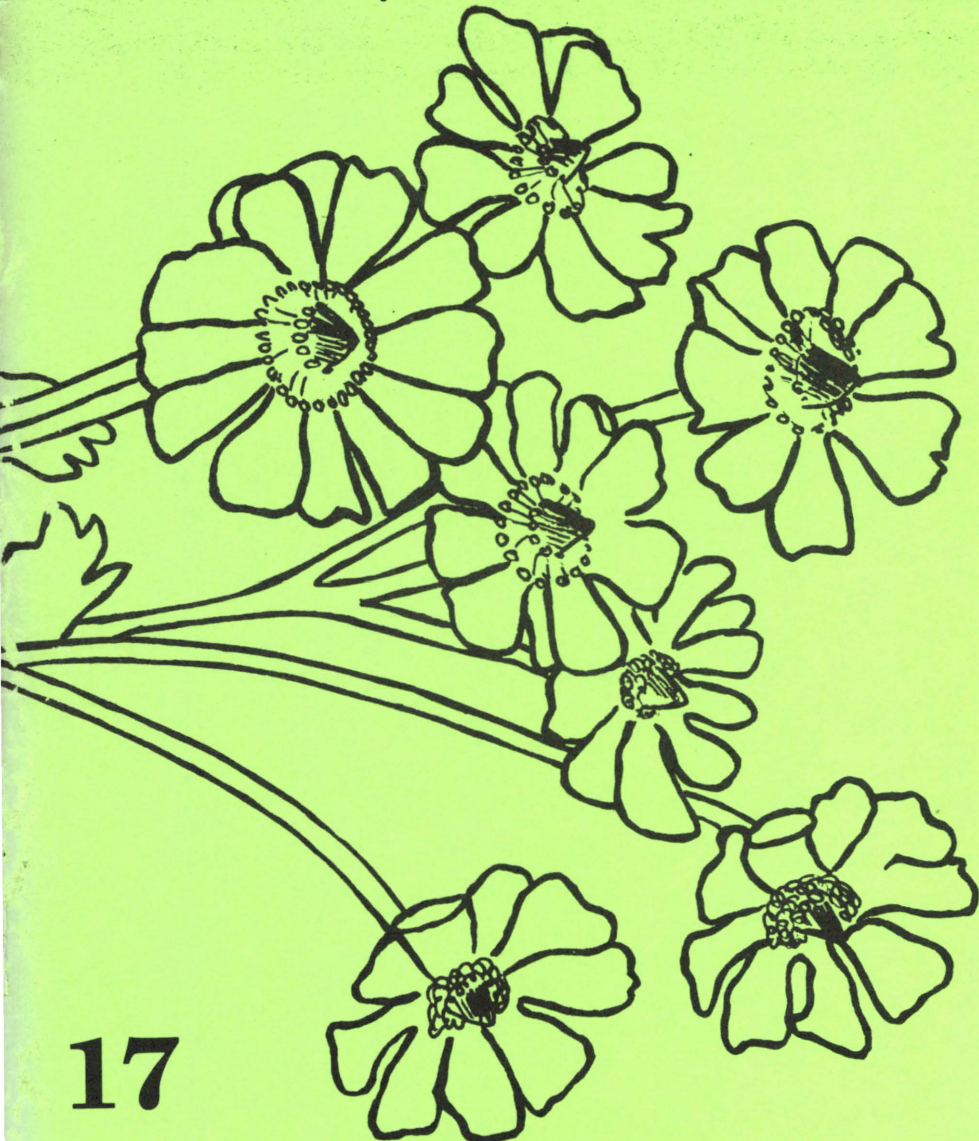


Horticulture

in New Zealand

Bulletin of the Royal New Zealand Institute of Horticulture (Inc.)



17

Spring 1980

HORTICULTURE

IN NEW ZEALAND



BULLETIN OF THE ROYAL NZ INSTITUTE OF HORTICULTURE
NUMBER 17, SPRING 1980

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ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURE (INC).

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P.O. Box 12, Lincoln College.

Bulletin Editor : Mrs Barbara McCartney.

The Editor welcomes articles, letters and news items for consideration for publication. Contributions should be addressed to the Bulletin Editor, P.O.Box 12, Lincoln College.

Views expressed are not necessarily those of RNZIH.

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~ Editorial ~

Spring is bursting forth on all sides here in Canterbury, and what joy to witness new life emerging from the wintry soil. Our examination entries have come in in good numbers, and we trust all our students are studying well.

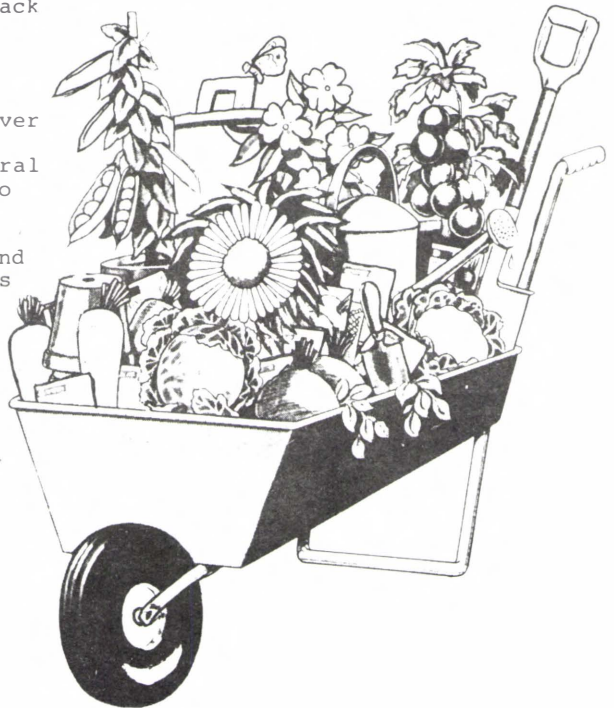
There has been an addition to the RNZIH office staff. Mrs Enid Reeves is now assistant to the National Secretary, a job I relinquished due to a more pressing family commitment. As this latter responsibility has been removed from my care, I am happy to continue as Bulletin Editor, and to relieve at times of pressure in the office.

I appreciate the kindness expressed by RNZIH members at the AGM in recognition of my editorial services, and trust they are happy to let me continue in this role.

I should like more feedback from members as to what sort of material should be included in this Bulletin. It has become my practice to use whatever is sent in, and add anything else horticultural I can lay my hands on, to fill any empty pages.

This is your Bulletin, and should reflect your views and interests. Any contributions would be gratefully accepted!

BARBARA McCARTNEY,
Editor.



District News

AUCKLAND :

The August Newsletter of the Auckland District Council features notice of a GRAND GARDEN GALA organised for Saturday September 20th, featuring stalls of fruit and produce, plants, flowers, gardeners' Jumble, connoisseurs' plants, raffles and teas. It sounds a most ambitious undertaking - venue being 105 White Swan Road, Mt. Roskill.

The Newsletter also features an article on growing radishes without soil : you need a container (other than concrete) about 8" (20cm) deep with adequate drainage holes. Make up a mixture of 2 parts of washed coarse sand and 1 part vermiculite. (Soak the vermiculite overnight before using.) Put mix into container, firm well and level; water contents thoroughly. Water again and firm until it consolidates $\frac{1}{2}$ " from the top. Thoroughly mix the following chemicals to a fine powder and store in an airtight container until needed: 8 $\frac{3}{4}$ oz nitrate of soda, 7 $\frac{1}{2}$ oz superphosphate, 2oz sulph. potash, 2 $\frac{1}{2}$ oz epsom salts (mag.sulphate), $\frac{1}{2}$ oz ferrous sulphate.

Make shallow drills $\frac{1}{2}$ " deep and 3" apart; sow seeds and cover with vermiculite. Sprinkle the fertiliser ($\frac{1}{2}$ oz to sq.yard) evenly over the surface and around the seedlings and water in. Do this twice a week. In between use plain water. Adjust fertiliser to size of container, i.e. use less if under square yard in area.

Growing mix can be used over and over but must be THOROUGHLY washed between uses; remember mix must be moist before applying fertilisers. You should produce radishes for eating in 3 weeks.

When raising SEEDLINGS, don't discard the late comers - they often prove to be the hardiest plants and best colours.

The Judas tree (*Cercis*) grows in N. America, Asia and southern Europe and its deep pink flowers are most decorative in the spring. Did you know these flowers can be pickled in vinegar rather like capers, or fried? Or used decoratively in a salad?

The young fruits of the English elm (*Ulmus campestris*) just after they start forming are very tender with an aromatic and unusual flavour; at this stage they can be added to salads.

Two suggestions for rooting GERANIUMS (zonal pelargoniums) - they can be rooted easily if placed in two inches (5cm) water plus a pinch of rooting powder. Use a dark coloured glass bottle for best results. Or try air-layering - select a suitable shoot on the parent plant and make a shallow cut upward on both sides of the node (should be about 5" below the top of the shoot). Moisten stem round the cuts and apply hormone rooting powder to them. To do this, wet a knife and sprinkle it with some of the powder then 'wipe' the cuts with the knife blade to transfer the powder. Take a thin piece of clear polythene about 3" sq., place one corner an inch below the cuts and tape it firmly to the stem to form a cone-shaped bag. Fill this with moistened spagnum moss.

DISTRICT NEWS (CONT)

AUCKLAND (cont) -

Bring the top of the bag to the stem and carefully fold over, fasten with tape and seal sides to make bag airtight. Roots should form in the moss in a few weeks - it is then ready for potting. Sever the cutting carefully as roots are fragile and easily broken. Pot into friable mix.

WHANGAREI :

A recent guest speaker was Miss Margie Maddren, whose pot-pourri, while differing from a dictionary's definition, which defines it as a dish of different meats and vegetables, was nevertheless a varied and mixed offering. The Whau Valley suburb of Whangarei was originally named for the numerous plants of the native whau (*Entelea arborescens*) which at one time clothed the hills. The wood of the whau is one of the lightest woods known. Whangarei about 25 years ago boasted a gas producing plant at which Miss Maddren's father worked, and she showed a bloom of *Camellia sinensis* (Tea plant) which grew at the works. Miss Maddren collects oxallis which are cultivated in containers. Collecting various cultivars and species of asparagus ferns is also an interest and some very interesting ones were shown. Members were treated to a taste of the new exotic fruit Casana which proved to be very similar in flavour and appearance to a yellow Tamarillo. Miss Maddren has, from a young girl, had a natural affinity with nature through her roles as president of the Whangarei and District Native Forest and Bird Protection Society, and the Whangarei Ladies' Gardening Club, and shares this enthusiasm with members.

NORTH TARANAKI :

The July meeting featured an interesting talk by Mr Keith Adams on Plant Collecting in Borneo :

"In April of this year I travelled in two areas of Malaysian Borneo - the first area visited was Mt. Kinabalu in Sabah, the highest mount in S.E.Asia at 13,455'. Organised as in any NZ National Park, the trip to the summit is reasonably well organised with hut accommodation having to be booked well in advance. Park Headquarters is at 5,000' and the flora at this altitude is reminiscent of NZ, with exotics being grown such as *Cleome*, *Gerbera*, *Hemerocallis* and *Impatiens* varieties.

I was really interested only in the tropical rhododendrons, the Malesian series, and it was a joy to see the first one at 6,000' - *Rh. fallacinum*, now renamed *Rh. diversifolium*. This has a bright red full truss, with the new growth a bright coppery red. As one climbed higher, other species appeared, and I was fortunate to collect cuttings and seed of *Rh. stenophyllum*, *R. acuminatum*, *R. rugosum*, *R. lowii* (the most beautiful yellow you could wish for) and at 11,500', *Rh. buxifolium robusta* and *R. ericoides*, the latter with small tubular bells like an erica, hence its name.

DISTRICT NEWS (CONT)

NORTH TARANAKI (cont) -

On Kinabalu above 5,000' one could easily imagine oneself walking through the NZ bush. Ferns like ours, pongas with the mid-ribs of the fronds a glaucous blue, and at 12,000' a beautiful *Phyllocladus* of a pale glaucous appearance. *Vaccinium*, *Gunnera*, *Ranunculus lowii*, *Leptospermum*, *Wahlenbergia*, tussock grasses - they were all there, plus something we don't have in NZ - *Schima brevifolia* - new growths bright purple. I collected all the rhododendrons, and the *Schima*.

The cuttings are now growing at Pukeiti where they are in quarantine. Temperatures at 5,000' were quite hot, but at 12,000' were bearable, and I felt one could live comfortably at this altitude.

From Kotakinabalu (called Jessleton before W.W.II) I moved to Miri in Sarawak and up the mighty river Baram to climb Gunong Mulu (8,000'). This area was until recently closed to the public. Declared a National Park in 1978, it was explored by a Royal Geographical Society expedition for nearly 12 months, and described as one of the few remaining areas of virgin tropical rain forest in the world.

I had special permission to visit this area and organised my own one man expedition, which meant hiring porters and guides, with the local chief's personal emissary accompanying me. Rhododendrons noted on the climb included *R. crassifolium*, *R. fallacinum*, *R. ericoides*, and the most beautiful of all - *R. orbiculatum*, white shading to pale pink with three or four long slender trumpets per truss, slightly frilled edges to the petals. If any I collected survive this would be the one I would most hope for.

Amongst many unique specimens of forest trees - trees with immense buttressed roots, I saw one of the world's unique botanical oddities - the Trig Oak - *Tricholobalus verticillata*. This is a tree which grows to over 100 feet on a single trunk, then the trunk dies and suckers grow from the base and reach the same height, creating a lattice work of inter-twining trunks, reaching the same height but with a great hollow in the centre. A really remarkable sight.

Also plentiful when one gets higher are the pitcher plants - *Nepenthes*, in several varieties. The natives call them monkey cups - the Greek '*Nepenthes*' means literally 'drowning all sorrows' - maybe because they thought the liquid contained in the pitchers had the properties of some sort of drug. I collected seed of *Nepenthes lowii*, which has now germinated at Pukekura Park. Space doesn't allow a full description of all the magnificent wealth of the native flora of Borneo - it is certainly an area well worth a visit by anyone botanically inclined. I haven't mentioned the orchids - well over 600 native species in Borneo!

DISTRICT NEWS (CONT)

POVERTY BAY HORTICULTURAL SOCIETY :

A new society formed is the Gisborne-East Coast Camellia Society, which will meet only during the six-month flowering period. They have already had a delightful display of blooms from visiting Bay of Plenty growers and conducted two garden tours.

The September 25th meeting of the Horticultural Society will feature the "Cultivation and Propagation of Liliiums", and a talk by Mrs Jan Dunlop on her Milford Track walk, including films of rare lichen and mosses.

CANTERBURY :

The July meeting was attended by about 35 members, 6 of whom were presented with National Certificates or Diplomas in Horticulture. Mr Alan Buxton received the Cockayne Gold Medal for his achievements in the NDH First Schedule.

Dr David Jackson, Reader in Horticulture at Lincoln College, gave a very informative and entertaining talk on the potential for grape growing and wine making in the Canterbury region. Samples of Lincoln College wine and other commercial types were tasted by those present. There is no doubt about it - the Lincoln College wine was superb!

REMINDER TO CANTERBURY MEMBERS :

On SATURDAY OCTOBER 4th, at the Lincoln College Horticultural Laboratories (near the nursery-glasshouse area) Mr Tony Conner of the Horticulture Department will show members how tissue culture is used to propagate large numbers of plants in a very short time from just a few plant cells. This will commence at 10 am.

Any enquiries may be made to Canterbury secretary, Roy Edwards, at Lincoln College.

Mr Tony Conner has been awarded a Templin Travelling Scholarship for one year's study in the U.S.A., which he will use for the study of tissue culture in the coming year. Our congratulations and best wishes to Tony on this award.

WAIKATO :

The Auckland newsletter makes mention of the Hamilton gardens and glasshouses. Though the complex is small, immediately you open the door into the lobby you are struck by the amount of tender loving care bestowed on the plants. In the entrance foyer are tropical and subtropical food plants, whose countries of origin are shown on a map of the world. A list gives details of planted and projected crops for the Waikato area with emphasis on newer food plants - altogether an ideal place to introduce local schoolchildren to what is going on around them in horticulture.

The house to the left contains a multitude of interesting succulents (recently rehoused) all flourishing, while the house straight ahead is filled with cyclamen, primulas, and, for the most part, familiar and easy-to-grow houseplants. The house on the right contains an excellent collection of peperomias grouped together as to species in a most attractive way.

DISTRICT NEWS (CONT)

WAIKATO (cont) -

There is also a good collection of Bromeliads as well as various *Alocasia* and such like. The whole impression in here is of well kept, well grown and well maintained greenness with numerous tropicals all living happily together - a very pleasant and quite unexpected surprise from the modest outside appearance of the complex.

Have you ever wondered how so many Alder trees come to be growing along the banks of the Waikato? Miss Pat Bates, AHRIH, on our Sunday morning walk after the AGM., told us that a Cambridge nurseryman was responsible. In the early days of Waikato settlement he planted alder trees in his nursery situated on the banks of the river. They seeded and the seeds were carried downstream in the current to find homes in suitable spots and thus establish themselves. This is but one of the interesting anecdotes Miss Bates related. We also had pointed out to us the clumps of tree dahlias flourishing in pockets on the far bank - flourishing because of the micro-climates created by the river and the warm air rising from the water in what would otherwise be an inhospitable climate for these plants.

Seed & Plant Exchange

Mr S. Hanna, C/- 21 Stanley Road, Gisborne, wishes to purchase the following seeds :

- 1/ Red rhubarb (Tops Winter)-2 packets
 - 2/ Horticultural Pink Stock Carnation - 2 packets
-

Mr Alan Mason, P.O. Box 155, Feilding, is looking for stock of an apple called WASHINGTON. If you know of this apple, please write to him. The Research Station at Levin has a 'connoisseurs' collection' of apple varieties, details obtainable from them direct. (MAF Research Station, Private Bag, Levin.)

If you can help these two members with their requests please contact them as soon as possible.

EMPLOYMENT OPPORTUNITY -

The Sydney Technical College, Broadway, NSW, is short of horticultural teachers. At the Ryde School of Horticulture, where teachers are required, there are over 1,000 registered students taking Amenities Horticulture which services the landscape, nursery and parks and recreation industries. Other Technical Colleges also have teacher positions available.

For horticulture teacher positions, applicants should hold an appropriate Diploma in Horticulture and have preferably three years' job experience. The salary range is between \$13,000 and \$16,600.

Persons interested in further information about these positions should write to Mr D.B.Hughes, Head, School of Rural Studies at the Sydney Technical College.

VEGETABLE SEEDS AND SPROUTS -

A very good standby for soups and salads is seed sprouts. Buy your seeds from a Health Shop, as these have not been treated with any chemical. All seeds may be sprouted - as a guide I will list a few for you :

Alfalfa sprouts are high in Vitamin C. Soybeans, mung beans, lentils, garden peas (untreated), cereals such as wheat, oats, barley, millet and rye, grass seeds, clover, hulled sunflowers, radish, fenugreek seeds, may be used.

Purchase a quart or $\frac{1}{2}$ quart jar with a wide mouth and mesh lid. I find that a dessertspoon of seeds in $\frac{1}{4}$ quart jar is enough. I cover the seeds with water and stand overnight. If I want the sprouts more quickly, I stand the jar overnight in the hot-water cupboard. Then drain off the water into the stock pot, rinse with clear water daily. Don't leave the seeds sitting in water as they will mould or rot - the mesh in the jar lid allows the air to circulate freely. Be sure the sprouts are moist but not wet. Do not allow to dry out.

Keep them warm during the growing period and handle carefully. If the little shoots are damaged they will decay and spoil the other shoots.

Remember - a few go a long way, and if you have too many and wish to hold some for a few days, they can be kept in the refrigerator. You may sprinkle them with warm water.

Sprouts usually take from 5 days to a week depending on the temperature. Remember it is live food.

VEGETABLES -

For those who must have an alkaline diet, a list of vegetables to grow :

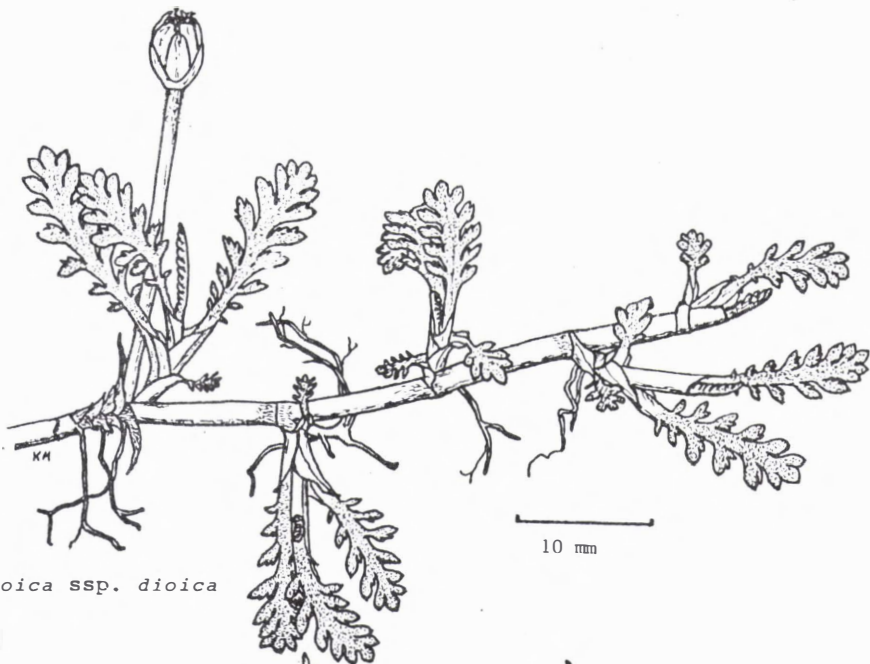
String beans, beets, broccoli, cucumber, eggplant, garlic, leeks, lettuce, onions, parsley, parsnips, peppers, potatoes, pumpkin, radish, spinach, turnips, avocados, tomatoes, alfalfa, corn and honey.

- contributed by Mrs I. Bradford-Smith, Whangarei.

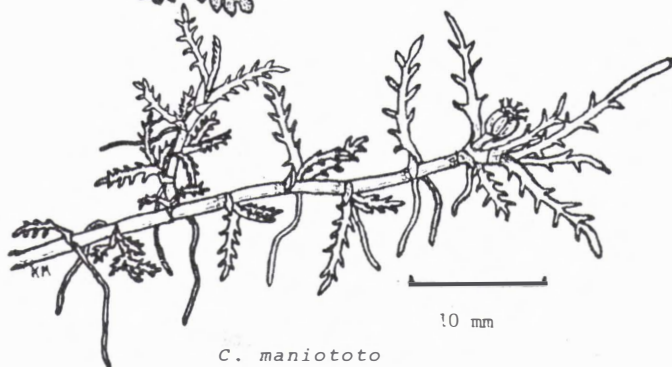
Know Your Turfgrass - 9

D.E. ALDOUS

Cotula dioica ssp. *dioica*
Cotula maniototo



C. dioica ssp. *dioica*



C. maniototo

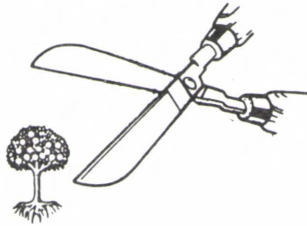
Cotula

The New Zealand species of *Cotula* are distributed through the sub-antarctic climatic range, which includes New Zealand, Australia and the subantarctic islands. Although not a member of the turfgrass family, tribe Anthemideae (Compositae), *Cotula* has shown promise as a bowling green surface. The advantages of *Cotula* over conventional grasses are found in its low winter maintenance and renovation costs, tolerance to low mowing and rapid establishment.

The major species include *Cotula dioica* ssp. *dioica* and *C. maniototo*, both of which are vegetatively propagated by groovings or plugs. *Cotula maniototo* can also be reproduced by propagules or bulbils, which abscise from the parent plant during winter. *Cotula maniototo* can be distinguished from *C. dioica* ssp. *dioica* by its simple linear leaves in the winter and pinnatifid leaves in the summer. Both species appear to be better adapted to the South Island environs, viz. *C. dioica* ssp. *dioica* is common on the Otago peninsula, Otago central and shores of Lake Wanaka, with *C. maniototo* dominating the north Otago area, although both can be managed under North Island conditions.

Clipping heights vary from 0.2 cm for opening games to 0.5 cm during the off-season. Present fertiliser knowledge is based on applications of sulphate of ammonia applied at 17 g.m², with phosphorus and potash requirements based on a soil test. Research is now being conducted into the specific management requirements of *Cotula*.

Bonsai !



The inaugural meeting of the Wellington Bcnsai Club was held on 27th July 1980. It was decided to meet on the last Sunday afternoon of each month, at a member's home.

Mr Peter Fung was elected Patron, and Mr Bevan Hussey Chairman, and acting-secretary. The subscription rate was set at \$5.00 p.a. per person, and \$7.50 p.a. for a family membership.

If you are interested in joining the Wellington Bonsai Club, please contact Mr Bevan Hussey, 8 Nathan Street, LINDEN.

Book Review

"Flora of New Zealand", Volume III, Adventive Cyperaceous,
Petalous & Spathaceous Monocotyledons

by A.J.Healy and Elizabeth Edgar, 1980,
Government Printer, Wellington.
Price \$ 18.50

The advent of a true flora with detailed descriptions and keys to a comprehensive range of species, genera and families is an important botanical milestone for any country. Such works provide the foundation stones for all studies connected with the vegetation; e.g. in an age of environmental impact reports and similar ecological investigations, the scientific names used ultimately have to be backed up with the authority of the current Flora. Volume III of the New Zealand Flora will undoubtedly fulfil these criteria. The cumbersome subtitle only means that it deals with all the monocots except for grasses. The Flora follows on from Vol. I and II which deal similarly with the indigenous (native) plants.

All three volumes emanate from the Botany Division of DSIR and continuity is further assured by the fact that Dr Elizabeth Edgar is the second author in both Volumes II and III. Furthermore, it is the combination of her expertise in the formal taxonomic field of the monocots, combined with Mr A.J. Healy's unequalled knowledge of weeds in the wild throughout New Zealand, that makes this a momentous work. The use of the word 'adventive' as applied to any introduced plant which is wild will probably set the stamp of approval upon it despite misgivings in some quarters. This reviewer also feels that the term has a lot to recommend it but without claiming that it provides the perfect solution.

Despite its subtitle, Vol.III not only describes adventive plants but also describes those indigenous species and varieties which are related to them. This may not seem of very great moment, but in fact New Zealand to date has been almost the only country in the world to continue to treat indigenous and adventive plants separately. The absurdity as well as the impracticability of so doing has become increasingly obvious. Botanists here have acted either as if adventive plants do not exist or that in some mysterious fashion it was self-evident as to whether or not a plant was indigenous. It is therefore not surprising that there has often been confusion, especially in genera where both indigenous and adventive species occur, e.g. Healy and Edgar describe 47 species of *Juncus*, rushes, 31 of which are introduced and from their key there is apparently no combination of characters which permit one to put indigenous and adventive plants into separate groups. This also applies to *Carex*, sedges, one of the largest genera in the vascular plant flora in which 22 of the 95 species are introduced.

Of course the early botanists in New Zealand were confronted with an unfamiliar flora mostly consisting of not only indigenous but also of endemic and therefore new species. So it is understandable that adventives were considered to be of little importance by people that had come half way round the world in search of new plants and had been familiar with chickweed, hemlock, annual poa, etc. all their lives. Apart from a handful of doubtful origin the introduced plants then stood out like a sore thumb. But this situation did not prevail for long because the adventives rapidly spread through most of New Zealand. Healy and Edgar recognise this anomalous situation and point out in their preface that Vol. III can be looked upon as a transitional flora between earlier ones and future fully integrated floras.

This six page preface is well worthy of perusal because it outlines the authors' philosophy behind their attitude to the study of adventive plants. This is followed by useful keys to the families and genera as a whole and a third which is a combined key to families and some genera concentrating on vegetative characters. Then there is a review of literature, a list of authorities, a bibliography of first records and a synopsis of orders. Like any good flora, there is also a glossary of terms.

The authors have apparently aimed to provide at least one illustration for the important families. These black and white sketches range from small leaf sections to illustrate prickle differences in *Aloe* and the Agavaceae to the entire plant in the case of the notorious *Eichhornia crassipes*, water hyacinth. Four pages of colour illustrations of the horticultural escapes in the Amaryllidaceae, Iridaceae and Liliaceae attempt to give a little lift to this volume. Unfortunately, the backgrounds lack cohesion and mar the pictures.

Twenty-two families are involved and of the 66 genera described, 58 are represented wholly by adventive species and 8 have indigenous species as well. These indigenous species are treated much more briefly as the information is already presented in Vol. II which was published in 1971. In Vol. III there are 317 species described, 149 indigenous ones and 168 adventive ones, the latter being indicated by an asterisk. The four most important families numerically comprise 77% of the adventive flora. These are in order of importance: Cyperaceae (41 species), Juncaceae (35 species, plus 4 varieties), Iridaceae (32 species), Liliaceae (22 species). Incidentally, a minor error in the genus *Cyperus* is the placing of an asterisk before the indigenous *C. ustulatus* in the key. However, in the text it is correctly omitted. The only major family of monocots in New Zealand which does not have any adventive species is the Orchidaceae.

The question of what to include in Vol. III obviously had to be considered carefully and the authors have taken a wide view. Their criteria of an adventive, page xiii, is worth quoting : "Anything growing spontaneously outside a fenced area, or as a weed in a sown or planted community.." This definition can include many more species than may be properly deemed to be naturalised, i.e. well established adventives, because sometimes only a very few individual plants of a species have been reported wild. Such casual adventives include many cultivation escapes and it will come as a surprise to many people to learn how many familiar garden plants come into the adventive category, eg. 6 genera of the Amaryllidaceae, 16 of the Iridaceae and 14 of the Liliaceae all contain well known ornamental plants. Also a number of aquatic plants are described, some having undoubtedly escaped from fish ponds and other aquaria.

Thus in maintaining the high standard set by I and II, Vol. III is guaranteed to find a place alongside them on the book shelves of all who are interested in our adventive plants. May the future volumes on grasses and dicotyledons be not too long delayed.

- W.R. Sykes,
Botany Division,
DSIR LINCOLN.

IUFRO Working Party

S2.01.13

Root Physiology and Symbiosis

Those who plan to participate in W.P. activities at the XVII World Congress in Kyoto, Japan, in September 1981, should contact Dr Tomoyuki Sassa at the following address :



Forestry and Forest Products Research Institute,
P.O. Box 2,
Ushiku, Iharaki,
300-12 JAPAN.

Dr Sassa has accepted the responsibility for developing the session on root physiology and symbiosis.

OBITUARY :

LADY DAVIES

Dorothy, Lady Davies, widow of Sir Victor Davies, died recently in New Plymouth, aged 83 years. Lady Davies became involved in horticulture when she joined the firm of Duncan and Davies during World War I, and met her husband when he returned from service.

Lady Davies established a tradition of serving afternoon tea to staff members on the last working day before Christmas in her own garden. She was an active director of the nursery firm until 1979, when she took up an honorary director's position.

One of her sons, Mr Trevor Davies of Auckland, is a member of the RNZIH Examining Board. Her other son, Mr Neville Davies is now managing director of Duncan and Davies.

Lady Davies will long be remembered for her contribution to the nursery at New Plymouth, which has deservedly gained the highest reputation. Her other interests included her church associations, the New Plymouth Corso Committee, and the New Plymouth Founders' Society.

MR IAIN McG. FORBES

Mr Forbes, the deputy director (Horticulture) of the Ministry of Agriculture and Fisheries Advisory Services Division, died recently while on holiday in Hawaii.

Mr Forbes had made a big contribution to the development of horticulture in New Zealand during the last 30 years, and recently set in train a new programme to alter the role of the Ministry in horticulture. For the first time, horticultural advisers will go beyond the farm gate and become involved in processing and marketing.

Mr Forbes joined the DSIR in 1948 as an assistant vegetable research officer. In 1950 he graduated from Lincoln College with M.Ag.Sci. and joined the Ministry in 1955 as a vegetable specialist, later becoming horticultural advisory officer.

Mr Forbes was a member of the RNZIH Examining Board, and his contribution was greatly appreciated, providing as it did a link between the MAF and the RNZIH. His loss at the age of 54 years is deeply regretted.

HORTICULTURE - A THERAPEUTIC TOOL

Horticulture has long been recognised as an important activity in therapy and rehabilitation programmes. In recent years the term 'horticultural therapy' or 'hortitherapy' has been used in programmes associated with the handicapped. Although gardening as such does have a positive influence on human behaviour, only anecdotal evidence exists. The implied explanations for the influence of plants on humans is based on the fact that plants are aesthetically pleasing, can be stimulus objects, or to others, offer an opportunity to control their own personal environment.

Horticulture in the rehabilitation of the disabled and elderly has been used successfully in physiotherapy, assessment of a patient's mental and physical capabilities, prosthesis, prophylactic disorders, in senior citizens' programmes, and provision for the blind. Such programmes have provided for improved confidence and self esteem, satisfaction of creative drives and increased outdoor activities.

In the spring of 1971 publicised 'sit-ins' by handicapped or disabled persons in Washington, D.C., drew attention to the necessity for improving the site accommodation for the handicapped. To enable the handicapped to enjoy the gardens of New Zealand, progressive parks personnel, hospital boards, sports bodies and other open space organisations now provide facilities for such people to improve their mobility.

In the 1800's, Dr Benzamin Rush, a U.S. physician and botanist, observed the curative effects of 'digging in the garden'. However, the greatest development was the establishment of the Menninger Foundation, Kansas, in 1919, which 'involved patients with the beauty and mystery of growth, and helped them to relax and make a better adjustment to hospitalisation and treatment'. In 1973 the National Council for Therapy and Rehabilitation through Horticulture was established at Mt Vernon, Virginia, to promote and encourage the development of horticulture and related activities as a therapeutic and rehabilitation medium.

In England, the Disabled Living Foundation initiated the idea of a demonstration garden for the disabled and elderly when in 1970 the Foundation developed its first permanent garden in Syon Park. In 1978 the Royal Horticultural Society expanded their demonstration garden at Wisley to involve both wheelchair and ambulant disabled gardeners. The National Trust has recently published a booklet entitled 'Facilities for the Disabled and Visually Handicapped - 1979' detailing the facilities available at those properties which the Trust feels may be enjoyed by disabled visitors.

HORTICULTURE - A THERAPEUTIC TOOL - CONT

The Australian Institute of Horticulture, Inc. (South Australian branch) conducted a seminar programme in September 1979, entitled 'Rehabilitation through Horticulture', in which papers were presented on the rehabilitation of the handicapped by means of horticulture. A well known Australian example which has involved both the gardening and paramedical staff is at the Queen Elizabeth Geriatric Centre, Ballarat. All garden areas have been developed in a way to permit the residents' participation in planning, implementing and enjoying.

In New Zealand, the Northland sub-centre of the Crippled Children's Society has opened a horticultural complex where adults are employed in the production of fruit and vegetables. In a different field of handicap, the Rural Training Unit of the I.H.C. at Aokautere, Palmerston North, grows flowers from seed, bags trees, cultivates willow cuttings for sale, and grows all the seedlings for a full planting programme - a venture which is self-supporting.

A recent New Zealand survey, conducted by the Department of Recreation and Sport, concluded that gardening was the second most popular recreation following that of reading. The fact that gardening should not be limited to the able-bodied, and that many elderly, arthritic and disabled gardeners find the conventional garden an increasing strain, should provide the horticulturist with new challenges in plant selection and landscape design.

For readers interested in this area, additional information can be obtained from the following :

Horticulture as Therapy (1978) - Proceedings of a Symposium held at The Botanical Garden Office, Uni. of British Columbia.

Therapy through Horticulture (1979) - Brooklyn Botanic Garden Record 85 (1), Spring.

Plants in the Interior and Exterior Landscape (1979) - National Council for Therapy and Rehabilitation through Horticulture Newsletter. 6 (5) : 3-8.

Site Accommodation for the Handicapped (1977) - Grounds Maintenance, 12 (9) : 22, 12 (10) : 24.

This article contributed by D.E. Aldous and L.M. Maughan, Department of Horticulture & Plant Health, Massey University.



ARNOLDIA is a publication of the Arnold Arboretum of Harvard University, Jamaica Plain, Massachusetts, U.S.A.

The November/December 1979 issue of 'ARNOLDIA' contains the Director's Report, which carries some interesting points about the value and function of an arboretum such as the Arnold Arboretum. An extract is quoted below, as it is felt that many of our members will be interested :

"The Arboretum has been and always will be in the first instance a University museum: a collection of living and preserved woody plant species which, with its libraries and in combination with the other University herbaria, provides Harvard with the outstanding facilities of their kind in the world for research and education. Only if it maintains its preeminence in research and education can the Arnold Arboretum continue to develop its complementary function as a unique amenity and an authoritative source for information on the culture of woody plants.

It is vital that our collections, in both the plantings and the herbaria, be actively used for research and instruction by Harvard faculty and students, preferably in combination. The association of a museum and a university provides each with strengths and opportunities greater than either alone could muster. This is obvious to those of us with experience in independent herbaria and botanic gardens. Interaction with faculty outside the Arboretum, and the participation of students can foster the vigorous and innovative climate required for research of the highest standards. At the same time, the unrivaled diversity of plant form available in our collections offers research and educational possibilities that no other university can match. Our future policy will be built on two independent convictions : first, that as part of the Institute of Plant Sciences, the Arboretum must pursue every opportunity to participate in and facilitate the work of the Department of Biology; and second, that research by faculty and students using the collections alone assures their continued curation and their future usefulness to the scientific community at large.

Styles both aesthetic and scientific, change during the life of a tree. To establish a reputation for excellence, an arboretum must maintain a consistent planting policy. Charles S. Sargent was well aware of this need :

....In such a (tree) museum, everything should be subservient to the collections, and the ease with which these can be reached and studied; and none of those considerations of mere landscape effect, which properly govern the laying out of ordinary public parks, should be allowed to interfere with these essential requirements of a scientific garden, however desirable such effects undoubtedly are.

The possibility of making a plan which should place every plant in the best position attainable for it, preserving at the same time for the whole collection, as nearly as practicable, the fixed sequence of arrangement, which alone

makes large collections valuable for comparative study and possible to manage, was, then, the first thing to be considered. In connection with this, but subservient to it, it was necessary to devise a system of roads and walks which should make easily accessible to a large number of visitors every plant in the collection, and which, without interfering with the scientific necessities of arrangement, should open up and develop, as far as possible, the remarkable beauties of the ground.

From the foregoing and other writings, it is clear that Sargent's aim was to establish a comprehensive collection of woody plants, arranged for scientific and educational purposes, according to the natural classification of Bentham and Hooker and set in the landscape in such a way that it would become a public amenity of beauty. To ensure the latter, Sargent collaborated with Frederick Law Olmsted in designing the paths and plantings to be collected from the wild, and that their provenance and other details were to be recorded fully, and herbarium vouchers collected from the parent trees.

Sargent recognised the need for a dichotomy between the permanent "backbone" of the collection, consisting of trees and shorter-lived shrub collections, and the experimental or ornamental material which could be regarded as more temporary and amenable to change.

A later horticulturist, Mr Seth Kelsey argued that :

...Since .. the Arboretum is a park as well, and open to the public as such, a continuing objective should be to improve the landscape appearance of the collections for increased public enjoyment and education, and perhaps the time has come for a complete restudy of the Arboretum from the landscape and display point of view.

He recommended :

...an active programme of breeding and selection to develop cultivars of (a) greater ornamental value, (b) increased hardiness, (c) greater resistance to insects and disease, (d) greater tolerance to urban conditions, including but not limited to factors of pollution.

These recommendations illustrate a difference of views that has arisen between plant scientists and amenity horticulturists. We are of the opinion that such a clash is as unnecessary as it is undesirable."



Proposal for the formation of

Heritage Roses ~ NZ

(Contributed by Mr K.J. Nobbs)

The use of the name 'Heritage Roses' links us with already existing fellowships in North America and Australia. The word 'heritage' suggests something valuable, passed down from earlier generations - something to be treasured, and where possible, preserved.

There are, throughout New Zealand, a number of people who admire and grow old roses. How many, we do not know. Some will be members of their local Rose Society, and probably there are others who are not. It is our hope that these folk would welcome contact with others of similar interests in different parts of the country. Therefore we believe that the formation of 'Heritage Roses NZ' is desirable, to conserve and expand interest in the roses of the past.

This year the Rose Society honoured Mrs Nancy Steen by declaring her Rosarian of the Year. We are greatly in her debt for a lifetime of research into the roses of yesterday. The proposed reprinting of her book 'The Charm of Old Roses' is testimony to her outstanding contribution of the knowledge of roses as planted and loved from the earliest days of European settlement in New Zealand. The forming of a 'Heritage Fellowship' would help to conserve her work and that of others who have grown and studied old roses.

Fortunately, in New Zealand at present, there are two nurserymen who have, probably without profit to themselves, made it possible for the public to buy and grow the roses of yesteryear. They have diligently collected and propagated these roses, and continue to expand their collections, often through frustrating years of quarantine of imported species of old roses.

THE AIMS OF HERITAGE ROSES - NEW ZEALAND :

1. To function in harmony with, and as an adjunct to, the Rose Society.
2. To distribute a Newsletter to members approximately three times a year.
3. To encourage others to grow and enjoy old roses.
4. To organise locally, visits to gardens or places of historic interest where old roses are grown.
5. To help in the location and identification of roses which may be threatened by public works and urban expansion.
6. To offer to assist the Historic Places Trust in the planting of 'period' roses suitable for the site.

HERITAGE ROSES - CONT :

7. To encourage local bodies to plant old roses, not in competition or in juxtaposition with modern roses, but in selected areas, accompanied by appropriate plants to tone in with their character and charm.

PROPOSED ORGANISATION :

We imagine that many supporters will be members of the Rose Society. However, we would also welcome Herb Society friends and members of horticultural groups and gardening clubs - indeed anyone who has an interest in old roses.

The Rose Society has given its blessing and support to the Rose Breeders' Association, as an adjunct to the functioning of the Rose Society. In Australia the Heritage group seems to have developed ahead of the Rose Breeders' Association. Now we feel it is time to organise a Heritage group in New Zealand. Mrs Toni Sylvester and I hope to organise the initial launching of 'Heritage Poses - New Zealand' - she as Editor and I as Convenor, and Area Convenor for Auckland and the Northern part of New Zealand. We would like a third person to act as Treasurer, to handle subscriptions, etc.

We hope to identify areas of New Zealand where there are sufficient enthusiasts to form a local group, and that one person in each area would agree to be Convenor for the purposes of :

- a/ liaison with local members, and to assist with identification of and information about roses of local importance,
- b/ arranging garden visits and occasional informal meetings of members, if so desired,
- c/ providing news concerning activities in their area, for the editor of the Newsletter.

We would welcome the assistance of the Editor of 'The Rosarian' and the 'Rose Annual', and would encourage members to make contributions to these publications.

If the support is sufficient we would proceed towards publication of the first newsletter. We will be looking for people who can contribute art work, typing and willing hands to help with the circulation. Even the most modest of endeavours requires finance, and we envisage that membership will entail a small fee. We hope to publish a sizeable newsletter containing items of local and national interest, means of identifying old roses, information about species and 'families', articles on members' gardens, and individual evaluations and preference of old roses, roses in history, snippets from abroad, letters to the Editor, in fact anything suitable. Any friends who would wish to join 'Heritage Roses' should write to

Mrs Toni Sylvester, or Mr K.J. Nobbs,
Churchhouse Road, P.O. Box 48-013,
R.D.1 Greenhithe, Auckland 7.
Auckland,

The annual subscription has been set at \$3.00.

HOW TO FASTEN FRUIT TREES TO WALLS

In figure 1 a wall fruit tree is shown. When it is necessary to take down such a tree from a wall to clean it, and perhaps do some repairs to the wall too, a difficulty is sometimes experienced by those who have not had practical lessons in the proper nailing up of large fruit trees. The thick branches must always be fastened to the tree first, beginning at the lower ones on both sides, and ending at the centre of the tree.

Very often the mistake is made of securing the central branches first, and then there is often not sufficient growth left to clothe the wall properly at both sides near to the base. If a tree is well balanced, with branches at both sides, the centre will quickly fill up.

Having made the big branches secure, proceed to tie in the small ones. The objects should be to cover all the wall space as evenly as possible with the latter, and to avoid overcrowding them.



Fig. 1

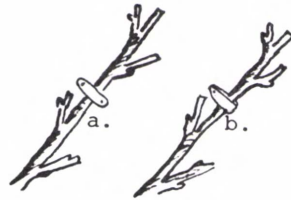


Fig. 2

There is a right way of nailing up branches, and one which will be economical as regards nails and save branches from being bruised. In Fig. 2 the right way is shown at example 'b'. Example 'a' shows the wrong way. More nails are required and more time by the latter method, and tender shoots are often pressed against the wall. Bruises will cause the loss of branches, and the bark must not be broken.

All newly planted trees should be allowed time to settle in the soil before growths are finally fastened to walls.

- reprinted from "Cassell's Popular Gardening",
Special Edition.

GARDENING WITH CELMISIA SESSILIFLORA



Celmisia sessiliflora immediately above the leaves.

A native South Island alpine *Celmisia sessiliflora* is worthy of cultivation in a rock garden or alpine house. This plant makes a compact cushion type mound which grows up to a metre across on mountain tops such as the Old Man Range in Central Otago.

Almost needle like leaves show up as a silvery grey mass quite stiff in form with this effect softened by the white many petalled flowers which appear over summer

The plant's habit is most suited to survival in rugged windswept mountainsides. *Celmisia sessiliflora* is readily propagated by cuttings or rooted offsets.

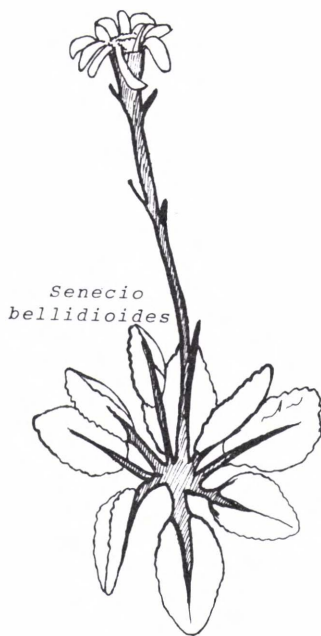
GARDENING WITH SENECIO BELLIOIDES

Senecio belliioides is a most reliable native plant of the family Compositae. It is a dwarf alpine herb producing rich yellow, daisy-type flowers and ground hugging leaves.

It is found naturally throughout the South Island in alpine, subalpine and grassland areas where it makes a significant presence in many plant communities.

This natural rock garden subject is at home in rich humus and will form in small clumps within one or two seasons.

As a potted subject it makes a valuable addition for an alpine house, being propagated by division or seed.



Senecio belliioides

- contributed by Graeme Paterson, FRIH,
Dunedin.

Research and Experiments

FROM THE MASSEY UNIVERSITY RESEARCH REPORT 1979

HORTICULTURE AND PLANT HEALTH DEPARTMENT

ORNAMENTAL AND TURF RESEARCH

Review of Methods of Assessing the Monetary Value of Trees Used in Amenity Horticulture

In recent years various systems have been developed in order to evaluate landscape trees, specimen shrubs and evergreens which have been established or retained for their aesthetic value, or other conservation purpose. Such trees, apart from the pure aesthetics concerned, also involve establishment and maintenance costs. Valuation methods of such trees and shrubs have been developed in various countries such as Germany, Switzerland, U.S.A., Scotland, Sweden, England and recently Australia. The objective of this research project is to document and assess the methods available and attempt to formulate a suitable New Zealand evaluation procedure.

D.E. Aldous.

Growth and Development of *Cotula maniototo* as Influenced by Cutting Height and Nitrogen Rate

Cotula maniototo (Cass.) Hook. f., is used extensively as a bowling green playing surface because of its rapid establishment, speed of recovery from damage, and minimum renovation and winter maintenance costs. Only limited information has been collated on the manurial and clipping treatments of this plant. The objective of this study was to examine growth and development characteristics of *C. maniototo* as influenced by 5 nitrogen rates (0, 3, 6, 12, 24 g/m²) and clipping levels (0,2 cm) under controlled conditions.

D.E. Aldous.

Design and Plant Alternatives for Industrial Sites

Local planning ordinances in Palmerston North now require adequate landscaping to be carried out on new and existing industrial sites. This project, carried out in conjunction with fourth year students studying Advanced Environmental Horticulture, provides a range of designs and plantings for different industrial sites within the Palmerston North environments.

D.E. Aldous and L.M. Maughan.

A Review and Postal Survey on Notable and Historic Tree Registration in New Zealand

Notable and historic trees are part of the New Zealand heritage. In November, 1976 the Royal New Zealand Institute of Horticulture introduced a national scheme for the registration and labelling of trees which are historic or notable. Since that time local authorities may introduce such a scheme by way of its District scheme. In August, 1978 a postal survey was initiated and distributed to parks personnel to evaluate the acceptance of the scheme, its implementation and enforcement, labour and financial requirements and the degree of maintenance and protection. A document is now being prepared following a 67% response rate from 15 cities, 8 boroughs and 8 counties.

D.E. Aldous and D. Raethal (Amenity Dip. student).

Growth and Development of Six *Cotula* Species as Influenced by Temperature

Cotula (Family Compositae) contains a number of perennial plants showing potential in New Zealand as a sport surface and as ground cover. However, little information is available on the diversity of *Cotula* to temperature and its adaption to North Island conditions. The objective of this study is to compare the growth responses of *Cotula maniototo* and *C. dioica* with four new *Cotula* species (*C. dispersa*, *C. serrulata*, *C. nana* and *C. calcareae*) to three temperature regimes (20, 25 and 30°C) and to advise on their ornamental value as herbal ground covers.

D.E. Aldous and M. Wrigley (Grasslands Division, DSIR).

Extending the Flowering of Spring Bulb Crops

The flowering of narcissi, tulips and bulbous iris can be advanced by cool storing the bulb prior to planting; there is a time/temperature relationship depending on the cultivar. Subsequent growth can be modified by culture out-doors or in polythene low tunnels. Storage of bulbs at low temperatures advanced flowering up to 6 weeks when plants were grown in tunnels and 4 weeks when grown in the open unprotected.

J.P. Salinger and J. Rob (B.Hort.Sc. Hons student).

The Improvement of Rooting Percentages in Conifer Cuttings

Some ornamental conifers are difficult to propagate since they root rather poorly from cuttings. The effect of pre-treatment of the mother plant on the ability of cuttings from that plant to root are being investigated. In particular the effect of temperature pretreatment of the mother plant and different temperature regimes during rooting are being studied and the effects of these pre-treatments on hormonal and other factors which may control root initiation are being determined.

D.J. Woolley and Miss C. Basham (M.Hort.Sc student).

Variety Trials Greenhouse Crops

A range of greenhouse cucumber and tomato varieties are under test. The crops are grown under warm temperature regimes.

G.K. Burge and K.J. Fisher.

Source Sink Relationship in the Green-house Cucumber

The effects of Chloroflurenol and TIBA on the vegetative and reproductive growth and development of the greenhouse cucumber has been examined. Currently the effect of changes in source strength by the use of leaf removal and shading treatments and the effect of changes in sink strength by the use of fruit removal treatments is under study. It would appear that yield in the cucumber plant is source limited.

K.J. Fisher, D.J. Woolley and G.K. Burge (M.Sc. student).

Asparagus, Genotype/Environment Interaction

A comparison of 13 cvs grown on two distinct soil types - Himitungi Sandy loam and Manawatu silt loam. One years results have been obtained and suggest that on both sites cvs N.J. 106 is superior to the standard variety M.W. 500w.

M.A. Nichols.

The Production of Rock Melons in Greenhouses for Export

Studies on factors affecting the productivity of rock melons for export have continued during the 1978-79 season. Six cultivars, considered to be suitable for the Japanese market have been grown in glasshouses held at 3 temperature regimes.

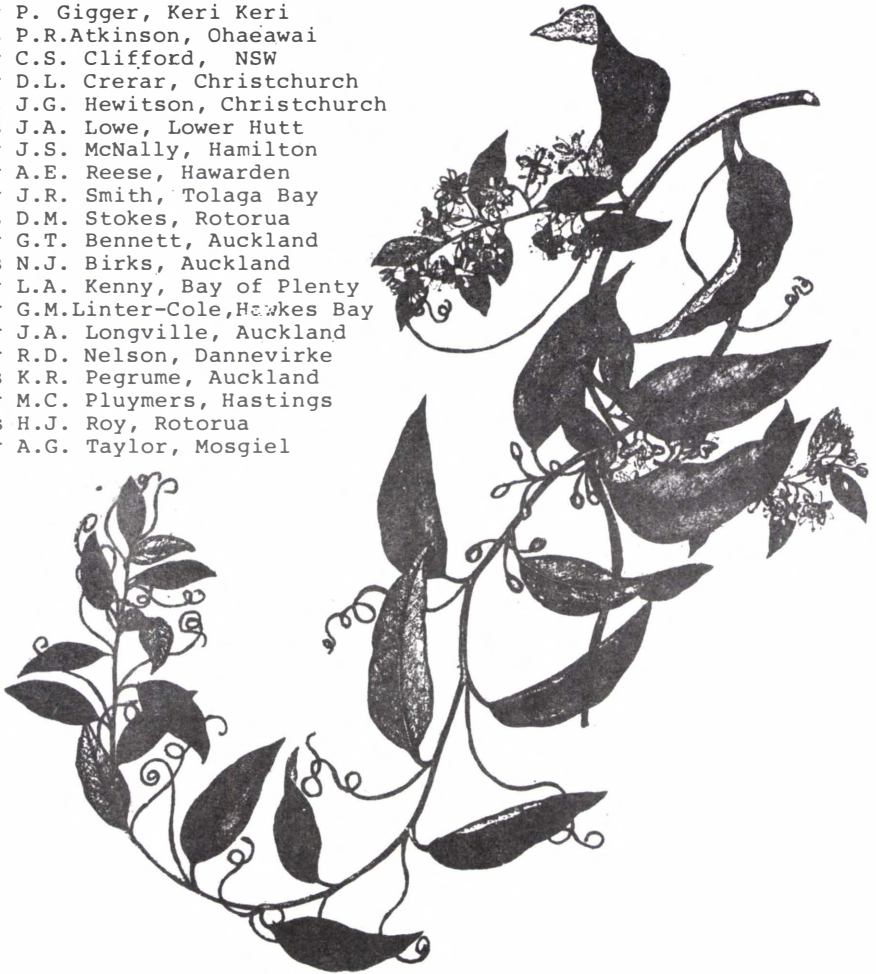
	Heat to	Ventilate at
Warm	25°C	35°C
Intermediate	20°C	30°C
Cool	15°C	25°C

M.A. Nichols and G.K. Burge

Welcome

to the following new members :

Wanaka Garden Club
NZ Tree Crops Association
North Shore Horticultural
Society, Auckland
Mrs J.E.McKinlay, Cromwell
Mr P. Gigger, Keri Keri
Ms P.R.Atkinson, Ohaeawai
Mr C.S. Clifford, NSW
Mr D.L. Crerar, Christchurch
Ms J.G. Hewitson, Christchurch
Ms J.A. Lowe, Lower Hutt
Mr J.S. McNally, Hamilton
Mr A.E. Reese, Hawarden
Mr J.R. Smith, Tolaga Bay
Ms D.M. Stokes, Rotorua
Mr G.T. Bennett, Auckland
Ms N.J. Birks, Auckland
Mr L.A. Kenny, Bay of Plenty
Mr G.M.Linter-Cole, Hawkes Bay
Mr J.A. Longville, Auckland
Mr R.D. Nelson, Dannevirke
Ms K.R. Pegrume, Auckland
Mr M.C. Pluymers, Hastings
Ms H.J. Roy, Rotorua
Mr A.G. Taylor, Mosgiel



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Minden Road,
Te Puna, TAURANGA.

CANTERBURY :

Mr Roy Edwards,
Dept. Horticulture, Landscape
& Parks,
Lincoln College, CANTERBURY.

MANAWATU :

Dr E.O.Campbell, FRIH,
26 Frederick Street,
PALMERSTON NORTH.

NORTH TARANAKI :

Mrs Marie Ward,
52 Lyn Street,
NEW PLYMOUTH.

OTAGO :

Mr G. Paterson, FRIH,
P.O. Box 5195,
DUNEDIN.

POVERTY BAY :

Poverty Bay Hort.Society,
P.O. Box 1275,
GISBORNE. (Liaison only)

SOUTHLAND :

Mr G.A.R. Petrie, AHRIH,
Rochdale Road,
INVERCARGILL.

SOUTH TARANAKI :

Miss E.A. Free,
23 Egmont Street,
HAWERA.

WAIKATO :

Mrs R.P. Towers,
9 Clark Place,
HAMILTON.

WELLINGTON :

Mrs Diane Menzies, FRIH,
7 Huia Road, Days Bay,
WELLINGTON.

WHANGAREI :

Mrs M. Kennedy, AHRIH,
14a Takahe Street,
Tikipunga, WHANGAREI.

RNZIH Notable & Historic Trees Committee - P.O. Box 11-379,
WELLINGTON.

RNZIH Regional Horticulture Sub-Committee - P.O. Box 11-379,
WELLINGTON.

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