

Journal of the Royal New Zealand
Institute of Horticulture

World Rose Convention Issue



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JOURNAL OF THE ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURE

N.S. Vol. 2

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No. 4

GREETINGS TO THE NATIONAL ROSE SOCIETY OF NEW ZEALAND

I am sure that all Horticulturists are lovers of roses, and on behalf of the members of our Institute it gives me great pleasure to congratulate the National Rose Society of New Zealand on the occasion of the 40th Anniversary of the Society. Several prominent members of our Institute played an important part in its establishment and we are just as interested today in its continuing success and all the good work that it does for its members.

This year is indeed a milestone in the life of the society with the holding of the World Rose Convention at Hamilton in November. Our congratulations and best wishes to all those involved in this great undertaking. This is indeed a wonderful occasion, not only for the Society but for New Zealand, a small country but one that has much to commend it to anyone interested in Horticulture. Our population is small also but per capita we must surely have more rose growers and enthusiasts than most countries in the world. It speaks well for the reputation of the Society that the convention is to be held here.

We await the 7th of November with real interest and are certain that the convention will prove a great credit not only to the Society but to New Zealand. Many overseas visitors will attend and our wish is that everything will be staged to perfection and that it proves an outstanding success.

J. F. LIVING,
Dominion President, R.N.Z.I.H.



FORTY YEARS ON

The New Zealand Lily Society also celebrates its fortieth anniversary this year and plans are being made to hold appropriate functions in conjunction with their next Annual Lily Show to be held in Christchurch next January. WE CONGRATULATE THE N.Z. LILY SOCIETY.

Editorial**ROSEWORLD '71**

WE WELCOME WARMLY all those attending the World Rose Convention especially our fellow horticulturists from overseas; we hope to entertain you freely in our homes and gardens and that you will enjoy fully this fair land and our way of life.

When the National Rose Society of N.Z. was founded in Auckland in 1931 its founders could not foresee that forty years later it would be host to a vast gathering of rosarians from the four corners of the Earth. Not in their most extravagant moments would they have dreamt that the N.R.S.N.Z. would be honoured by being selected to host the First World Rose Convention and the first meeting of the newly constituted World Federation of National Rose Societies. Little did those few stalwarts who organised the first N.R.S.N.Z. Convention at Palmerston North in 1947 realise they were laying the foundations for this great event in their rival city, Hamilton.

But then, who of us visualised regular and frequent passenger services across the world in 48 hours, that it would be possible to commute daily across the Tasman Sea, television per satellite or indeed men on the moon. Horticultural advances have kept pace and tremendous progress has been made in raising new rose cultivars, and in the aids to rose growing.

Yet here we are on the threshold of this great event and it is quite fitting that this should be so. A sentence in the newly published "Dictionary of Roses In Colour" by S. M. Gault and Patrick M. Sygne and sponsored by the R.H.S. and the R.N.R.S. is significant. "Roses are not found in the Southern Hemisphere and there are no native ones in Australia, New Zealand or South America although the introduced ones grow splendidly in some of these countries, particularly New Zealand." If the visitors come to see our gardens with their roses we are sure they will not be disappointed, and our scenery we know will meet the test whilst if they come mainly to enjoy friendship, good company and our hospitality they may be sure that every effort will be made not to disappoint them. To them we say, enjoy your stay and our hospitality to the full. We hope in return you will be able to pay us New Zealanders that greatest of compliments, planning to return to New Zealand soon. You will always be welcome. Remember, we love our gardens; WE LOVE PEOPLE.

JOHN GOVER

NEWS FROM DOMINION COUNCIL

Nominations for National Parks Boards: The Dominion Council makes nominations for the relevant vacancies on the various National Parks Boards as they occur.

Conservation Environmental Conference: This was held in Wellington last June and Mr R. Syme reported that two definite proposals were under investigation for further consideration. (i) A setting up of a national conservation body; (ii) A loosely formed association of all persons and organisations interested in conservation generally. Mr Syme consented to act on behalf of this Institute in providing liaison with the above development. He had already submitted the name of the Institute as interested in conservation without any commitment at this stage.

Nomenclature Sub-Committee Report: The collections of genera for which the Institute acts, i.e. *Hebe*, *Leptospermum*, *Coprosma* and *Phormium* are increasing.

Reports on Historic and Notable Trees: The Institute has been given the right to publish the reports and the material contained therein by the Forestry Research Institute. Publication is to be delayed until all the reports are complete. The volume should contain those historic and notable trees considered to be of national interest and importance. Arrangements for editing, etc., were under careful consideration.

Plant Selectors' Rights. The Institute is writing to the Parliamentary Under-Secretary to the Minister of Agriculture to enquire whether the legislation has yet been drafted.

Organised Garden Tour. The Waikato District Council has offered to organise a weekend tour of Waikato Gardens on 16th and 17th October, with a social function on Saturday evening, October 16th. The tour would cost \$6.00 per head with visitors making their own arrangements for accommodation. If interested write to the Secretary, Waikato District Council, P.O. Box 145, Hamilton.

Twelfth N.Z. Science Congress: Mr Salinger was to provide liaison to ensure that Horticulture participates to some degree. Dr Yeates and Professor Veale were invited to act with Mr Salinger in forming a Committee to look into the questions of suitable horticultural contributions to the Congress.

Fellowships: The following were approved—Mrs M. Kennedy (Whangarei District Council), Messrs I. C. McIlroy, R. I. Mulholland, G. B. Malcolm, L. J. Mitchell, N. W. Drain, H. R. Sampson (Canterbury).

The Journal: Extra copies of the Journal will now be 35 cents each.

**1972 ANNUAL DOMINION CONFERENCE
of the
ROYAL NEW ZEALAND INSTITUTE OF
HORTICULTURE (INC.)
FORTY-NINTH ANNUAL MEETING AND
CONFERENCE OF DELEGATES.**

NOTICE is hereby given that the Forty-ninth Annual Meeting and Conference of Delegates of the Royal New Zealand Institute of Horticulture (Inc) will be held in Palmerston North on Saturday, 11 March 1972, commencing at a time to be announced later (possibly 9.30 or 10 a.m.). Further details of the Conference programme will also be announced later.

Members will observe that a change has been made to holding the Conference on a Saturday. This should facilitate a better attendance and members are urged to attend.

K. J. LEMMON,
Dominion Secretary.



**12th NEW ZEALAND SCIENCE CONGRESS
January 31 - February 4, Palmerston North**

THE 12TH NEW ZEALAND SCIENCE CONGRESS will be held at Massey University, Palmerston North from January 31 - February 4, 1972. The Congress is being organised around the theme "The Cost of Growth", which, the Manawatu Branch of the Royal Society, who are organising the Congress, consider a very relevant topic for New Zealand scientists to discuss at the present time.

To interest the scientist papers will be presented both within disciplines and across several disciplines.

To encourage participation of the non-scientist two evening Public Symposia will be held in Palmerston North City, to hear papers and discussion on "The Cost of Growth" and "The Cost of Stagnation". The papers to be presented during the daytime sessions will be grouped under the following headings within the theme (a) the growth and development of science in New Zealand (b) growth and use of natural resources, and (c) growth and its impact on society.

There may be some people who wish to receive information and are not yet doing so. To rectify this, interested persons should send their name and address to: Dr. T. J. Brown, Secretary, 12th N.Z. Science Congress, C/- Public Relations Office, Massey University, Palmerston North.

ROSES MEANT MUCH TO EARLY NEW ZEALANDERS

by NANCY STEEN, A.H.R.I.H. (N.Z.), Auckland

The 1971 International Rose Convention is to be held in New Zealand—a great honour for our country, and particularly so for the Waikato, the venue for this great event. It seems incredible now that, when settlers first arrived out here, not one rose grew in New Zealand. However, soil and climate, in this temperate land, must have suited roses well for the treasures, tenderly cared for during the long voyage, not only survived but exist still in many parts of the country. Though the first plantings of hardy old roses were made in the far north, before very long roses were being carried southward, either in the form of seeds, cuttings or plants. The Sweet Brier and the Dog Rose were grown from seed and used as hedging plants. Several interesting varieties of the former, apart from the common type, were introduced. The low-growing, very prickly *R. eglantheria glutinosa* grew on Okiato Point—a spot chosen, in 1840, to be the site of the first New Zealand Government. Here, on a sunny hillside was planted what was probably New Zealand's first true rose garden. Favourite roses were brought out from the old country and included Gallicas, Damasks, Centifolias and China Roses, as well as the uncommon *R. roxburghii*, or the 'Chestnut Rose', *R. eglantheria agrestis*, the 'Grasslands Rose', was planted in the hillside cemetery near Tararu overlooking the Firth of Thames, its neighbours being Gallica, Noisette, Tea and Hybrid Perpetual roses. Further south, in milling areas of the King Country, the small-flowered *R. eglantheria micrantha* was much in evidence. It was in this same area that enormous stands of the comparatively modern Wichuraiana hybrids were seen frothing out over fallen trees and stumps in a riot of colour. One of the best was 'Albertine' which grew through bracken and stumps on a hillside overlooking Lake Taupo. An old timber mill had stood there.

But let us return to the north to admire the common Dog Rose, *R. canina coriifolia* or the 'Leather-leaf Rose'. It did not multiply as menacingly as the Sweet Brier, and its small, pink-tinted flowers and greyish foliage can still be admired in some areas. Both the Sweet Brier and the Dog Rose have showy hips, rich in Vitamin 'C'—this medicinal quality being of great value in the early days of the colony. A white, Crimean form of this same Dog Rose was one parent of the 'White Rose of York'. The simple beauty of such roses, and their delicate perfume, must have helped to ease the homesickness of many an early settler's family.

Though whalers and traders came to this country before the missionaries arrived, it was these dedicated men and women who, about 1814, brought to our shores small potted plants of the first true garden

roses—the 'Red' and 'Pink China Roses', which can still be seen in old gardens and cemeteries, and even in hedgerows. Considering New Zealand's isolation at that period, this was a remarkable feat, as these same small roses had only arrived in Europe from the Far East right at the end of the eighteenth century. Their introduction there caused a stir in the rose world of those days, for it was this strain which helped to create the free-flowering roses we all enjoy now. Soon other old rose types appeared on the scene and were planted along the much-used waterways and in milling, mining and trading settlements.

These treasured favourites belong to the Gallica, Damask and Centifolia families, and many have survived to this day, often in spite of sheer neglect, their rich scents and unusual colouring making them cherished possessions. Particularly loved were the aromatic, mossy varieties of *Rosa centifolia*. One famous introduction was the 'Pink Four Season's Rose', an Autumn Damask. This and a red form were, until the advent of the China Roses, the only roses in the west that flowered recurrently. This Damask found its way to many parts of New Zealand. It did particularly well at Te Ngae, an early mission station on the shore of Lake Rotorua. A Maori woman admired it greatly, so she took cuttings and planted them as a hedge at her home by Lake Rotoiti. At a certain period, a number of bushes of the 'Pink Four Season's Rose' must have sported, producing white, mossy blooms on some branches. When grown apart from the parent, the new rose became known as *R. damascena bifera alba muscosa*, or the 'Perpetual White Damask Moss'. Interest was aroused when it became known that similar sporting had occurred, about the same time, both in the United States and in England.

Before the roadway was made in front of the old Kemp home at Kerikeri, a vigorous hedge of the 'Double White Banksia' and Félicité et Perpétue' grew near the seashore, protecting the garden from salt-laden air. Though the hedge is no longer there, fine stands of these roses grow in the Bay of Islands area, as well as enormous plants of the 'Dundee Rambler'. This was an early hybrid of the 'Field Rose of England', *R. arvensis*—the other parent being the lovely *R. x noisettiana*. It also was introduced into New Zealand long ago, and still grows vigorously, flowering in the middle of winter. When *R. x noisettiana* was crossed with the earliest Yellow Tea Rose, some amazing climbers were produced. One beauty, bred in 1830, was 'Lamarque'. It came out to New Zealand in the form of cuttings. These were packed in moss and sealed thermetically in metal surveyor's tubes. Amazingly, they rooted well, and were soon being sold at Auckland's earliest nursery—Mont Pellier. At Pa Mairie in Whangarei, this nurseryman's niece planted 'Lamarque', the Banksias, *R. fortuneana* and 'Cloth of Gold'



'Lamarque' ascends through birches

Photograph—Nancy Steen

under the trees in her orchard and what a joy they were to this old rosarian! A decade ago, these climbers were still flourishing, their yellow and white blooms shining out against a clear blue sky, for by this time they had scrambled up through the large fruit trees. A much loved garden, it was a treasure house of unusual roses. Tea Roses, bred in France, were laden with bloom and a number planted on raised banks, cascaded down in a very delightful manner. Maori warriors used a track alongside the old garden when they went to collect their canoes before setting out on a raiding party. In another northern garden, full of old Hybrid Perpetuals, we found a fine Portland Rose, 'Jacques Cartier', which was named in honour of the great French Navigator—the discoverer of the famous St. Lawrence Waterway. This rosy, richly scented beauty, bred in 1868, is still a fine garden plant.

The low-growing *R. gallica officinalis*, or the 'Red Rose of Lancaster', grew on an old grave in Grafton cemetery before being swept away by bulldozers. The semi-double red blooms, with prominent stamens, created a delightful picture as they peeped out from amongst the white, pink-tipped, cherry-like blooms of 'Adelaide d'Orleans'—a rampant climber which hugged the ground when unsupported. Further

over, the same rose had as a companion plant, the double, blush-pink *R. carolina plena*, a native of North America. This unusual rose was found also on the West Coast of the South Island.

Widely spread stands of the suckering Hybrid Gallica, 'Anais Ségales,' abound. In milling and mining areas, by roadsides and river banks, and in very old gardens and cemeteries, this rose still attracts attention; but it must have been loved by early settlers for its rosy-purple flowers fade to a subtle, bluey-mauve, making an attractive picture in early summer. A hedge of 'Anais Ségales', grew at the rear of a very old house near a disused mill site far down Coromandel Peninsula where it had been lovingly cared for by an elderly Maori. Near Rangiriri, scene of early battles during the Maori Wars, 'Anais Ségales' grew for quite a distance along the fence line bordering the main highway. 'Charles de Mills', another Gallica hybrid, was not as noticeable in the north; but it grew freely near Akaroa, as well as in the Marlborough and Nelson districts where beautiful stands of it could be seen and its large, flat, rosy-purple flowers admired.

Most people know the single, white form of *R. multiflora*—New Zealand's main stock rose; but several other types arrived here before it in the early days, *R. multiflora carnea* being one of the first. It was considered to be a natural hybrid between 'Old Blush China' and *R. multiflora cathayensis*, with pink-tinged, single flowers. It, and a semi-double form *R.m. calva* as well as *R.m. carnea* survive out here, mostly in ditches, hedges and along roadsides. A famous, rare variety, *R. multiflora platyphylla*, the 'Seven Sisters' or 'Grevillea Rose' was growing on the banks of a muddy stream near Kaeo—streams taking the place of roads in those far-off days. This unusual rose, treasured and introduced by some early settler, has handsome rugose leaves, an inheritance from a rugosa ancestor, the large clusters of flowers having been bequeathed to it by *R. multiflora carnea*. These blooms, multi-coloured, range from cream, through pink shades to mauve, cerise and purple tones.

The Musk Rose, famed in poetry, was brought into the country long ago. Both the Persian and Himalayan forms arrived out here as well as hybrids. One memorable stand was on a steep hillside near Thames, where great frothing, bloom laden bushes cascaded down over native trees and bushes. There were double and single types, some being white, others pink and yellow. One outstanding bush turned out to be *R. polyantha grandiflora*—a natural hybrid with magnificent blooms and vigorous growth. Down the Wanganui River, in a quiet valley, were fine bushes of the Himalayan Musk, while the Persian Musk grew in a heavily wooded valley not far from Otoko.

By the time the mid-nineteenth century had arrived, roses were



'Albertine', a Hyb. Wichuraiana, overlooks L. Taupo

Photograph—Nancy Steen

well established all over the country—roses of every type. There were China Roses, Tea Roses, Noisettes, Bourbons, as well as the sturdy, large-flowered Hybrid Perpetuals—which were bred from all these roses—giving these strong-growing roses a very mixed ancestry. 'Baronne Prévost', bred in 1843, grew in old cemeteries; a number that were brought out to New Zealand are being sold still—a very good testimonial. Among their number were roses such as 'Paul Neyron', 'Ulrich Brunner', 'Général Jacqueminot', 'Prince Camille de Rohan', and 'Souvenir du Doctor Jamain'. By 1860, nurserymen were selling a wide variety of old roses. By 1867 'La France', the first of the great race of Hybrid Teas had appeared—a type of rose that has retained its popularity for a hundred years, though now it has a strong rival in the free-flowering, showy Floribunda, a rose that would have amazed and enchanted our early settlers.

All through the 19th century, and even much later, roses could be brought into the country without a permit; and many and varied were the types brought to this southern country over the long sea route. Their hardiness was undoubted; but the new country, with its temperate climate and rich soil, suited roses admirably as overseas visitors to the 1971 International Rose Convention will surely testify.

THE ONES WE NEVER HOOKED

By DOUGLAS ELLIOTT, F.R.I.H. (N.Z.), New Plymouth

THIS article is a sequel to my notes in the December, 1970, Journal on "the ones that got away," the good plants nurserymen no longer stock.

Now I will discuss some attractive plants often mentioned in overseas books and catalogues, which, so far as I know, are not available from New Zealand nurserymen. Some, possibly many, of them are being grown in private collections.

Golden-leaved trees are popular in this country—Golden Ash, Elm, Poplar, Elder, and the many golden conifers—so it is surprising that we can't buy two that are highly rated in England and the United States. They are a *Gleditschia* and a *Robinia*.

Even the typical green *Gleditschia triacanthos* is rare here. It bears the common names of Three-thorned Acacia and Honey Locust. The branched thorns, three to twelve inches long, sound unpleasant but surely they wouldn't daunt a keen gardener.

W. J. Bean, in his "Trees and Shrubs Hardy in the British Isles," says this North American tree "deserves to be more planted than it is, not only for its interest but for the beautiful fern-like foliage, which turns a clear bright yellow in autumn."

Although that sounds like a desirable specimen tree, it is the variety called the 'Sunburst Locust' that I'd especially like to see.

Colour pictures show it as a very elegant tree on which the new leaves are glowing yellow. An American catalogue says, "Throughout the growing season the yellow tips and leaves persist". It has been available overseas for several years.

Robinia pseudoacacia, commonly known as False Acacia or Locust, grows freely in parts of this country. Groves of it give the name to Acacia Bay on Lake Taupo. The round-headed tree with its arching branches has an interesting silhouette. The white Laburnum-like flowers attract bees.

There is surely no reason why the golden variety should not grow here equally well. It is called 'Friesia' and, in a colour photograph, looks much like the Golden Ash (*Fraxinus excelsior* 'Aurea').

According to the description given in the catalogue of Hillier and Sons, Winchester, England, it is "an outstanding novelty, which arose in Holland. Leaves rich golden yellow from spring to autumn, creating a vivid splash of yellow in the shrubbery or arboretum."

I would also like to see the upright form of False Acacia, *R.P.* 'Fastigiata'. It looks like the Lombardy Poplar, grows quickly and, unlike the normal False Acacia, has no spines.

A golden-leaved shrub that looks well in photographs is a variety of Elder, *Sambucus racemosa* 'Plumosa Aurea'. You probably know

the golden variety of the common Elder; 'Plumosa Aurea' is like it but the leaves are finely cut. If it bears the typical red berries it should make a striking picture in autumn.

Now I come to two shrubs that are useful in coastal gardens. Both have odd names.

The first is *Atriplex halimus*. Writing about this native of Southern Europe, Bean says: "A vigorous, semi-evergreen shrub, 4 to 8ft high, of loose bushy habit, the whole plant has a beautiful silvery grey aspect." The flowers are green and apparently of little interest. Bean says it is one of the best seaside shrubs. Even when burned by salt-laden winds, it always grows again.

The second seaside shrub with an odd name is *Hippophae rhamnoides*. This is the Sea Buckthorn, a native of Europe including Britain. It is an attractive deciduous shrub sometimes growing into a tree 30 to 40ft high. The younger parts of the plant are covered with silvery-grey scales; the twigs are stiff, many of them spine-tipped. The top surface of the narrow three-inch-long leaves is grey-green, the lower surface silvery.

The insignificant flowers are followed by thickly clustered bright orange berries.

Once again Bean is enthusiastic. He says, "Its beauty is so striking that it ought to be indispensable to every garden where winter effects are desired."

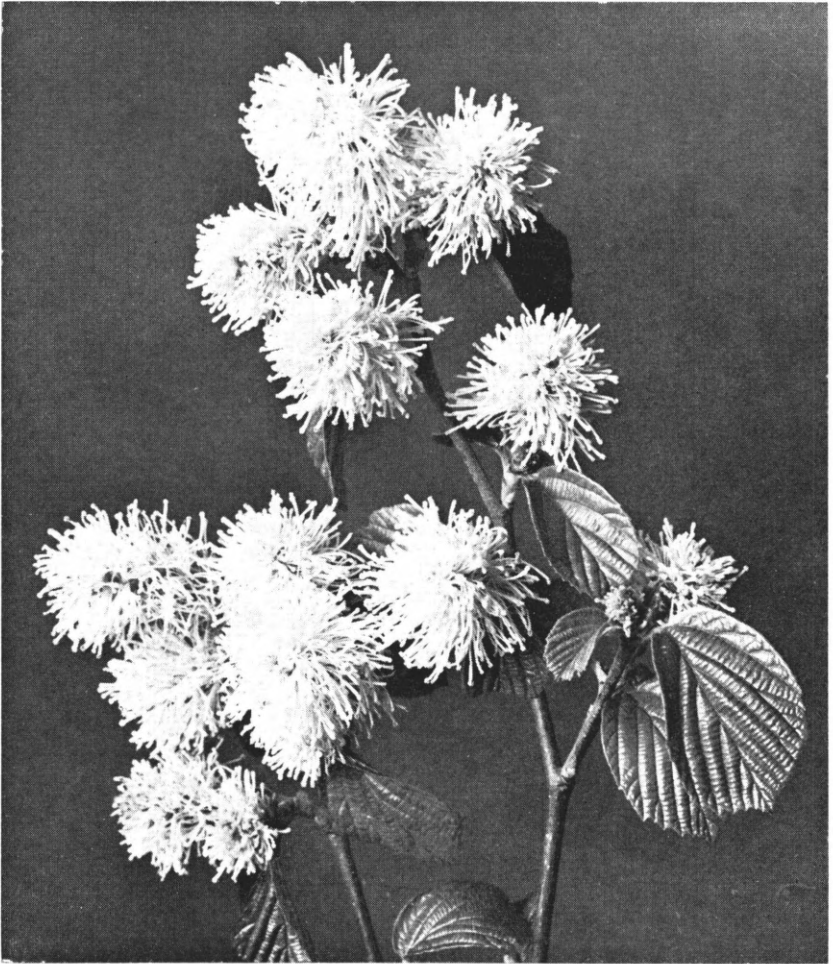
Although it has special value near the sea, it also thrives in inland gardens. A pair must be planted to produce fruit, a male and a female. According to Bean, birds will not eat the berries.

Fothergilla major is a shrub that was hooked by English gardeners as far back as 1780 but then got away as it was apparently lost to cultivation until 1902 when it was re-introduced to Kew from Arnold Arboretum. It is a native of the eastern United States.

I have seen, in this country, a small specimen about 2ft high; even at that size it was very attractive with its fluffy white flowers—a mass of white stamens—in spring. The leaves turn golden-yellow in autumn. The plant is capable of reaching a height of 6 to 10ft when it must be really spectacular.

A *Luculia* that has received two awards from the Royal Horticultural Society (the popular *Luculia gratissima* has received none) should be worth importing. It is *L. pinceana*, a native of India. Hillier's catalogue says it is "a beautiful semi-evergreen with delicately-scented almond-pink flowers."

The R.H.S. Dictionary of Gardening says it has bigger flowers than *L. gratissima*. It is not new, being introduced in 1843. It flowers in early summer and autumn and so would not overlap the flowering season of *L. gratissima*.



Fothergilla major.

Photograph—Douglas Elliott

Among the many perennials not commonly grown here is the curious Burning Bush, *Dictamnus albus*, which is also known by the attractive names Dittany and Fraxinella.

On a hot summer day the upper part of the stems gives off a volatile gas that bursts into flame when lit with a match. The conflagration leaves the plant, including the pretty flowers, unharmed. The flowers may be white or lilac.

The plant has another strange property: if you rub it gently it smells of lemons; if you bruise it it smells of balsam.

Burning Bush grows about 18in high and produces its flowers in long racemes.

I once tried raising this intriguing and pretty plant from imported seed but with no luck at all. I have since read that the seed should be sown as soon as ripe; so mine was probably stale. The seedlings take three or four years to reach a good flowering size.

The R.H.S. Dictionary says the plant grows easily in ordinary garden soil in a rather dry place; it should be left undisturbed.

If nurserymen write in to say they have stocks of any of these plants I shall be somewhat embarrassed but also highly delighted.



DIVIDEND FROM BANKS LECTURE

Dr Cooper and your Editor were delighted to receive some skinless peas (*vide* last line page 109, R.N.Z.I.H. Journal, June 1971) through the agency of two Hamilton ladies; Mrs R. Harris who enclosed the peas, and Mrs M. A. Goldsack whose garden supplied the peas. The latter states:

"These peas have been grown in our family for almost 100 years. My father (J. Litchwark) has had them as tall as 12ft. They have a purple colour flower. When cooking peas cut up like beans. At present (July) I have some about 4in high. M. A. Goldsack."

Apparently these were fairly common in the Waikato at one time but being subject to mildew many folk gave up growing them. However, both Dr Cooper and your Editor intend to try them out this year.



ORGANISED GARDEN TOUR

OCTOBER 16-17, 1971

The Waikato District Council invites members (and friends) to participate in an Organised Tour of gardens and other places of horticultural interest, in and around Hamilton, on 16 and 17 October, and Rhododendron Show, Te Awamutu.

Saturday, 9 a.m.: By bus to Te Awamutu, visits to private gardens, returning via Mona Vale and Cambridge. Picnic Lunch. 8 p.m.: Social Function.

Sunday, 9 a.m.: Visits to private gardens in Hamilton; Lunch at Lake; Rukuhia Soil Research Station; returning to Hamilton 4 p.m.

Cost of Tour: \$6.00—members must make own arrangements for travelling to and from Hamilton, also for accommodation; Hotel and Motel lists obtainable from the Public Relations Office, Hamilton.

Enrolments: To Mrs L. M. Nicholson, P.O. Box 145, Hamilton. To be made by 8th.

INTRODUCING ROSA

THE FLOWER OF ROSEWORLD '71

"We all love a pretty girl—under the Rose."

—Isaac Bickerstaffe (1735-1812).

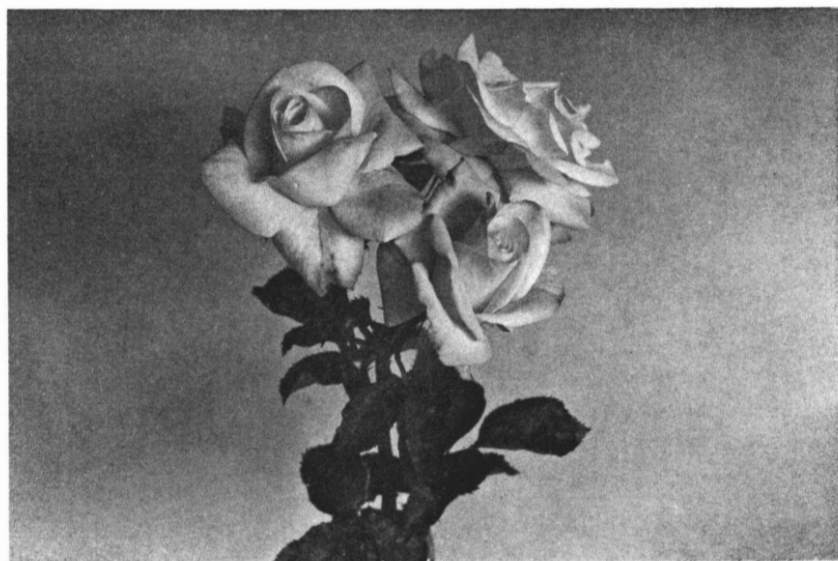
THE ROSE is the best known member of the Rosaceae (or Rose Family) to which it gives its name and it also give its name to the plant order to which the Rose Family belongs, the Rosales. The Rosaceae includes over two thousand species (H. M. Allan in "Flora of N.Z." says 3,000 spp.) in over one hundred genera mainly in the form of trees, shrubs and herbs, and it is a family of great economic importance, as well as aesthetically, for it includes many of our best known temperate zone fruits such as the apple, apricot, peach, plum, raspberry and strawberry. It also has lesser known fruits such as the medlar and the loquat within the family fold and the all too rampant blackberry. It is mainly a Northern Hemisphere family poorly represented in Australia and N.Z. and though *Rosa* itself is indigenous throughout most of the northern temperate zone it has not been found in the indigenous floras south of the Equator.

Though grown mainly for its flowers and not even the largest member of the Rosaceae (estimates of *Rosa spp.* range from 100 plus to approximately 250, whilst one publication gives *Prunus spp.* as approximately 430) the Rose has so endeared itself to mankind that it gives its name to the family. Strangely in the main languages of the world there is no great variation in the spelling of the word rose.

Nevertheless though we regard the Rose as being grown only for its decorative flowers it has many other uses. It provides fine ornamental shrubs, screens, hedges and climbers to cover walls or to scale a derelict tree. Many have ornamental fruits, foliage and stems and it provides a bedding plant without a peer. The hews are noted not only for their ornamental value but have a high vitamin content. They may be dried, provide soup, cooking extracts or rose hip syrup for baby: The use of the petals are legion. They have been used for the marriage bed, for jelly, jam, sandwich fillings, rose water, wine, in candied form as sweetmeats, paints and perfumes. In fact the production of Attar of Roses is big industry in Central Europe and in India. They are even used to produce rosary beads for the devout. The flowers may be preserved whole or as buds or you may use them as an important ingredient in Pot Pourri.

Audrey Winn Hatfield sums it up admirably in her book, "Pleasures from Herbs".

"The Rose has been the most beautiful and exploited of useful herbs since early man found it was good to eat, drink and smell; to wash



Rose 'Tiki' raised by Sam McGredy IV

and perfume his body; to ease many maladies and it was good to meditate upon; to wear and to offer a homage to earthly and spiritual love. He dedicated it to his lovers and his gods and entirely enjoyed it."

The modern history of the Rose began in 1857 when Dean Hole organised the first National Rose Show in London. This event became annual and led to the formation of the National Rose Society (now the Royal National Rose Society) in 1876; this was not the first rose society in Britain but it was the world's first *national rose society*. The first in the South Pacific area was the National Rose Society of Victoria formed when the twentieth century was but six days old. This was followed in due time by similar groups in all the Australian States. Our own N.R.S.N.Z. was formed in Auckland in 1931 as the result of an address given by Mr H. Morse, an eminent English rosarian, to members of the R.N.Z.I.H. in 1929.

The rose has been one of the most popular flowers of mankind for many thousands of years and this interest continues unabated to this day. In fact, if anything, it has increased greatly in favour over the last century. However the planting of roses in gardens is comparatively new as fossils of roses believed to be over 35,000,000 years old have been found in Europe, Asia and North America.

Not unnaturally it has figured prominently in mythology, folk lore, legend and old wives' tales and we give the following examples. The

legend of the origin of the rose comes from ancient Greece. Flora, the Goddess of Flowers, finding her favourite nymph dead appealed to the Gods of Olympus to transform the corpse into a flower surpassing all others in beauty. In response Venus bestowed form, Apollo gave light, Bacchus nectar, Vertumnus perfume, Pomona fruit and Flora herself, colour. So the rose was created.

The Rose, the emblem of love, was given by Cupid as a bribe to Harpocrates, the God of Silence, to obtain secrecy for the meetings of the other gods. Hence the Rose became the symbol of secrecy and the traditional flower to be suspended from the ceilings of chambers where clandestine meetings were held and this is the origin of the term *sub rosa* which means *in confidence* or *under express or implied pledge of secrecy*. Also the ceiling ornamentation known as a rose derives from this though often bearing no resemblance to one.

Sappho, the Greek poet, first used the title "The Queen of Flowers" about 600 B.C. and this still holds good today.

Our modern garden roses consist of mainly Hybrid Teas and Floribundas, many available in both dwarf and climbing forms, but miniature roses, species and species hybrids, old fashioned roses and shrub roses are becoming ever more popular among rosarians. To the man in the street "Rose" still means the large, traditional, shapely, three dimensional rose, best grown and displayed as a specimen flower (i.e. disbudded to one bloom per stem) though the cluster flowered types such as the floribunda are becoming popular for bedding and to provide accent spots in the garden. A few such as *Rosa moyesii* and *Rosa rugosa* bear striking hedges that provide winter colour and material for winter floral art.

Why are the roses so popular with the masses? Firstly because of the great beauty of the flower, its form, colour and sometimes perfume, secondly ease of culture; thirdly an excellent return of flower for the modern rose will bloom recurrently over a period of 6 to 8 months of the year in temperate climates; fourthly, good value for your money. Even at today's prices roses represent the best buy. Remember you are buying a flowering shrub and how many of those may be bought at less than a dollar each.

Not unnaturally industry and commerce have not been slow to adopt the rose to promote their products and you may not only buy ceramics and cloth bearing rose motifs but you will find them strewn all the way through this field. You may be reminded constantly all day long of this "Queen of Flowers" during varied activities such as drinking ship's lime juice from rose embossed bottles to bathing with rose scented soaps and using rose adorned towels. Yes, constantly that most wonderful flower, the Rose, is being brought to our notice **and we love her.**

THE IMPROVEMENT OF NATIVE PLANTS

by L. J. METCALF N.D.H. (N.Z.), Assistant Curator, Christchurch Botanic Gardens.

In this article it is not intended to go into any great detail about the actual breeding of plants or mention any secret methods, but rather to review the garden varieties or cultivars of our native plants and mention the methods by which such plants have arisen, or can be produced.

In the minds of many gardeners our native New Zealand flora suffers quite a bit in comparison with floras from some other countries. In foliage and form many of our plants reign supreme, but in floral beauty they are often not comparable. However, the position isn't as bad as many people think, because the exotic plants we grow in our gardens are the best selected from other countries—generally we don't see the nondescript ones and also many of these plants have been further improved by a process of selection or hybridisation. We have become so used to these plants that they're accepted as the normal representatives of their countries, whereas many of the native plants we grow are straight out unselected wild forms which have had no attention from discerning gardeners.

As far as I can find out, the first artificial hybrid involving New Zealand plants, is the shrub we grow as *Hebe* 'Andersonii'. This was raised by a gentleman named Isaac Anderson-Henry of Mayfield near Edinburgh, Scotland. The actual date when it was raised is in doubt, but it was first exhibited at the Royal Horticultural Society in 1849; however, it does show that overseas gardeners were quick to appreciate the possibilities of hybridising New Zealand plants. *Hebe* 'Andersonii' is the result of using the napuka or *Hebe speciosa* as the female parent and the koromiko or *H. salicifolia* (in its former wide sense) as the pollen parent. Isaac Anderson-Henry also raised at least one other cultivar, again using *H. speciosa* and crossing it with *H. decussata* which is the South American form of our kokomuka or *H. elliptica*. This hybrid is now known as *H. x franciscana* 'Blue Gem'.

While it isn't strange that the first artificial hybrid, involving some of our native plants, originated overseas, it is strange that gardeners in this country, who are interested in the cultivation of native plants, have not been quicker to seek their improvement by hybridisation or other means. Most of the systematic work on the breeding of new cultivars from New Zealand plants has been done overseas, while most of the cultivars of local origin have been of chance occurrence and not the result of somebody's systematic hybridising or breeding.

As well as catching the eyes of British gardeners, the genus *Hebe* also appealed to the French who did some hybridising on their own



Dr. Lammerts, hybridist of roses and camellias, bred *Leptospermum*
'Red Damask'

account, so that some of the best cultivars in the genus owe their origin to the skill of gardeners in those two countries.

However, what is probably the most spectacular breeding to have been undertaken with New Zealand plants, is the crossing by which Dr W. E. Lammerts of California produced a number of fine cultivars of manuka or *Leptospermum scoparium*. Although several good cultivars of *Leptospermum* were already in existence they were mainly of chance origin, and it wasn't until Dr Lammerts began his work that the possibilities of crossing the various cultivars began to be realised.

In the spring of 1939 (Northern Hemisphere) he crossed a semi-dwarf, double pink cultivar of *L. scoparium* with the crimson flowered 'Nichollsii'. Eventually he obtained seven seedlings in the F₁ generation, which with exception of one, all had white or very pale pink flowers. From three of these F₁ seedlings he collected seed resulting from uncontrolled pollination and eventually planted out a total of 30 seedlings of the F₂ generation. When they flowered these F₂ seedlings showed a remarkable array of forms, some having flowers which were more completely double than the original double pink, while others had flowers which were of a darker colour than *L. 'Nichollsii'*, the other parent. Some of the other notable features of these seedlings, were the compact habit of some, their profuse blooming, and in others the large flower

size. From the 830 seedlings he selected some two dozen as being worth retaining and it is from these that we get the well known and popular cultivars such as 'Red Damask', 'Scarlet Carnival', 'Snow White', 'Aurora' and so on.

This raises the question of the origin of the native bird series raised by Duncan and Davies of New Plymouth. As far as is known they were apparently just the result of gathering some seed from a dwarf plant they had in cultivation, rather than any deliberate attempt at cross pollination with dwarf plants.

There are two methods whereby plants are improved for cultural purposes—by selection and by hybridisation.

Selection is the easiest and offers the least amount of work. In fact plants arising by selection are very often of chance occurrence on wild or cultivated plants and only await some observant gardener to find them. Sometimes plants which are known to be variable can be raised from seed in quantity and from the seedlings it is possible to select superior or improved forms.

Quite a number of cultivars of our native plants have arisen in this chance manner, either as branch sports or seedling mutants. The purple leaved Rangiora (*Brachyglottis repanda* 'Purpurea') was almost lost to cultivation but for the observant eye of a bushman. It is said to have been discovered somewhere up the Wanganui River by a Mr W. Raymond who cut it down before he noticed the purple colour of the leaves. However, he took cuttings into Wanganui where they were grown and distributed by the late Mr F. W. Walker.

The purple ake ake (*Dodonaea viscosa* 'Purpurea') is another which could have easily disappeared before anybody noticed it. It was discovered in the early 1890s, on the banks of the Wairau River in Marlborough, by a Mrs Thomas Wilkins. Mrs Wilkins was a keen gardener and she collected some seeds from the plant and grew them in her garden. The plants grown by Mrs Wilkins eventually came to the notice of a Christchurch nurseryman who obtained a quantity of the seed and put plants on the market. The original plant was eventually washed into the Wairau River during a flood and disappeared. Had it not been for Mrs Wilkins we would have probably not had this plant in our gardens today. The version of the discovery of the purple ake ake as given by R. E. Harrison in his books on trees and shrubs is not quite correct — the discovery erroneously being attributed to Mrs Wilkins' daughter sometime in the 1930's.

The yellow-flowered pohutukawa (*Metrosideros excelsa* 'Aurea') owes its origin to two trees which were discovered on Motiti Island in the Bay of Plenty. Cuttings were taken from one of the trees and eventually plants were distributed for cultivation. It's a comparative newcomer and was only discovered about 1940.

The yellow-flowered *Rhabdothamnus*, or taurepo, has had a rather more chequered life. It was first discovered about 1921 on the property of a Mrs Osborne of Tryphena Harbour, Great Barrier Island. For some strange reason it was never propagated, and a few years after its discovery it was washed away by a flood and was thought to be lost forever. However, in the late 1930's another yellow-flowered plant was found by Mr V. C. Davies on the property of a Dr Blackley on the northern slopes of the Kaitake Range near New Plymouth. Mr Davies being the keen plantsman that he is, took cuttings from this and grew them, which was very fortunate, because the next year a bush fire destroyed that plant also.

The origin of the beautiful variegated flax which is so commonly grown nowadays, *Phormium cookianum* 'Tricolor' is also quite interesting. This cultivar was discovered in the late 1880s in the Wairarapa district of the North Island. A Mr. Summers, who was head gardener at Brancepeth Station, noticed it growing on a steep bank of papa clay above the Wainui-oru River in that district. It's said that Mr Summers was so keen to obtain the plant that he had himself lowered on the end of a rope so that he could dig it out.

When giving the history of the yellow-flowered *Rhabdothamnus*, a Mrs Osborne of Tryphena Harbour, Great Barrier Island, was mentioned, and either the Osborne family was very observant, or maybe Great Barrier Island is a particularly good place for finding plant variants, because at least two other cultivars are recorded as being found by the Osbornes. One was a white flowered form of *Pittosporum crassifolium* which is apparently no longer in cultivation, and the other a form of lacebark or *Hoheria populnea*. Known as *H. populnea* 'Osbornei' it has bluish-purple stamens and purplish undersides to the leaves.

There are still plenty of such selected forms or mutants arising and it only requires observant people to see them and obtain propagating material so that they can be brought into cultivation. Some of the native plants that we grow are by no means the best forms available, in fact some are rather poor, and it requires the co-operation of nurserymen, and others, to ensure that only the best types or forms are grown and distributed.

As has already been mentioned, most of the systematic hybridising with our native plants has taken place overseas, and although there have been some first class hybrids of local origin they have mainly been of chance origin.

Take Hebe 'Fairfieldensis' for example. Apart from the fact that it's frequently grown as *H. hulkeana*, it's a very fine plant. In fact in many ways it's superior to *H. hulkeana*. This plant is a hybrid between *H. hulkeana* and *H. laudiana* and it originated in the nursery of a

Mr Martin at Fairfield near Dunedin sometime prior to 1890. Another hybrid involving *H. hulkeana* is *H. 'Hagleyensis'*, which needless to say originated in the Christchurch Botanic Gardens. The other parent in this case was *H. raoulii*. This plant was discovered by Mr Wattie Brockie who was in charge of the native plant section at the time. Plants of the two parents were growing in close proximity and growing near one he discovered a spontaneous seedling which when grown on turned out to be *H. 'Hagleyensis.'* He intended that it should be called *H. 'Hagley Park'*, but that name was never published and when the plant eventually made its appearance in a nursery catalogue it was as *H. 'Hagleyii'*. Apart from the fact that the epithet "Hagleyii" should be corrected to "Hagleyensis", this is the name by which it must be known.

A more recent Hebe cultivar which is now widely grown, but again of chance origin, is *H. 'Inspiration'*. It's a presumed hybrid between *H. speciosa* and *H. diosmifolia* and came into prominence just a few years ago. It's quite a good low growing shrub and is especially suitable for seaside areas.

Not all hybrids have arisen in a completely casual manner and some have had little human guidance. Two or three years ago some new *Coprosma* cultivars came on to the market and there's quite an interesting story concerning their origin. These plants were raised by Mr Brockie when he was in charge of the Otari Native Plant Museum in Wellington. I cannot do better than to quote his own words concerning their origin. "One of the large rocks, from the foreshore of Wellington Harbour, used to build the rock garden at Otari, had a deep fissure in it and out of this fissure grew a seedling of *Coprosma repens*, the taupata. It grew and eventually produced berries. Most of the berries eventually dropped onto a six inch wide shelf of soil at the base of the rock and about a dozen seedlings, all alike, came up the following year. They were not like any *Coprosma* I was acquainted with and I kept four plants, planting one in the rock garden and the others in a shrubbery. The one in the rock garden was a female and it was from self sown seedlings of this plant that I selected six plants for naming. There were a few others, but less attractive". The names he gave to the six seedlings were 'Brownsleeves', 'Greensleeves', 'The Shiner', 'Coppershine', 'Lofty', and 'Robin'. The plant he called 'The Shiner' was named after a colourful back country character of that name, but unfortunately when the name appeared in the nursery catalogue the "the" was dropped and it was called simply 'Shiner' thus completely altering the meaning of the name.

So much for casual hybridisation; however, deliberate or systematic hybridisation is a different story. To be able to do this properly several things are necessary. A fair amount of skill in the actual techniques

of cross pollinating plants is required. Not all plants are easily crossed and it's necessary to know when to pollinate (sometimes several successive pollinations of the one flower are necessary), when to emasculate the flower, or whether emasculation isn't necessary, and occasionally there are special little tricks, or items of know-how concerned with achieving a successful pollination.

In addition to that, the worker has to know something about the laws of heredity and what results he can expect from certain crosses, and at the same time build up a knowledge of the individual characteristics of the plants with which he is working. It's probably not necessary to say that in the initial stages, while in the process of building up this knowledge, the results can be very disappointing.

For a number of years now, a certain amount of hybridising work with some of our native plants has been carried out in the Christchurch Botanic Gardens. The objects of this work have been twofold (a) to try and produce some new and worthwhile plants for the garden. (b) to learn something about the hereditary characters of the plants with which we have been working. A lot of what has been done, has been largely exploratory and we've had our share of disappointments, however, as hope springs eternal in the human breast the work still continues. The facilities for such work are rather limited and time more so, but even so it is surprising what can be done.

Most of the work has been done with woody plants and, of course, this can be a very long term project as some of them may take 3-4 years or even longer before they reach the flowering stage.

Perhaps not surprisingly one of the first plants worked on was *Leptospermum*. Methods similar to those used by Dr Lammerts were tried, but with very disappointing results. One of the first crosses was 'Rose Gem' x 'Red Damask' and out of 84 plants, 25 showed some form of doubling, but there was nothing worth keeping. However, from that cross, a very much better idea of what to expect was obtained.

The work on *Leptospermum* continued, and with the idea of producing some dwarf doubles further crosses involving 'Nichollisii Pygmaeum' x 'Cheryl' and 'Rose Gem' x 'Ruru'. So far there has been no real success, but possibly this line may be pursued yet further.

Most of the present work has been with *Hebe*, particularly species of the "Paniculatae" group. Some of this work has revolved around proving the parentage of the two hybrids—*H.* 'Hagleyensis' and 'Fairfieldensis', together with making back crosses between the hybrids and one or the other of the parents. The results have been very interesting but much remains to be done. The greatest drawback is that only a limited amount can be done at any one time.

To a lesser degree some hybridising or crossing has been done with *Phormium*, *Clianthus*, *Parahebe* and *Wahlenbergia*. This is a large and intensely interesting field, beyond the capabilities of any one person, and it is to be hoped that others will accept the challenge.



To the Editor

Camellia granthamiana

A camellia not often seen in Wellington made its appearance this year. It was *Camellia granthamiana* imported and distributed some years ago by the Rhododendron Association. The first camellia almost to flower, it opens in May and early June in Wellington, the mild frost-free early winter this year giving it a free flowering period. Up to four and a half inches in diameter, the single white flowers have a very pronounced "boss" of central stamens which are a deep glowing orange giving the flower distinction.

L. WOODS.



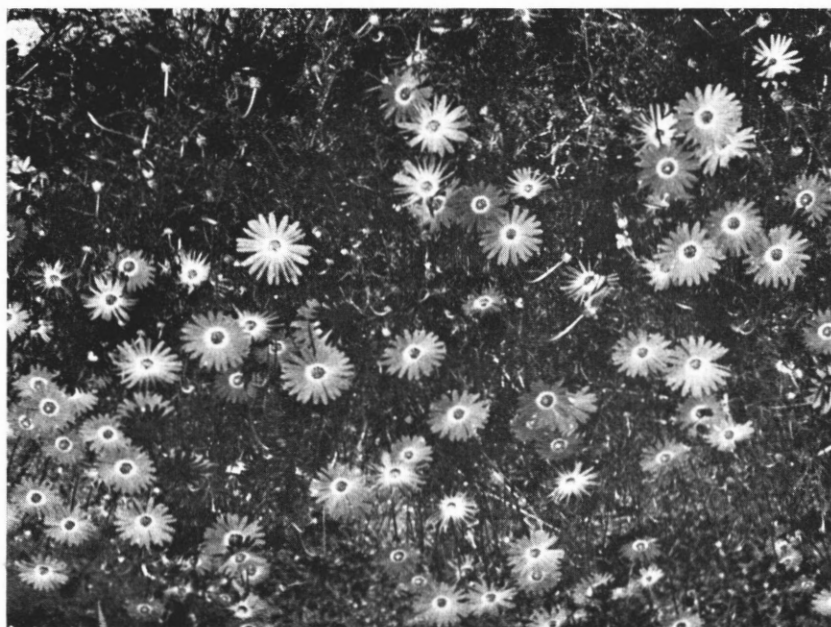
A NEW PLANT

by HUGH REDGROVE, R.D. *Oratia*, Auckland.

In November 1969, I was browsing round one of the garden centres in the Waikato and I came across an orange-red daisy among the rock garden plants. It had one flower, and finely divided foliage in the usual 3in pot, but I was unable to get any more information about it, except the name—*Euryops abortinifolia*. I was surprised about the name for I thought that all the members of that family had yellow flowers and shrubby growth. Nor indeed could I find any species of *Euryops* in my reference books that even remotely agreed with its appearance.

I planted the new plant on a sunny dry bank of well worked clay top-soil and watered it several times. I was surprised how quickly it grew and spread outwards, all the time flowering continuously. Despite the dry summer (1970) it was not long before it covered a square foot, and by the following September it covered a square yard! By this time I had realised that this was a worthwhile acquisition because it was literally smothered in flower buds which opened from the end of August onwards, making a great display right up till Christmas.

In the meantime some cuttings had rooted readily and by October a pan of small flowering plants was ready for the Epsom Show. Many people admired it, but no one had seen it before. No one, that is, until a keen plantsman from Cambridge remarked upon it, and reported



Ursinia chrysanthemoides geyerii

Photograph—Hugh Redgrove

that he himself had brought it into New Zealand—and that its name was not *Euryops*! This was Mr T. K. Butler of Karapiro, who has a garden full of rare treasures that he has imported from various parts of the world. And so the mystery was solved and we knew the plant was really *Ursinia*.

This fiery red *Ursinia* has been introduced to cultivation recently by the South African Botanic Garden at Kirstenbosch. It was originally named *Ursinia geyeri*, but a European botanist soon proved that this was not a valid name with the result that it is now correctly *Ursinia chrysanthemoides geyeri*.

Although flowering prodigiously, I cut back my plant severely and was delighted to see it produce new shoots. They did not survive however, and I put this down to the excessively dry conditions. Most of the *Ursinias* are perennial, although normally treated as annuals in European gardens.

Although my plant has had fiery orange red flowers I have recently seen the colour described as ruby red so it is possible that the colour will be variable. However, it is my guess that this new plant from the Cape will have a bright horticultural future.

ORNITHOLOGICAL FIJI SURVEY 1970

By COLLEEN VEITCH, Gisborne

Thirty-eight members made up the party which flew to Nandi on August 23. From there-on we divided into three parties of 13, 13 and 12, each under a leader and second. Three areas were occupied by each party in turn with all birds being recorded by the leaders, and the result of this survey will be published in the next number of "Nortornis", the official organ of O.S.N.Z.

Arriving at Nandi, we found the hotel garden a blaze of colour, with vivid Poinsettias, Poinciana (Caesalpinia), Hibiscus in variety, Allamanda, Virgilia, and a host of other tropical shrubs, trees and epiphytes. From Nandi, we of Party 'B' went by open charter bus by the Southern or Queen's Road to Suva, a very dusty journey of 140 miles, with unglazed bus windows and unsealed roads. Plantings round Fijian mbures and the many Indian and Fijian schools were attractive with many Crotons, Bauhinia, Hibiscus, etc.

The Suva hotel garden, though neglected had a lot to interest us. Tall Virgilia, Caesalpinia, royal purple Bignonia (Pandorea), in fact all the tropical trees, shrubs and climbers that would fit. Down below in the back garden, trees had been clothed with every island orchid available, so thickly, that identification of the host was difficult. In the garden was a bulb which I'd not seen before, a delightful 12in high member of the amaryllidaceae family, *Eucharis grandiflora*, like a snow-white, green-throated daffodil, but with its six stamens rising from the lip of the cup.

From Suva we went by bus at 7.30 a.m. to Nasauri Airport from which we flew by charter plane to Taveuni Island, south-east of Vanua Levu, and some 130 miles and one hour's flight from Viti Levu. Here the grounds of the airport were well planted, *Allamanda cathartica* var. *hendersonii* being conspicuous with its clear, clean gold blooms and brown buds. From here by bus to Morris Hedstrom's at Somosomo for stores. This store is beside the 180 degree meridian, with its signpost, "Tomorrow" v. "Yesterday". Copra being the only island industry, coconuts dominated the scene at sea-level, with attractive trees such as Breadfruit and Banyan lining the road, and the immediate verge occupied by the deep gold, black-eyed *Thunbergia alata* in masses, up every fence post and tree.

Taveuni, the third largest of the 200 odd Fiji islands is approximately 24 miles long by 8-12 miles wide, and at some 4500ft above sea level; on its summit, is a crater lake containing an island where rare plants are said to grow but which our party did not reach. Party 'A' managed the seven mile scramble and climb through rain forest to the

crater lake, which was on several levels, with the water well down on account of the dry weather, but where deep, very deep. Approximately two acres of deep water were in the crater, which at its lip is about 1 mile x $\frac{1}{2}$ mile. These members brought back a pressing of the deep brownish-red endemic flower, which some said grew on a tall tree and which others said was a climber. It is called locally *Tangimacua*, and slightly resembles a single, fibrous begonia, with leaves, petals, bracts and stems all the same red, but with the seed capsule formed between the two waxy petals and not below, as with begonias.

Our camp at 1200ft was on the track to the Mission dam and water supply, and we were soon settled on the fringe of the rain forest, where trees were so loaded with leaves that identification was often difficult. Ferns collected and pressed here numbered twenty, all different from our New Zealand species. The only familiar one I saw was *Doodia media*.

Fern list from pressings sent to Dr. G. Brownlie of the Botany Division, Canterbury University were as follows: *Diplazium melano-caulon*, *Pteris pacifica*, *Tectaria latifolia*, *Tectaria decurrens*, *Cyathea affinis*, *Bolbitis lonchophora*, *Davallia fijiensis*, *Trichomanes intermedium*, *Cyathea lunulata*, *Loxoscaphe gibberosum*, *Marattia smithii*, *Didymochlaena truncatula*, *Cyathea propinqua*, *Cyclosorus magnificus*, *Nephrolepis exaltata*, *Scyphularia pycnocarpa*, *Orthiopteris papillosa*, *Trichomanes boryanum*, *Arthropteris articulata*, *Asplenium bipinnatifidum*, *Asplenium laserpitiifolium*, *Arthropteris integra*.

The variety, colours and songs of the many birds observed and listed was a joy, even if the Golden Whistler did waken the camp about 2.15 a.m. daily.

While interested in the birds, I endeavoured to make studies of interesting flora during our three-day stay here. This was not easy, as although camped at only 1200ft, we were in the clouds and droplets of moisture are not conducive to easy water-colour work, most of which had to be done in the steamy atmosphere of my tent. Here four studies were made of flowers and berries, namely:

Reullia graecizans, a small, red-flowered plant at about 600ft, probably a garden escape.

Medinilla heterophylla, a bunch of waxy white calyces tipped with rosy-pink petals, which grew straight out of the slender trunk of a tall climber.

Capsicum frutescens, found in masses along the hill track from the Mission.

Hedycarya sp. which was a climber with masses of berries in every stage of development, from green through yellow, orange, vermilion, crimson, to plum.

Numerous epiphytic and terrestrial orchids were found. No book on Fijian flora has been available for some two years since J. W. Parham's book sold out, and a good illustrated one written earlier by Mrs Parham is unobtainable, so that it was necessary to take paintings to Mr Parham for identification, on our return to Suva, where he holds the position of Botanist to the Agricultural Department. He kindly dried all fern pressings and sent them on to Dr. Brownlie for whom I was collecting.

The whole of the rain forest, almost every tree, was festooned with creepers of all sorts, most noticeable being *Mecuna*, the bean vine with its 15in long pods, which cunningly constrict and release one seed at a time, about $1\frac{3}{4}$ in x $1\frac{1}{2}$ in, each as hard as ebony and shaped like the old-fashioned match-box. *Ipomeas* were there in variety—small pink with deeper eye, large and small blue, small white, and a large white which opened at night.

We knew from the information available on Taveuni Island that its average yearly rainfall was 213in there being only one inch difference between wet and dry seasons, so that although somewhat inconvenienced by being flooded out on our last night, it was all taken cheerfully.

The next party flew in that day, and we went off for two nights at Suva, giving us a shopping day. An early morning walk through the area behind Government House, where Government servants live, is most rewarding. Attractive homes, beautifully kept lawns, and such variety of flowering trees and shrubs. One tall shrub, probably a *Dombeya*, instead of the bunch of 20 to 30 pale pink "dog-rose" blooms as has *Dombeya burgessiae*, had one large, frilly pink bloom the size of a camellia.

Flamboyant trees, *Delonix regia*, with their graceful foliage and clear vermilion staminate blooms were delightful, and white and pink *Baubinias* grew to some 30ft.

Back again to Nandi via the Queen's Road by bus, and this time the number of hats pulled well down was noticeable. Past Nandi, and on, and up to the Nasauri Highlands where Pacific Logging (Fletcher's) were really making a mess of the rain forest. A delightful camp here at 2000ft again by a dam and rocky creek with more fern species. Nineteen fresh species were pressed here: *Lygodium reticulatum*, *Blechnum procerum*, *Dicranopteris linearis*, *Diplazium dilatatum*, *Arachnoides aristata*, *Diplazium melanocaulon*, *Culcita straminea*, *Microlepia speluncae*, *Diplazium bulbiferum*, *Tectaria latifolia*, *Arthropteris repens*, *Cyathea alta*, *Coniogramme fraxinea*, *Asplenium unilaterale*, *Lomagramma polyphylla*, *Hypolepis* sp., *Angiopteris evecta*, *Blechnum vittatum*, *Orthiopteris tenuis*.

Besides a colourful fungus, only the following studies were painted:
Hoya diptera (pale greenish yellow).

Psychotria sp. with bunches of shining guava-like berries about $\frac{1}{2}$ in long (again in all shades from green to plum) growing on a slender 10ft shrub, or small tree.

Sauriuaia rubicunda, a slender tree to about 20ft with umbels of delightful shell-pink begonia-like blooms, of which we found three specimens growing on the damp, shaded creek-bank.

At the level of our camp no hoyas were seen, but at another 100-200ft up, one could find fifty plants in an area of as many square yards, in fact in places, adorning nearly every tree. The only one found in bloom was *Hoya diptera*, but as veining differed, there could have been a number of species.

Many terrestrial orchids were noted with linear leaves, others with ovate. All with seed-pods, but a few blooms were found, one resembling broom-rape, which under a X18 magnification hand glass, revealed true orchid blooms $\frac{1}{2}$ in across, with side petals greenish and having maroon midrib, lip pale yellow, and the entire bloom and leaves covered with hairs.

There are about two hundred and seventy fern species in the South-west Pacific, only nineteen of which are also native to New Zealand. At least three tree-ferns, two of them similar in growth, to some 20ft, one having noticeably pale, almost white scales, and the other dark brown. One tall tree-fern with a very flat top, reminded us of our *Cyathea cunninghamii*, or Gully Fern, except for its dark scales. One fern resembled *Blechnum filiformis*, having tiny ground growth, their simple fronds to 10in, and becoming compound as it climbed, each frond being up to 18in long. All pinules waved, and ultimate fronds four times the size of *Blechnum filiformis*.

At this camp we were entertained by a group of Fijian children from the Fletcher camp below us, who sang delightfully and were helpful when setting up camp, and yet so disciplined they did not worry us and there was no pilfering.

Back round Queen's Road once again and another night at Suva before sailing off at 6 a.m. by catamaran for Kandavu, an island 50 miles south of Viti Levu. This trip was truly enjoyable, and the mode of travel a novelty to us all. We chose the village of Nasele, off which we anchored at 2 p.m. and our leader, Archie Blackburn, and his second went ashore to seek permission to land and stay six nights. As the chief had no English, the second chief, Semesi greeted us, and throughout our stay, couldn't do enough for us. It is a very poor village, where they exist chiefly on their own vegetables, fruit and fish, but all was shared with us, the first white people to stay a night at the village, within living memory.

All the Islanders are devout Methodists, and it being a Sunday we all went to Church where an address of welcome was made to "Mr Blackbirds" and his party. Their only sorrow was our electing to camp in the coconuts behind the beach, instead of living with them in their mbures as was their idea of hospitality. Their homes were spotlessly clean and all had flowers round them, some of which I painted although most were exotic. Here at sea-level it is fairly warm so that early morning painting was ideal, leaving me free later to walk the shore and scale the rocky ravines looking at birds. The island is all volcanic, the ravines very steep with piles of huge boulders, up and down which one scrambles. They were dry at this time, but must be raging torrents in a deluge.

Although we penetrated rain forest in several directions only nine fresh ferns were found here: *Schizaea dichotoma*, *Pteris ensiformis*, *Adiantum hispidulum* (N.Z. also), *Cyclosorus invisus*, *Davallia solida*, *Nephrolepis hirsutula*, *Acrostichum aureum*, *Diplazium esculentum*, *Lygodium reticulatum*.

The gardens round mbures provided material to paint, such as: *Hibiscus rosa-sinensis*, the white form, one of the daintiest seen, with its tiny $\frac{1}{4}$ in leaves, and pure white, orange-stamened flowers.

Canna indica covered large patches of flat land bordering the river. *Zephyranthes rosea* grew on the football field. *Allamanda cathartica* romped through trees and shrubs in the village. *Blancanda chinensis*, a tall, slender iris-like bulb with tawny-orange blooms, caught the eye in the gardens round the houses.

Flowers and fruits collected in the rain forest and painted were: *Pseuderanthemum laxiflorum*, with its sprays of delicate periwinkle blue flowers, found on a tall shrub, or small tree. *Hibiscus liliaceus*, its blooms deep gold seemingly brushed nearly all over with burnt sienna, the reverse being plain gold to ochre. *Bleckeria elliptica* was quite startling, having an insignificant cream flower of $\frac{1}{4}$ in diameter, followed by fleshy pointed fruits $1\frac{1}{2}$ in long by 1in wide in vivid shining vermilion, touched with patches of yellow and green. *Hernandia peltata* was of the greatest interest, having small waxy cream flowers followed by seeds developing in real little greenhouses, $1\frac{1}{4}$ in x 1 in. of waxy substance, chiefly white, but with a flush of warm pink, and a $\frac{1}{4}$ in opening showing the partially developed seed which by the time the protection dropped or rotted off was hard and black, $\frac{1}{2}$ in x $\frac{3}{4}$ in.

A change from flower painting was a study of some jewel beetles, only partially immobilised by fly-spray and not willing to stay the right way up to show all the beauty of their iridescent sea-green and peacock blue.

The women of Nasele (Gasele, Ngaseli—many Fijian place-names

have varied spelling) do the fishing for the community, getting an amazing variety of fish, and their method of catching them was of interest. Instead of a long, cumbersome net, one of perhaps 20ft long, held between two women, who stood back to back with other pairs, so that in all, with a party of some ten women, a net of 100ft was formed.

Shells on the beach were many, varied and mostly colourful, and a collection was made by a number of us, on our last and free afternoon.

Our camp had been made more convenient and comfortable by the appearance first, of a table, then a hurricane lamp and finally a long seat was built sufficient to hold all thirteen of us. With gifts of coconuts with their refreshingly cool milk on a hot day, fish caught as we watched, daily supplies of paw-paw and some taro, topped the last evening by a monster feast, dance and kava ceremony, followed by singing, until the early hours of the morning, we felt we had been royally treated, and left Kandavu with regrets. As the catamaran "Longships" sailed away, Semesi, the second chief, could be discerned, even at a great distance, standing up to his knees on the reef, wiping his eyes with his snow-white handkerchief.

And so, back once more to Suva, and on, this time by the Northern or King's Road to Nandi, 170 miles, some after-hours shopping, a brief sleep until 2.30 a.m. when one party was called for their plane; and then up and off to our plane at 3.30 a.m. on September 13th.

Such a wealth of memories—all those birds, strange ferns and flowers and fruits; the 6in golden toad; the geckos and the many blue-tailed skinks; the 3ft python we held and photographed on Taveuni; the large spiders with webs like yellow nylon; skinks' eggs and tiny scorpions, fireflies and glow-worms; so much to think of, it should satisfy us for a long time, but we're all eager to return at the first opportunity.



ROYAL SOCIETY OF NEW ZEALAND

TWELFTH SCIENCE CONGRESS

Massey University, Palmerston North

31st January-4th February, 1972

Members interested in attending this Congress may enrol with
Dr T. J. Brown, Congress Secretary, care Massey University,
Palmerston North.

Programme details are available from Dr Brown.

FARNELL'S ALL DOUBLES STRAIN OF GERBERA

By ARTHUR FARNELL, Auckland

The breeding of Gerberas in New Zealand has reached a high standard and many excellent formal double hybrids have been raised. The French nurseryman M. Dubois is credited with producing the first double Gerberas and it was from eight varieties of his double flowered *Gerbera sp.* plants brought to New Zealand by Mr Charles Maire, of Milford, Auckland, that our present double Gerberas originated (Robinson, 1956). From these original plants Mr Maire produced many beautifully formed and coloured doubles. Enthusiastic growers around Auckland and New Plymouth have effected still further improvements.

Our top class New Zealand doubles are almost entirely female flowers and when crossed with singles produce approximately 50 per cent doubles and 50 per cent singles. Although our growers have been able to greatly improve form and colour of flowers, until recently none has succeeded in producing seed which will give a higher proportion of double flowered plants.

As a Gerbera grower I was interested in the possibility of obtaining seed which would produce a high proportion of plants with double flowers. I failed to secure a worthwhile increase in percentage of doubles by using the small amount of pollen occasionally produced by double flowers but success came while I was working on a different problem.

During 1960 white rust (*Albugo tragopogonis* S.F. Gray) became common on *Gerbera sp.* (Dingley, 1969) presumably through the introduction of a specialised strain of the fungus. This troublesome disease was difficult to control with fungicides so I attempted to obtain resistant clones by breeding. One of my clones, No. 102, a very strong growing yellow and gold double which is highly resistant to white rust was used in a breeding programme but failed to transfer resistance to its progeny.

In 1965 I pollinated one flower of clone X, a brilliant scarlet, very floriferous but short-stemmed double with pollen from a single flowered plant bred from clone 102. The hoped for white rust resistance did not occur but all 24 seedlings raised from the seed of this cross were doubles. The following year pollen from a large number of singles was used to pollinate flowers of clone X plants and over 700 seedlings raised from the seed of these crosses were all double. In 1968 some of the seed of this cross which has become known as 'Farnell's All Doubles Strain' was sent for testing to the R.H.S. Trial Grounds at Wisley and all seedlings raised also produced double flowers.

Plants raised from seed produced by the early crosses were rather limited in colour to reds, scarlets and oranges and some of the stems

were rather short. Since then the standard of flowers has been gradually improved and the colour range greatly extended. However, there is still a percentage as high as 75 per cent of short (about 15 inches long) though stout stemmed plants. Such plants while not so suitable for production of cut flowers are ideal for garden decoration since the flower heads do not droop with weight of water during rain and the flowers are less liable to wind damage.

The amount of all doubles seed produced has increased each year until, during the past season, over 4000 seeds were obtained.

Of the several thousand seedlings of this strain grown by the author since 1965 not one single or semi-double flowered plant has appeared. Unfortunately the F₂ progeny do not carry the dominant doubles gene so clone X remains the only clone to produce the all doubles seed.

There is considerable overseas demand for Farnell's All Doubles strain of Gerbera seed and it is being supplied to nurserymen or research stations in California, India, Israel and Japan. Demand greatly exceeds the supply, one Californian nurseryman alone requiring 25,000 seeds for next season.

Professor J. A. Rattenbury, Geneticist at Auckland University, has given the following explanation of the genetics which may be involved in the production of double flowered plants from the seed of clone X.

The Genetics of Doubleness in Gerberas

The genetic explanation of why this double-flowered Gerbera, unlike the majority of doubles, produces 100 per cent double-flowering seed is probably that it is homozygous for the gene which causes the doubleness to occur. This gene is dominant and consequently whenever it is present double flowers result. In most plants which breed true for characters such as these, crossing between two homozygous individuals ensures that the character is perpetuated in all the off-spring of subsequent generations. In double Gerberas, however, no usable pollen is formed and seed-production can only result from crossing by single-flowered plants. Such crosses using ordinary doubles (heterozygous for the double gene) result in off-spring which are 50 per cent heterozygous doubles and 50 per cent homozygous singles.

Crossing the homozygous double by the pollen of a single-flowered variety produces all heterozygous seed and, therefore, only doubles in the next generation. Unless a double-flowered pollen-producing plant should appear spontaneously, additional homozygous doubles can only be produced by vegetative methods from the original plant.

The origin of the homozygous, double-flowered plant is probably from a mutation in an ordinary (heterozygous) double, a "one-in-a-million" event, although the equally rare possibility of post-meiotic

restitution or apogamous fusion has not been eliminated. Unless this plant can readily be distinguished from ordinary doubles, it would be impractical to attempt to obtain further plants by screening large numbers. The possibility exists that, by suitable manipulation of the environment or application of hormones, a double-flowered plant can be induced to produce pollen. Not only would all first generation plants then be doubles but their open pollinated off-spring as well. Furthermore pollination by bees instead of by hand would then be possible.

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ALONG THE AVON (continued)

Formerly the home of Mrs Townend, daughter of Moore of Glenmark, these twelve acres were developed along the lines of the stately homes of Britain, and though the property was run-down at the time of acquisition it is being saved for posterity instead of passing into the oblivion and nonentity of sub-division. Here are many magnificent trees set amid sweeping lawns and placid stretches of water. A weir on the far boundary of the property provided water-power for the nearby flour mills. Specialist societies and other horticultural groups are interested in Mona Vale and in a corner by the railway line display beds of roses, dahlias, chrysanthemums and irises have been planted. The New Zealand Lily Society has generously donated several hundred choice lily bulbs for planting among the trees and shrubs throughout the ground. These will be extended and other groups will be brought in so the gardening public may see those cultivars most suitable for North Canterbury gardens.

The Church of Jesus Christ of Latter Day Saints, the Mormon Church, has retained the corner of the property abutting Fendalton Road on which their church stands and the stream continues through the immaculately kept grounds, past Flemings former flour mill, a noted landmark, since seriously damaged by fire and under the Fendalton Road in the immediate vicinity of its junction with Harper and Deans Avenues. If traffic conditions permit it pays to drive slowly along Harper Avenue or better still to walk on the grass of Little Hagley Park by the Avon for here is one of the most magnificent stands of Old World trees in Christchurch. Again the oaks are prominent. On the northern bank between Helmore's Lane and Rossall Street is the charming little Millbrook Reserve with its azaleas, kindred trees and shrubs.



Pinus pinaster from Harper Avenue

This tiny reserve is not as well known to Christchurch folk as it should be. Before reaching the Carlton Bridge and the traffic lights opposite the totem pole you will notice an impressive and lofty stand of *Pinus pinaster*, the Maritime Pine, in North Hagley Park. The controversial motorway is expected to pass on the other side of this grove. The centennial book of the Christchurch Botanic Gardens, "A Garden Century" records, "In an account of trees and shrubs in Wilson's Nursery, written in 1863, *Pinus pinaster* is listed with the remark that it is a tree which will yet clothe with luxuriant green the slopes and summits of our dry and shifting sandhills." "*Pinus radiata* with its much more rapid growth has since proved more suitable for this purpose." More is the pity; *Pinus pinaster* would have provided a much more beautiful and picturesque cover. One of its most intriguing features is the unusual texture of its bark and another is the slight curve to be found in the trunks of the great majority of specimens; seldom is there a straight one.

At the Carlton Mill Bridge the stream turns abruptly south following the line of Park Terrace with its fine weeping willows, *Salix babylonica*, including the golden form. They are reputed to be descended from the legendary willows surrounding Napoleon's grave in St. Helena. In the background is North Hagley Park, with its many stately trees, its man-made lake, Lake Victoria and a smaller one, its golf links and other sports fields; a recreation area right handy to the centre of the city and without a peer in New Zealand. We may well refer to Professor Wall again. "Hagley Park is now almost useless to the student of our native flora. In its original state it was not beautiful, and

the citizens hastened to destroy the native vegetation and beautify the area with European plants, grasses and trees." How well they provided for posterity but if future generations are to benefit from their foresight we must be ever vigilant to preserve it against the automobile which threatens to enslave us all.

There are many attractive properties along Park Terrace and one with many fine trees is Bishopcourt, with its extensive grounds, smooth lawns and fine trees. We are also entering the educational heart of Christchurch and on the Chester Street corner is the Cathedral Grammar School. Strangely this is not a secondary school as the adjective implies but a preparatory school supplying choral talent for the Cathedral.

At the Armagh Street gates and bridge the Avon once again swings sharply to the right to enclose Christ's College, the sixty-four acres of the Botanic Gardens, Canterbury Museum and the McDougall Art Gallery in a giant loop. Actually our stream forms a large but irregular "S" before entering the downtown area at the Antigua Street boatsheds. The Botanic Gardens have been dealt with most thoroughly in these pages over the years by another writer but we would like to draw your attention again to the Woodland area of Hagley Park between Riccarton Avenue and the Botanic Gardens. This area of some twenty acres serves as an annex to the Botanic Gardens proper and is noted for its fine oaks and other trees, the naturalised daffodils, the primula garden which includes associated plants such as rhododendrons, azaleas and lilies, the rose species gardens with its flowers in spring and summer, and colourful heps in late autumn and winter. Notable among the latter are the large bottle-shaped heps of *Rosa moyesii* and the apple-shaped heps of *Rosa rugosa*. The latter seem to be perpetual flowering and contrary to most plants bears quantities of heps and flowers at the same time. In addition the foliage is colourful in the autumn and has a distinctive texture hence the specific name *rugosa*. It is a pity that *R. rugosa* and its hybrids are not used more in home gardens for they are strong and healthy. It is perhaps an even greater pity that owing to chromosomal difficulties it has not been possible to breed *rugosa* blood into the mainstream of rose hybridisation. The chromosome count is fourteen and when crossed with garden roses which are mainly tetraploid, with count of twenty-eight, the result is a tetraploid which for all practical purposes is a mule. However, this difficulty has been overcome with other species roses so there is hope.

Under the stately oaks are thirty and more camellias shifted there from the vicinity of the Curator's Office, Botanic Gardens, in 1965 when six to ten feet in height. (*Vide* "N.Z. Plants & Gardens", December, 1965. Vol. VI, No. V, page 227.) These have thrived in the dappled shade.

(To be continued)

DISTRICT COUNCIL

WHANGAREI

APRIL MEETING—This was Camellia night, and Mr Jim Finlay, Secretary of the local branch of the Camellia Society, showed colour slides of the Camellia world. Pictures were of old and new, interspersed with comments on their merits or demerits as garden or show plants, and helpful hints as to their cultivation. Camellias do very well in Northland, where they have been established since the earliest days, but with the present upsurge of interest in the genus many more are being grown.

The *Sasanqua* section of the family have proved especially useful, standing more sun and wind, useful as shelter as well as ornamentals, many making good espaliers for hiding ugly fences or walls. Among the most attractive of these are 'Chansonette', 'Bill Wylan', 'Sparkling Burgundy' and 'Crimson King'. 'Jean May' and 'Cotton Candy' are both good, but so alike that both are not needed.

The *Japonica* section has become enormous, and is constantly being added to by breeders in our own country, in Australia, in England and especially in California so that we are faced with the great problem of how to choose the best for our particular purposes. Fortunately, some of the well tried older kinds can still compete with the moderns.

For garden display either as a specimen plant or a hedge 'Donation' (a hybrid between *C. saluenensis* and *C. jap.* 'Donkelarii') is a firm favourite, well proven over many years and under a variety of conditions. Other older varieties which are hard to beat among the Japonicas are 'C. M. Wilson', 'Adolphe Audusson', 'Guillio Nuccio', 'Mrs D. M. Davis', 'R. L. Wheeler', 'Grand Sultan' and the newer 'Margaret Davis', which is perhaps better than the famous 'Betty Sheffield Supreme'. Among the newer japonicas bred in New Zealand we saw lovely pictures of 'Water Lily' from Jury and 'Lisa Gael' from Frank Clarke.

The Reticulata section gives the most striking and spectacular blooms. We saw *C. reticulata* 'Capt. Rawes', the oldest and best known. 'Pagoda', 'Buddha', 'Cornelian', 'Butterfly Wings' and 'Chrysanthemum Petal' may not be so familiar, but all are lovely. They tolerate more sun than was previously thought, are vigorous and free flowering. Seed from quite young specimens germinate readily and is a useful and easy way to increase stock.

Fashions in Camellias, as in everything else, change, and whereas in America the craze has been for size, it has now turned to the miniatures which may be only two inches across. A number of these miniatures are listed in the catalogues of camellia nurseries in New Zealand. The variety shown on the screen 'Little Bit' should prove popular. These smaller forms should also find favour with florists.

Other slides shown included one of the loveliest Magnolias—*M. denudata* and a number of views of Kawau Island, the home of Sir George Grey, an early Governor of New Zealand, a famous gardener who introduced many valuable plants.

KAWAU TRIP—The bus trip to the Sandspit and boat trip across to Kawau Island on March 27 was greatly enjoyed by the fifty members and friends who took part in the day's outing—well worth postponing for a fortnight to be rewarded with such a lovely day.

It was high tide when we arrived at the Sandspit, so calm and peaceful looking, and with yachts and boats at anchor in the bay, a lovely setting for the start of our boat trip. Quite a short trip across to the Island we entered North

Harbour to see the holiday homes built at the water's edge and the numerous jetties for each household's private use. From there we went up Bon Accord Harbour, again noticing all the private jetties and each bay having a cottage or two tucked away in the bush. In one bay we could see the ruins of the old copper smelter which was worked in the middle of the last century.

Further up the harbour we landed at Hoki Mai Bay. It was there we walked around Mr and Mrs Comitti's semi-tropical garden, set in a sheltered bay at the foot of a valley. They also have a large pond in which several water lilies are growing, *Nymphaea stellata* variety in pink and blue tonings, as well as hundreds of goldfish, from small to very large size. In the garden *Bougainvillea* 'Killie Campbell' gave us a lovely splash of colour. *Cassia* spp. made a striking display with its mass of yellow blooms, as well as several hibiscus. In a large Puriri tree in the garden the tuis were a delight to see as they flew about quite unconcerned by the number of people intruding in their domain, while growing underneath were clumps of *Clivea miniata*, and Japanese Balsams in various colours. It is here that a thriving business, both for New Zealand trade and export has sprung up over the last few years, in the form of using our native woods. We saw table and standard lamps made from Manuka, Puriri, Pohutukawa, all beautifully made and very attractive, as well as buttons, belts, necklaces and other nick-nacks.

We boarded the launch again to cruise down the other side of the harbour arriving at Mansion House Bay for lunch and staying there for about three hours. It was in this bay that Sir George Grey built his home in the 1860's and made many plantings, some of which can still be seen today, namely *Quercus ilex*, *Araucaria bidwillii*, several *Jubaea capensis* and a fine specimen of a Moreton Bay Fig, *Ficus macrophylla*. In the grounds we also saw some Hawaiian Hibiscus, probably 'Flame 61'. Most of the party went on different walks along the various tracks, the majority taking Sir George Grey's old coach track leading toward the eastern side of the island. A pleasant walk and gradual climb till a vantage point is reached. From there a beautiful panorama is seen of the island itself, as well as the other islands dotted about in the gulf, truly a delight to the eye. Just below on the water's edge some of the party explored the remains of the old copper mine, while others made their way further along the island. From there it was back to the landing point, a refreshing cup of tea and home, all agreeing how successful the day had been.

MAY MEETING—Mr G. B. Greenfield, of Titoki, and formerly a commercial orchardist of Hawke's Bay, gave us some very practical and useful advice on the growing of fruit in our Northland conditions.

Apples: he recommended 'Golden Delicious' and 'Granny Smith' as first choice. Other good varieties were 'Kidd's Orange', 'Splendour', 'Stayman's Winesap' and 'Geniton'.

Though fruit was of better flavour if left on the tree to ripen, the Fruit Board did not approve of this—no doubt because of risks in packing and transport. Size of apple was also an important factor in commercial growing. 'Splendour', the new variety, very popular already was a large fruit going three to the lb, whereas Doherty's went six or seven to the lb, a consideration for housewives with families to cater for. With 'Splendour' there was another factor to remember. It attracts birds and if damaged must be picked before wasps attacked it.

The commonest diseases of apples were Black Spot, Codling Moth and Leaf Roller—the last caused by a very tiny caterpillar only one eighth of an inch long. Captain spray for Black Spot, Malathion for Codling Moth and Sevin for leaf roller.

Peaches recommended were 'A1', an improved form of Paragon, almost free of Leaf Curl and Brown Rot. Other good varieties were 'Carmen' and 'Golden Queen', a late ripener. Mr Greenfield said that the new Haven varieties were also proving successful.

The two common diseases of peaches were Leaf Curl and Brown Rot. The spores of Leaf Curl start to develop in the new growth of leaf buds and must be sprayed with Bordeaux or Cuprox about the end of August. Brown Rot is controlled by Captan according to directions.

Plums recommended for Northland were 'Burbank', 'Sultan', 'Doris' and 'Billington'. Their commonest diseases were Pear Slug or Leech and Brown Rot—Malathion for the Slug and Captan for Brown Rot. If planted on heavy clay special attention must be given to drainage, though Plums, Pears and Quinces liked more moisture than Peach or Apple. These latter would benefit by being planted on a mound about 1ft high by 3ft wide.

Pears suited to our climate are 'Williams Bon Chretien', 'Packham's Triumph' and 'Winter Cole'. Black Spot and Codling Moth are their worst troubles. Use Captan for the first and Malathion for the Codling Moth. 'Packham's Triumph' produces the best fruit on the last bud on the end of fresh growth, so prune off all side shoots. This gives better wind resistance and fruit is better for bottling.

Peaches should be pruned to an umbrella shape by cutting off low branches, cutting the centre out, and pruning the rest level. As peaches bear on last year's growth, not on the old wood, leave the tiny twigs to develop for next year's crop.

Plums should have the uprights cut so that the laterals will bear fruit, and if necessary tie them down to encourage sap flow to the ends.

Some fruit trees may be grown in a variety of ways, and apples are especially amenable to several growth forms—Espalier, Umbrellas and Pyramid. In the Espalier form a strong fence is necessary. Allow the tree to grow upright for two or three years, then tie down the side growths along the wires, using the pliable wood. The upright growths from the horizontal branches should be pruned to one or two buds which will develop fruit spurs. For the Pyramid shape allow tree to grow for two years, then tie weights on the laterals till they are at a wide angle to the main stem, so encouraging the production of fruit spurs—Genitons so treated bear big crops.

Mr Greenfield then gave us some directions for feeding fruit trees. Shelter was a first essential and this should be provided before any planting was done. Potash and Phosphate were necessary to produce good fruit. Compost was also a good source of nutriment, but most necessary treatment was regular spraying.

SOUTH TARANAKI

Some forty members gathered for the first circuit meeting of the year at Opunake.

Dahlias formed the main horticultural theme of the evening and a lovely bench display of blooms provided by the well-known grower, Mr J. M. Mason, of Fielding, was presented by Mrs F. Barraclough, daughter of the late Mr Frank Lovell, himself a grower and hybridiser of dahlias. On exhibition was an attractive yellow bloom, bred by him, named 'Frank Lovell' in his honour, and now appearing on the market for the first time. Hints on the choice, care and cultivation of dahlias were given by Mr R. D. Chamberlain, of Hawera.

A bench of specimens was named and described by Mr H. T. Beveridge, of Hawera. *Bigoneia*, *amaranthus*, *calceolaria*, *ageratum*, *Salvia mexicana*, *bella-*

donna lilies, *Buddleia* 'Black Knight', perennial phlox and hibiscus, eulalia grass, fuchsias, *Hebe andersonii*, rangiora and flax made an attractive display. Attention was drawn by Mr Syme to the leaves of a bronze cabbage tree, most attractive in colour and rather hard to distinguish from the bronze flax.

An attractive wall arrangement of dried material was displayed by Mrs W. Sarten who delighted her audience by demonstrating four floral arrangements. The first was a dried arrangement, most useful in winter time when the floral artist so often finds the garden bare. Mounted on a slab of polished wood still carrying its surrounding bark, this arrangement consisted of banksias and dried proteas set off by sprays of copper beech and intriguing loops of Chinese gooseberry. The second arrangement showed rich red nerines and viburnum berries, contrasting with the dark shining green of angelica leaves, both shown to advantage on a dark green leaf-shaped shallow bowl. Third was an all green arrangement of aralia leaves, agapanthus flower heads and green zinnias set off with asparagus fern trails and canna seed heads—all displayed in a green, gold and white urn shaped vase of glass from Venice. The fourth arrangement was a winter one. It featured dried poker heads, trimmed palm leaves, dried kiekie flowers and very clever cream-coloured "flowers" ('made at docking time' confessed the demonstrator) of natural wool wired round centres of *Phyllica plumosa*.

Colour slides of local interest were shown by Miss C. Free—Tututuru-Mokii partly dressed for filming "The Killing of Kane"; the opening of Hawera's new swimming pool complex; the Chinese Willow Pattern Garden at King Edward Park in Hawera with the Dogs of Fo making their first public appearance as guardians of the moon gate; for Oriental contrast, the Japanese section of Gane's Gardens at Auroa; and for Occidental contrast, lovely colour at "Tupare", the English-style garden of Mr Russell Matthews at New Plymouth. Also shown were some colour slides of prize winning floral art, including some by Mrs Sarten, the evening's demonstrator.

Colour slides of his own garden were shown by Mr Chamberlain who demonstrated the variety of plants that can be grown in a town section, and the vistas that can be produced by appropriate choice of plant material. On a larger scale, he showed a few slides of some of the lovely well-known gardens to be seen in the south of England, graced by beautiful trees and ablaze with the colour of massed azaleas and rhododendrons.

This evening had been preceded earlier in the season by a very enjoyable "garden prow" in the Central Taranaki area. Hurriedly arranged to take the place of a planned visit to the Urenui and Tarata areas, which had been recently washed out by floods, this day took a small party to the King Edward Park in Stratford where Mr Bray, Parks Superintendent, provided a very informative escort. A visit to The Plateau above the Stratford Mountain House on Egmont provided some lovely views. Here, an informative talk was given by Mr Rod Syme, who pointed out many of the interesting features of Mt. Egmont. Interesting comment on some camping activities on the mountain were given by Mrs B. Conway, also of Hawera.

After lunch, the party moved to the garden of Mr and Mrs R. J. Gatenby, of Eltham Road, winners of the large garden section of the garden competition held by the Eltham Horticultural Society. This was a very pleasant garden with smooth lawns, attractive trees and gay flowers—and, from the tennis court, lovely country vistas, stretching from nearby Egmont on the one hand to faraway Ruapehu and Tongariro on the other. Another garden visited was that of Mr and Mrs C. Marx, winners of the "under five years' old" section. Here, on a sloping section, another attractive farm garden is being made.

A second day of garden visiting, on a day of golden April sunshine, tempted

some sixty members to travel to the Awatuna-Auroa district, to visit first the garden of Mr and Mrs W. Hiestand. Although only about ten years old, the garden showed evidence of a love of many plants—flowering begonias, colourful conifers, rosy lapergeria, *Cotoneaster horizontalis* grown 'Victorian Posy' style on a standard, ponga-built alcoves to shelter ferns and other shade-loving plants—and a large rockery whose many pockets sheltered scores of plants in variety. At her Eltham Road home, the brick walls of which she pointed herself, Mrs M. A. Dudli is making an unusual feature—an Austrian fairy story "The Seven Hills and the Seven Dwarfs". Made of concrete with very realistic grey-green lichen and white snow, the miniature hills are being set off by small plantings. It will be interesting to see how this feature, reminiscent of her home country, Switzerland, develops.

Lunch time came at the home of Mr and Mrs A. J. Upson, of Makaka, whose garden was gay with dahlias surrounding a green velvet tennis court and then the party moved back to Eltham Road to see a garden established on a steeply sloping section by Mrs R. J. Duff. The slope of the land necessitated sealed drives to hold the soil while trees, shrubs and plants took root; the sun lovers, which can manage with less moisture on the higher levels near the house, and the moisture lovers at lower levels sloping down to swampy ground. Last visit for the day was to the home of Mr and Mrs R. W. Smart, gay with roses, colourful with conifers and gracious with trees.

April brought another circuit meeting at Manaia. Mr R. Syme first introduced Mrs Basil Nicholas, of Hawera, who completed three attractive and very different arrangements of floral art. The first was a permanent one of dried materials arranged in a copper bowl; the second a jewelled arrangement of many colours high set in a large slender stemmed goblet of Venetian glass; and the third a large striking arrangement in blue tonings strikingly contrasted by the richly coloured brilliance of virginian creeper, grape and other autumn coloured leaves.

A bench of specimens was discussed by Mr Holland, A.H.R.I.H., of Kaponga. miro, mahoe, *Hoheria variegata*, *Olearia angulata*, *Berberis vulgaris*, *Banksia integrifolia*, *Cuphea macrophylla*, croton, camellias, ruscus, *Fuchsia fulgens*, hibiscus, azaleas, sedums, proteas, *Viburnum opulus*, ericas, dahlias and a host of colourful blooms—Manaia always has lovely specimens.

Special speaker for the evening was Mr Lloyd Bithell, a veterinarian who had recently been responsible for taking a shipment of cattle to South Korea and for remaining with them for three months to care for them and to show something of New Zealand methods of farming to the Korean farmers. The sending of these 100 cows, which had been arranged through the Ministry of Foreign Affairs, represented a gift of \$280,000. South Korea was a country one third the size of New Zealand, with a population of 30,000,000 and one of the most rapidly developing economies in the world. Most interesting details, illustrated by coloured slides, were given of country, climate, vegetation, animals and farming methods generally. Accompanying Mr Bithell was Mr Wang, a native of Korea, who had come to New Zealand to learn at first hand the practical application of some of the farming methods Mr Bithell had been demonstrating in Korea.

May brought a meeting at Eltham, again one combined with the Central Taranaki Rose Society and the Eltham Horticultural Society. In the absence of Mr Syme, Mr Chamberlain presided over an attendance of about seventy. He introduced the President of the Rose Society, Mr D. R. Burton, of Kapuni, who demonstrated the preparation and planting of cuttings and spoke of the garden established in Palmerston North as an international rose trial ground.

He named roses on a special rose bench—amongst others, 'Duet', 'Red Lion', 'Paça Meilland', 'Paprika', 'Apricot Nectar', 'Dame de Coeur', 'King's Ransom'. A bench of general specimens was also named—fuchsias, *Cyclamen neapolitanum*, grape purpurea, *Acacia baileyana purpurea*, lambertia, *Cornus capitata*, nerines, ericas and many other offerings from members' gardens.

The chief speaker for the evening, Mr B. J. Rayner, of Cardiff, gave a clear and very informative demonstration of the art of growing extra camellias from existing plants. Taking a piece of stem of pencil thickness, the speaker made a circular cut from which he removed the bark. Then he took a handful of thoroughly saturated sphagnum moss, squeezed it, packed it round the cut, covered it with black plastic and tied it firmly above and below. This was an ideal method of propagation. Roots would form at the top portion of the cut and, done in spring (September, October, November) the new plant could be removed from the parent plant about May. It should then be grown in a container for a year. *C. reticulata*, however, took much longer—from eight to eighteen months.

This interesting demonstration was followed by a most interesting talk of camellias found in America, illustrated by beautiful flower studies in colour transparencies. Also shown were slides of other aspects of Mr Rayner's overseas trip—photographs taken in Nevada, Los Angeles, San Francisco, the Yosemite Valley and Fiji.

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