of the Dunedin Shakespeare Club, in 1914. Pride of place, however, is taken by the Royal Oak, an English oak (*Quercus robur*) planted, as the inscription at its base says by John Hyde Harris, Esq., Superintendent of the Province of Otago, to commemorate the marriage of the Prince and Princess of Wales on 10th March 1863. It now has a spread of 100 feet, a height of 60-70 feet, a girth of 16 feet and at breast height a diameter of 6 feet. In common with all the oaks here, both deciduous and evergreen, the attacks of oak leaf miner five or six years ago almost completely defoliated most trees in early autumn for two or three successive years, causing in some instances, severe dieback. However, since the liberation of the parasite on this pest several years ago, damage to foliage has lessened remarkably. Whether this is really due solely to the effect of biological control of the leaf miner, or to some extent accounted for by the natural stabilisation of the pest after its original drastic onslaught, is a matter for investigation.

PUBLICATIONS RECEIVED

THE LILY YEAR BOOK, 1961, Edited by P. M. Synge, M.A., F.L.S. and J. W. O. Platt, F.L.S. (Published by the Royal Horticultural Society, London).

Any book of authority on the genus *Lilium* must hold a very great interest for New Zealand gardeners because practically all species and varieties of garden origin grow so well here. Also, for another reason, that New Zealand has produced the finest hybrids of the *auratum* group in cultivation. Among the articles that cover a wide range from 'Lilies in a Small Suburban Garden in North-west London' to problems of cultivation in North America, Lilies in Finland and notes on their hardiness by Jan de Graaf, H. E. Comber and Earl Hornback, there are three from the Southern hemisphere. 'Zealandia Hybrids in New Zealand' by L. Tuffery contains some valuable and interesting information concerning the results of various crossings, this raiser's aim being for many years to breed a race of lilies of the *auratum* group that could be reproduced easily from seed. Mr. J. M. Piesse and Dr. R. M. Withers contribute notes on the *speciosum* x *auratum* hybrids in Australia and there is an article by C. N. Smith on the species of *Lilium* growing in his garden at Bilpin, Australia. There are three excellent colour plates.

THE RHODODENDRON AND CAMELLIA YEAR BOOK, 1961, Edited by P. M. Synge, M.A., F.L.S., and J. W. O. Platt, F.L.S. (Published by the Royal Horticultural Society, London).

This is the fifteenth year of publication of this year book which has been covering, for some years, the *Camellia* as well as the *Rhododendron*. There are six colour plates, two of rhododendrons and four of camellias. The articles cover a wide range with an interesting description of *R. yakusimanum* in its native habitat. The interest of raisers has been centring on this species for some years as a potential parent for the hybrids of the future. The more practical side of camellias is partly covered by 'Camellia Problems Answered. A Beginner's Guide' by Francis Hanger, V.M.H. Comments on *Rhododendron* culture and hybridization by Murray Adams-Acton is an interesting record that will have

a particular appeal to the beginner with ambition. There are other articles from various parts of the world but nothing from New Zealand. Surely a note on the latest developments among the Stead azaleas would prove to be of more than ordinary interest.

CURTIS' BOTANICAL MAGAZINE Vol. CLXXIII, Parts 1 and 2, Edited by W. B. Turrill, O.B.E., D.Sc., V.M.H., F.R.S., F.L.S (Published by the Royal Horticultural Society, London).

A set of this publication from its first volume in 1787 until the present day provides the most valuable work of reference any botanist could desire, but the cost would run into four figures. Yet each volume or even number is complete in itself insofar as it concerns the plants with which it deals and illustrates so satisfactorily with hand coloured plates. In Part 1 of the present volume our native *Hebe macrocarpa* var. *latisepala* is the subject of one of the plates accompanied by notes as to its discovery, characteristics, habitat and cultivation. Another plant that will be familiar to many readers is *Daphne genkwa* but the Australian *Grevillea* x *semperflorens* is a species not yet widely known. Other plants illustrated in this issue comprise *Crocus goulimyi, Gladiolus trichonemifolius f. symmetranthus, Ixora williamsii, Medinilla sedifolia, Petraeovitex wolfei, Petronymphe decora, Raphiolepis* x *delacourii* and *Zygadenus fremontii.* In Part 2 *Acacia adunca* has a strong resemblance to *A. accola,* but is of more spreading habit. *Cyrtanthus* is a genus of bulbous plants from Natal that grow well in the more mild gardens of the North Island and the species illustrated *C. mackenii* with its pure white tubular flowers containing yellow anthers at the mouth, is most attractive. *Cytisus* x *beanii* is one of the best dwarf brooms for the rock garden or to use as a group of dwarf shrubs and the double plate of *Rhododendron lindleyi* reminds us of a species that has lent added charm to many of our gardens. The other plants illustrated are *Colchicum hungaricum, Fraxinus pallisae, Hibiscus pedunculatus, Orthrosanthus polystachus, Peperomia caperata, Phlox adsurgens,* and *Primula reidii* var. *williamsii.*

TREES AND SHRUBS FOR AUCKLAND (Second Edition, 1960), Published by the Tree Society (Incorporated), P.O. Box 1533, Auckland.

In introducing this booklet the Tree Society are to be congratulated in presenting to the public a reliable guide to assist them in the selection of trees and shrubs for their gardens. Although primarily intended for the Auckland district its usefulness extends much further, and could be of assistance to planters in the milder districts of both islands. It is quite evident, as is claimed in the foreword, that the cultural instructions have been written and the selection of trees and shrubs made by people thoroughly informed regarding the culture and siting of the trees listed. In mentioning the old practice of clay burning the writers could have included information of how to proceed. Few of us in this modern age would have a clue, and there was plenty of room on the page for such instruction. The sudden introduction of capitals in unusual places can, one would hope, be classed as printers' errors. This does not however in any way detract from the usefulness of the publication which I can thoroughly recommend.—J.A.H.

DISTRICT COUNCIL REPORTS

NORTH TARANAKI

FEBRUARY:

The first activity for the New Year was an outing to Mr. and Mrs. Bernie Hollard's garden at Kaponga, and then on to Dawson's Falls Hostel, Mt. Egmont. Mr. Hollard's garden of many acres gives one the impression of a small park, with its long walks through native bush and informal exotic plantings. A bus load of W.D.F.F. visitors from Hamilton were asked to join

us and they also wholeheartedly joined us in voicing appreciation to Mr. and Mrs. Hollard for their generosity and hospitality.

MARCH:

Our first meeting for the year was held in new surroundings as we have changed to the Lecture Hall of the New Plymouth War Memorial and Library Building.

Miss L. G. I. Anderson, F.R.I.H.(N.Z.), obliged by showing many slides of Westland, some of which were taken during her visit to Dominion Conference at Greymouth earlier in the year. These slides showed some of the flora to be found in those parts, also beautiful scenes of native bush, mountains, lakes, and glaciers — truly one of New Zealand's foremost tourist attractions.

At this meeting opportunity was taken to present Mr. I. W. Goodwin (Curator, Pukekura Park) with the Institute's Associateship of Honour Award.

APRIL:

A visit to Hawera and Manutahi Gardens was a great success and we have to thank Mr. R. Chamberlain and Mr. T. Reader (President and Secretary respectively of the South Taranaki District Council) for their assistance with the day's itinerary, and their good wives for the dainty refreshments and the welcome cup of morning tea. Our itinerary of gardens was as follows: Mr. and Mrs. R. Chamberlain, Princes Street Extension, Hawera (morning tea); Mr. and Mrs. J. Edmondston, 20 Cameron St., Hawera; Mr. and Mrs. Rod Syme, 28 George St., Hawera, picnic lunch at King Edward Park, Hawera; Mrs. E. A. Hamilton, Manutahi; Mrs. F. H. Symes, Manutahi (afternoon tea), and finally Mrs. J. R. Corrigan, 'The Oaks,' South Road, Hawera.

On Saturday, April 29th, we held an Open Meeting, and had the pleasure of hearing Mr. A. P. Druce, Botanist of the Department of Scientific and Industrial Research, Taita, Wellington, speak on 'The Flora of Egmont National Park' which he illustrated with colour slides. Owing to the importance of the speaker it was pleasing to have a large attendance of members and friends.

Mr. Percy Thomson of Stratford conveyed the thanks to the speaker on behalf of an appreciative audience.

Prior to the introduction of the Guest Speaker our President (Mr. V. C. Davies) had the pleasure of presenting two certificates to Mr. Alan Jellyman, viz. the Institute's Intermediate Certificate in Horticulture and the J. A. Campbell Award for the best student sitting the Intermediate Examinations 1960. Mr. Davies expressed the opinion that not only would Mr. Jellyman have our congratulations but the congratulations of all horticulurists throughout the Dominion.

WHANGAREI

FEBRUARY:

Mr. Cates showed a selection of colour slides of various gardens in and about our area. Among so many of great interest those of Mr. Finch's *Gardenia thunbergia* with upwards of 250 blooms, and of his rare double pink form of *Kalmia latifolia* were specially admired. Others which we appreciated were of the gardens of Mesdames Kearney, Christianson and McInnes, Mr. Bailey of Ruawai, and Mr. Cates and Mr. Parry of Mangapai.

As many people have lost their tomato crops this year through blight, a remedy sent in by Mr. F. Crispin, Whau Valley, was of special interest.

Treatment recommended: Pull out and burn all blighted plants. Treat ground with 1 lb. Cuprox to each 5 square yards, water in after raking over and put in new plants.

Questioner has *Dahlia* with only one stem, one branch of which is a sport, the other the original colour. Can he reproduce the sport from a side shoot?

Answer: He may do so but such a cutting is not likely to make a tuber.

MARCH:

'Soils and Manures for Northland Plants' was the title of a talk given by Mr. Stacey of the Department of Agriculture, Whangarei, at the March meeting. Though of special interest to home gardeners much of the information could be applied to farms and market gardens.

Northland soils were of two main types, volcanic and clay, though the latter could be divided into two forms, yellow clay and pipe clay. A high winter rainfall and hot dry summer provided special problems in addition to which deficiencies in the main plant nutrients had to be made good. To obtain good soil fertility he recommended a heavy dressing of fertilisers in the proportion of 8ozs. of blood and bone, 7ozs. of superphosphate and 2ozs. of potash to the sq. yard. This would ensure good crops.

Certain lime loving plants such as scabious required as much as 2 tons of quick lime to the acre, but plants with special requirements should have a special area set aside for them.

Nitrogen and phosphates were the main deficiencies in our soils. Nitrogen should be applied in the spring only, to promote growth of stem and leaf. For colour in flower and fruit potash was essential but 3cwt. to the acre was the maximum. If too much were applied a magnesium deficiency would result. The symptoms of this, mottling of the leaves with green and yellow, varied with plants.

In tomatoes the leaves yellowed from the bottom up.

Defiiciency of trace elements could be proved by growing indicator plants in different parts of the garden. Cauliflowers were useful for this purpose and showed molybdenum deficiency by having the leaves reduced to mid-ribs, and when boron was lacking black curds were produced.

Dwarf beans with yellowed lower leaves showed lack of magnesium or lack of nitrogen. If nodules failed to appear on roots this was due to lack of bacteria in the soil or to a molybdenum deficiency.

Manganese deficiency in pears caused the outer edge of leaves and the veins to be green and the rest yellow. Pear leaves which were black on the edges, showed a deficiency of potash. Serpentine superphosphate supplied magnesium, as did common Epsom Salts.

Various suggestions for improving difficult types of soil were given, as well as methods of increasing fertility.

Raised beds not more than six feet wide with deep drains were advocated for clay land. Drains up to 2ft. 6in. should run across a slope with enough slant to produce fall and should have a layer of fairly heavy green tea-tree to keep them open. On volcanic soils old hay would break down quickly, and two tons of good clover hay would return up to 20 lbs. of magnesium. If supplies were obtained from different farms, mineral deficiencies were not likely to result.

To prevent a crust forming on pipe clay after heavy rain apply gypsum at the rate of 1oz. to the square yard. Blood and bone was the best of nitrogenous manures and nitrate of chalk was preferable to nitrate of soda, and much easier to apply.

Various composts were used for sowing seeds, the best known being the John Innes Compost. Peat composts were also used, but if the peat smeared when tested, well rotted turf with coarse sand should be used.

When planting in pots it was most essential to have them clean, and old pots should be boiled for 20 minutes to get rid of soluble salts and the residue of previous manures.

Mr. E. Arcus, F.R.I.H.(N.Z.), gave us a very timely and practical demonstration of 'Budding and Grafting'.

January was the best month for budding most things. One of the most important points was to have young vigorous stock on which to bud, and it was useless to expect to bud on an old tree.

Grow peach stones to produce young strong trees, and use them for stock. A very sharp knife was essential for success. Clean cuts and quick insertion of the bud and firm binding to hold the bud in position until union took place were important.

The newest method of securing bud union was the use of a patch of rubber (raw) secured by a small steel staple. These gave a very high proportion of success, and were a German invention, but not yet on the open market.

Citrus should be budded from November to March.

Grafting: This should be done in spring. If using apples, cut suitable pieces in July, heel them in in a shady place till needed. This would be when sap was flowing so that union would be more certain. The cuts on stock and scion must match, with cambium layer meeting cambium layer, and firmly held together by binding.

With a small tree in a pot this was ably demonstrated by Mr. Arcus, and members were able to handle the specimen of budding and examine the graft at leisure.

QUESTION SESSION:

The question session was conducted by Miss Pitney in her usual able manner, and provoked some useful discussions.

Blighted Tomatoes: The treatment suggested in February for soils occupied by a crop of blighted tomatoes was in the nature of a drastic remedy for a drastic disease, and to ensure a healthy crop on the same soil that had given a diseased crop. Such a large amount of Cuprox was not recommended as a regular treatment.

Basic Slag on Gerberas: It is good and may be applied in April at the rate of 2oz. to the sq. yard.

Grafting different varieties of apples on to the same tree. This may be done, though some will respond better than others, as the root stock will affect their vigour. The same thing also applies with peaches.

Verrucosus on Lemon: Take off and destroy all the diseased fruit. The disease is fungoid so use Bordeaux or a copper spray from September to Christmas.

Oleocop Spray: This is still in the experimental stage and should be used with caution as it is inclined to defoliate some plants, but one member had used it with success on dahlias and tomatoes.

Several flowers, too seldom seen in Northland gardens, were exhibited. These included the red form of the Crepe Myrtle — *Lagerstroemia indica* 'Rubra' — a shrub for warm dry situations, the lovely pink blossoms of the Chilean bell flower, *Lapageria rosea,* a climbing plant of the lily family, for the coolest, shadiest and rather moist place, grown successfully by Mr. Fyfe. Mrs. Hobson showed some splendid stems of the brilliant scarlet *Lobelia cardinalis,* a perennial which requires good soil, coolness and moisture when it may reach six feet. Another interesting plant grown by Mrs. Hobson was an unusual and very beautiful plant of the evening primrose family — unusual in that it flowers by day, and is pink, not yellow and that it is a perennial, and lasts long in water as well as flowering for many months in the garden. It hails from Texas and the Gulf of Mexico and is called *Oenothera speciosa* — the last word meaning showy or striking. This is a plant worthy of a place in any garden.

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.
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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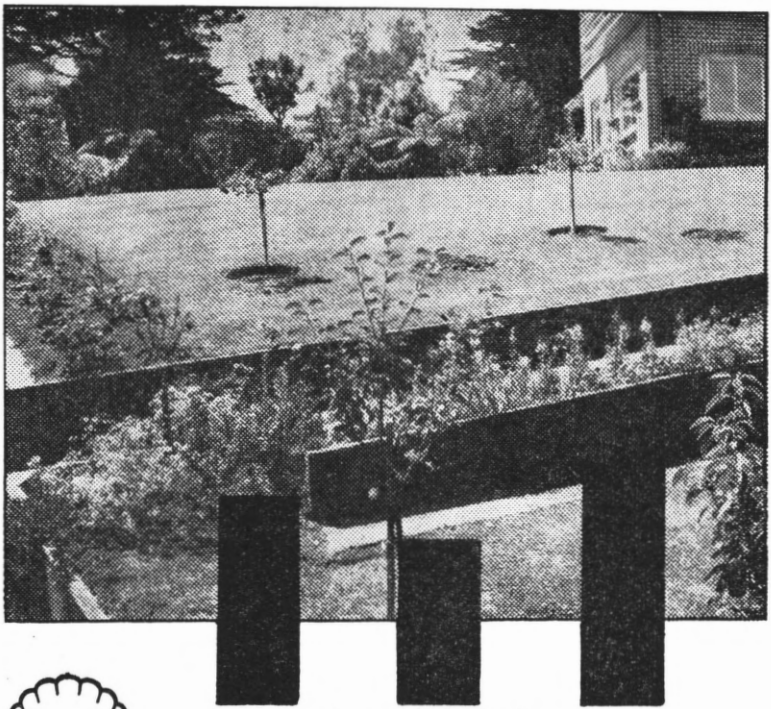

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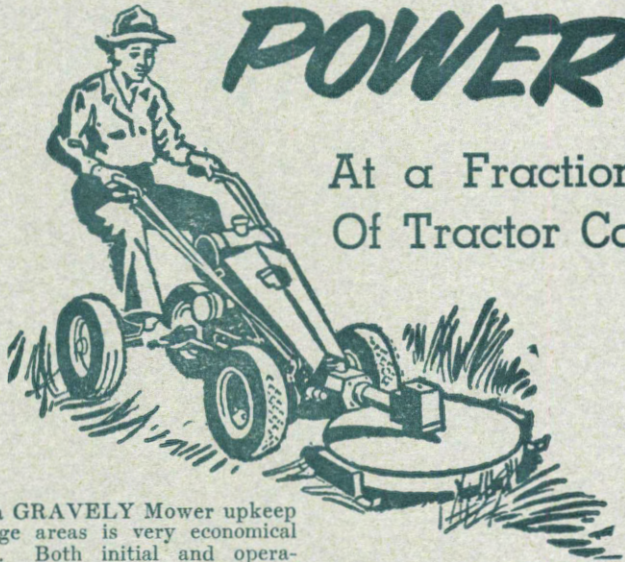

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