

# ORCHIDS IN NEW ZEALAND



JANUARY/FEBRUARY 1982

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# ORCHIDS IN NEW ZEALAND

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**Cover photo:**

Paphiopedilum Kay Rinaman 'Golden Touch', Grand Champion National Show, Auckland 1980. Grown and exhibited by Adelaide Orchids, Australia. This bloom was also awarded AM/OCNZ.

# I Grow Cattleyas in Southland

by John McDonald

I started to grow Orchids back in 1962. My first Cattleya plants came from Bradley's Orchid Nursery, Nelson in 1965 with some flowering the next year, then came small seedlings from Henry Rudolph at 6 for a pound (\$2). How I wish now that I had got more at that price. Since then I have had several shipments from over-seas to give me quite a collection.

How do I grow them? Well my present orchid house is my fourth and most successful attempt at building something to combat our harsh winters.

The critical factor of the design is the altitude of the sun at mid-day on the winter solstice. This gives the angle of the iron part of the saw-tooth roof and after much enquiring I found it to be  $18^{\circ}$  for Invercargill. The glassed north face is at  $90^{\circ}$  to the iron. The overall sizes decided on were 10.6m east to west by 7.9m north to south, this gives a total floor area of over 83 square metres with only 32 square metres of glass. Cutting down on the area of glass reduces the area of greatest heat loss therefore, hopefully reducing the heating bill and at the same time allowing as much winter sun in as possible. As a matter of fact the 2.4m lengths of iron roof throw only 300mm of shadow on the south wall in winter. On the other hand the iron stops the mass of burning sun in summer.

A diesel heating unit was installed prior to the huge fuel oil price increase. So, to try to save on fuel, in 1976 I lined the under side of the iron roof and installed Batts therein. There was more reflected light from the white painted roof lining, even in winter, which necessitated light shading for Paphiopedilums and Phalaenopsis.

In construction, I portioned off a corner 3m x 3m as a quarantine come pottage area where I built in a sleeve box for sowing and re-flasking and a hot box for flasks etc.



Cattleyas Southland style: Porcia Cannazaro Zyglopetalum, Koncolour x Porcia Cannazaro 'Anzac,' Pearl Spencer.

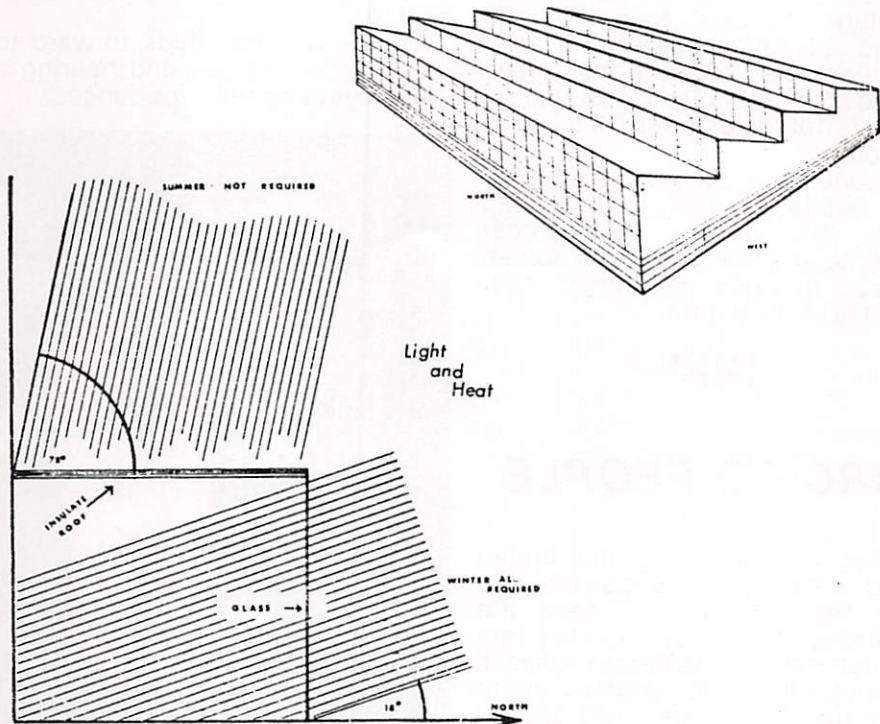
By bringing the rain water from one gable inside and running it down a waterfall to an inside tank I have created a cooler corner for plain leaved Paph's etc. as well as having water readily available whether it be can, hose or over-head spray. To save time fertiliser is applied through a metering device (ex California) which is connected into the hose and over-head spray-lines.



For benches I used tanalised red pine for the legs and frame and 20mm square battens for the top. The battens were nailed inside the framing to give a flush finish. Over this was attached a plastic mesh — approx. 20mm meshes. This allows plenty of air movement with as few battens as possible. The smaller pots (75mm to 100mm) are on battens about 150mm apart where as for large pots (300mm) I slide the battens along to get two under the pot. I also use this plastic mesh to make baskets, usually round, with the mesh wired in to form the bottom, Phal's do well for me in these.

So much for the house now for the inside story.

The first plants I tried to grow were Paphiopedilums, mainly because these were the only plants I could get, then came Cattleyas and Phalaenopsis. I have some Cymbidiums but they don't do very well down this way. I think we don't get enough strong sun in the summer. There is also the usual mixture of other orchids, some of which do better than others. Because tree ferns are still easily obtained their fibre is the main part of my mixtures with the addition of sphagnum moss for Paph's and the like. I have all my Cattleyas in clay



Saw-Tooth Construction.

pots, large specimen plants are in buckets. Watering is done about once a week, more often in summer, using rain water with the addition of liquid fertiliser through the mixer every second or third watering. As for the type of fertilisers, Maxicrop, Alaska or diluted animal manure are used. In the heat of summer I can apply the fertiliser through an overhead spray system which improves the humidity at the same time.

Over the years I have built up quite a collection of plants so that I have not been without a *Cattleya* type flower for about five years. Most of them are white but I have all the other colours, ranging in size from *Slc*, *Psyche* (25mm across) up to *C Florence Jones* at 210mm across. I have sent flowers to Auckland to the New Zealand Orchid Society shows and after travelling the 1,600km they have gained two firsts and two thirds, which is not too bad from this end of the country.

In conclusion, why not make your next holiday a visit to the deep south. You will be made most welcome at either orchidists homes or our monthly meetings, first Tuesday of the month.



## ORCHID PEOPLE

by Pam Boon

What do people in the orchid world of New Zealand look like? To start the ball rolling, here are Graeme and I with me looking very tidy for once. If someone takes a snap of me in the garden I might show you some time how I usually look.

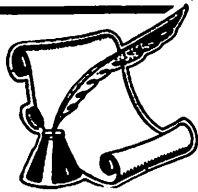
Our orchid collection began with a fat bulb of *Zygopetalum mackayii* which put up a good growth and flowered — lovely perfume and fairly long lasting. We shifted house

and in the process the large bulb became detached, our baby son had a wonderful time with it along with a cake tin full of dirt. I do not know the ultimate fate of that bulb but I expect it has made natural humus for other plant material. We were left with the growth which made a bulb the size of my thumb nail — it was years before it flowered again. However, our orchid interest did not die and we now spend many happy hours with our plants in their house. I think I told you one other time of how we were nearly evicted from our own house by the invasion of plants, I might add that some plants, especially the African Violets, did not take kindly to their new home and were gradually replaced. With orchids of course.

This is us and I look forward to seeing some of you and hearing a little of your orchid experiences.



## LETTERS TO THE EDITOR



Dear Sir,

The Orchid Society of Southland most gratefully thanks your magazine and its supporters for the response to the article about our society printed in the July/August issue.

We could hardly believe all the extra mail that came, both for and against the article; from individuals, society secretaries and the Orchid Nurseries, who sent catalogues. We have thanked most of these individually.

I must point out that most of the problems mentioned therein are also common to other small outlying societies.

However with the success of the Marlborough Seminar, we hope that there will be more conferences like that to come. With local participation and outside experts willing to travel, we feel this is just the thing to continue the enthusiasm of South Island Orchidists.

John McDonald,  
President,  
Orchid Society of Southland

Dear Sir,

I am glad that J.E.W. of Auckland has raised the problem of virus in New Zealand collections, particularly on commercial or semi-commercial properties.

It is doubtful whether any growers in the country could truthfully claim that they have never had a virused plant, but far too many are either unaware that they have, or just don't care. Unfortunately many of our

most respected growers, the pioneers of our orchid societies, are no longer young and keen sighted, and simply do not see the suspicious signs, or recognise symptoms. They also tend to be generous to beginners, or have rare varieties which are much in demand, and so disseminate the disease. Some have been told, or queried, but decline to take any action.

I am bothered by the fact that a number of them export, and that virused blooms, even if there are no signs, usually have a much shortened shelf life and therefore will have an adverse effect on the acceptance of New Zealand orchid flowers on overseas markets. This would be particularly true where spikes are sent to a repacking station and the actual origin is difficult to ascertain.

Even on the local market obviously virused blooms occasionally appear. Many hobby growers do not recognise colour-break, apparently, and do not belong to societies.

J.E.W. mentions "cutting flowers." Is he aware that the world wide practice is to break the stems at a node? With very few exceptions this is quite easily done with one hand. *Cymbidium Lunagrad* 'Elanora' is one of the exceptions and I use a scalpel blade which is either boiled or discarded after use.

The American Orchid Society Handbook on Orchid Pests and Diseases should be required reading for all growers and it should be noted that "Light and temperature conditions also influence symptom expression. An infected host plant that appears tolerant under one set of light and temperature conditions may show prominent symptoms under different light and temperature conditions." p.66.

So a plant grown under light shadecloth and apparently "clean"

may show obvious lesions if shifted to a more heavily shaded glasshouse or an area where there is less natural light, or vice versa.

A great number of the early breeding plants are now known to have been virused and of some, it is most unlikely that any unvirused divisions exist. Apart from C Alexanderi 'Westonbird', C Earlybird 'Pacific', C Flamingo 'Nobilor' C Sandpiper 'Dorothy' and C Swallow 'Daffodil' have been reported as infected with one or more viruses and the now notorious C Snowbird 'Jayhurst' was documented as being infected with Tomato Ringspot Virus (Tom TSV) in 1974 in the United States, some three years before the Australian nursery which propagated it advertised it extensively as an exclusive at a very high price. Too often greed outweighs integrity.

Opposed though I am to official Government involvement in private business, I feel the stage has been reached where we must clean our houses, with the support of Conzed and NZEGO. If the Ministry of Agriculture and Fisheries requires certification of testing of a given percentage of crops from which plants are imported into NZ, officers of the Ministry should be required to take random samples for virus testing from those properties which receive major income from the sale of plants and/or flowers.

Last year 1980, was, for several reasons, a year of orchid excitement, even hysteria, and probably more plants moved around NZ than in the previous decade. Quite a lot of us acquired plants which have since been cremated, despite care and selectivity.

Unfortunately it is not done to openly advise society members not to purchase from given establishments, unless they say they are going to x province and will visit y and z growers to buy a couple of (dozen? hundred?) plants and

what do you know? think? advise?

Warning:— it is quite true that not every unusual mark on foliage is virus. Many miniature cymbidiums have rather mottled foliage, originating from possibly incompatible species in their ancestry and both sun and frost can produce necrotic markings, usually on old growth only, the next new growth being clear.

It is also possible for infection to come from other than orchids.

Cymbidium mosaic virus is the most common orchid virus disease in the world, and more than 50 genera have been found infected, from *Aerides* to *Zygopetalum*, (Orchid Diseases, Florida Department of Agriculture, Bulletin No. 10 revised 1974.), Tobacco mosaic virus "O" strain is commercially significant and more than one strain of tobacco mosaic virus is known to infect orchids. Commonly called *Odontoglossum* ringspot virus, it (they) cause *Cattleya* flower-break, and also affect cymbidiums.

Amongst other hosts of this virus group is the popular silver beet (*Beta Vulgaris*) and beetroot and NZ spinach (*Tetragonia expansa*).

It has also been demonstrated that the relatively low temperature combustion of a cigarette does not kill virus in tobacco, so that it is sensible to avoid smoking among the orchids and especially rolling your own.

When overseas I found that Physan® was almost universally used as a sterilizing agent for tools etc with great success as well as being a recommended treatment for both *Phytophthora* and *Pythium* rots. It seems to be unobtainable in NZ, probably because it is a liquid and shipping difficulties would arise. Has anyone any local information on this useful compound? 'Aquarius'



# LOW BUDGET HEATING

## CHAPTER 2

by Lyn Young

My heating arrangements, as described in "Orchids in NZ" Vol 6, No. 6, operated successfully and cheaply for three seasons but has latterly suffered from a serious disadvantage. It became too small — or my ambitions became too great, so redesigning, along the original lines seemed indicated.

The open mesh bench was removed and the solid under bench dispensed with completely. The fan heater was placed on the floor and its intake extended up the end wall to take in air from the top corner of the structure. The mesh bench, with its complement of interpot slats and blocks, was then positioned 15cm (6") from the floor. Another mesh bench, without slats or blocks, was built at the original height. Another set of screens to enclose the lower tier of plants was constructed, and the winter was upon us.

The results over this period have now been evaluated. It was found that the fan running on med. heat (about 1kw consumption) ran for a much longer period and so gave a greater and more constant air distribution. My idea being, that the warm air, expelled from the fan, flowed along under the plants, rising through gaps in the slats, and giving reasonably even heat to all parts of the enclosure. It then rose through the plants on the upper shelf to be sucked down the heater intake from the top of the structure. This, in theory, gave even heating and total air movement. By shuffling round two Max/Min Thermometers and blowing in a bit of smoke on occasions, this has been found to be correct. The thermostat was not shifted from its original position,

and the min temp I set, 5°C, has a plus or minus variation of ½°C over the whole enclosure. Max temps during operating periods have also been surprisingly even. I thought the top bench temperature would have been much higher than the lower, but it was not so much as expected.

Operating costs are still at a reasonable level, despite the efforts of the N.Z.E.D. 3.25 per unit in 1980 to 4.25c per unit 1981 so we will consider mainly the number of units used, as compared to previous years. According to records supplied by Met Service at Dunedin Airport, only 3kms away, this has been a colder winter than in the past. More and longer cold periods, with higher consumption, and heating double the bench space, so I was pleasantly surprised at the moderate increase in the number of units used. I still think the system is very inexpensive to run, and is automatic except for the daily lowering and raising of the enclosing screens.

1978 120 hrs x 2 kw equals 240 units electricity.

1979 120 hrs x 2 kw equals 240 units electricity.

1980 80 hrs x 2 kw equals 160 units electricity after fitting Triglaze.

1981 240 hrs x 1 kw equals 240 units electricity costing \$10.20.

So I am back to the same number of units I used before fitting the Triglaze. There seems to be a lesson to be learned here. All my plants came through the winter in excellent condition and more of my baby mericlones came into flower this season. Checking flowering times against reports from Northern Societies News Bulletins, I only seem to be 2—3 weeks later, despite my 5°C minimum temperature. So if your power bills are climbing, you may be able to modify your methods and use some of my ideas.

# Improving the Odds

by Philip Wyatt, Orchid Laboratories, Cambridge.

Raising seedlings is possibly one of the most disheartening and at the same time the second most rewarding aspect in growing orchids. The pinnacles or orchid growing of course would be to receive an award or to win Grand Champion at an Orchid Show. With so many fine orchids available it can be difficult making your choice of suitable seedlings to grow. The principles of breeding have been extolled by many folk, and much can be learned by reading their articles and listening to lectures they may give on the subject. Admittedly the content may be biased towards the seedlings they are promoting but there is usually much valuable information to be obtained.

Looking at standard cymbidiums, crosses we have seen using Zuma Boyds have been exceptional. All have been heavy textured, flat and of good spike habit. Examples are Zuma Boyd 'Yowie Bay' x Hamsey 'The Globe,' Zuma Boyd x Kathy Lovell. As more of these and other crosses flower the full potential of the Zuma Boyds shall be realised.

I have seen the first of the Lunagrad Eianora 4N crosses flower this year. The flowers have come from small plants throwing up to eight flowers 5—5½ inches across, dead flat, I am looking forward to seeing these plants flowering when they are more mature.

The few crosses I have seen using Valley Paradise have retained the size and clear colour associated with this crossing, a factor that comes from the Pearl Easter background. Pearl Easter is also a parent of the cross Bob Waabel (Pearl Easter x Arcadian Melody) which displays a bold spike and a clear non staining colour. I look forward to seeing the first Bob Waabel progeny flowering over the next year or two.

Other clones that have produced exceptional progeny whenever used include Winter Fair 'Crystal' of the Winter Wonder's, Poetic Fair's: Sylvannia 'Sonnet': Joan Luth 'Joy' — only one recorded hybrid and every plant raised first class: the

Wyangas — 'Eianora' and 'Rhynegold' to name two prominent varieties used to the excellent Greenstone cross.

You may well ask where are the awards then if these plants are producing such fantastic progeny. It is a sad fact that there is only a small group of growers in each country who consistently grow plants and put them up for award, and thus many fine varieties never make the judges bench — the reasons for these people not offering their plants for award are varied and numerous, so the number of awards given any particular cross is rather an indication only that an award motivated grower has raised or obtained plants of that cross, and shown them.

(5) Plants that have not in my book as yet demonstrated a truly consistent line of progeny are many, and include such well known clones as Peetie 'Steadfast,' Rincon Clarisse 4N, species parents and oh how the list goes on. But this is not to say that these plants have not or will not produce first class progeny. I am still pursuing crosses using them. Possibly the most exciting development in coloured seedlings is the introduction of colchicine to produce tetraploid breeding stock, and from some of the progeny being produced we are now on the way to

seeing some excellent red, yellow and green tetraploids with tall spikes and well presented flowers.

Adding seedlings to your collection is always a gamble, but by studying form you can dramatically improve the odds in your favour. And if you feel motivated to make your own crosses spare a moment to consider whether or not it is a true development or just a shot in the dark, but I must concede it is much fun raising a cross you have made yourself to flowering, even if they end up terrible.

In my book there are five types of parents and or crosses to look out for:

(1) Where a triploid parent crossed onto a tetraploid or diploid plant, the resultant seedlings once out of the flask are generally poor growers and eventually "self destruct." In my book these are not worth the time, space and effort needed to grow them. There are occasions though when supposed triploids have proven to be tetraploid and very capable of breeding and capable of producing fine progeny. Good examples of this can be found in the Wallara cross (Auriga x Balkis) and the one cross that comes to mind is Wallara x Borough Green equals Citation.

(2) Nonsense crosses are possibly the most prevalent type of seedling raised, and these may arise when a grower has two plants in flower simultaneously and for no other reason than this, cross pollinates them. Five years later when they begin to flower — oh the heartbreak and what a waste of time. Another type of cross that also rates in this type of hybrid would be that which uses a colchicine converted tetraploid species with a diploid hybrid e.g. (C. giganteum 4N x Cariga). The progeny would undoubtedly have an extremely low percentage of usable flowers and anything worth while resulting from

the cross would be incapable of being further utilised for breeding purposes.

(3) Old and proven parents are certainly the backbone of any hybridisers' selection. How far back one goes into the historical parents for making crosses e.g. Paulwellsii 'compte de Hemptene', and Alexanderi "Westonbirt" is the subject of much debate, but when one considers the results from crosses made using clones even one or two generations removed from these, e.g. Pearl Easter, Babylon Castle Hill, the usefulness of the old foundation parents is rather suspect.

(4) If we look at some of the more recent clones successfully being utilised, and consider the advances being achieved with these clones, a better idea may be obtained of likely crosses to grow in your collection. If I start with the miniatures there are several clones that immediately come to mind. Peterpan Greensleeves 4N. must be cited as a very important parent giving ultra early greens, coming as early as March/April. Another parent that has given a high percentage of first class blooms is Gidget Zuma. I have seen it crossed with Sensation Melita, Bexley Radiance, 'Bexley' and C. pumilum, and out of hundreds of seedlings to flower only one was a throw-out.

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## Reminder Council Essay Award

Magazine subscribers are invited to enter the Council Essay Award which extends until the end of March 1982. The winner will be announced at the AGM of the Orchid Council of New Zealand in May 1982.

# PUKEKURA CORNER

By George Fuller, N.D.H. [N.Z.],  
Curator Pukekura Park, New Plymouth.

## *Earina mucronata* Lindl.



If we discount size, this New Zealand native is a 'true' orchid in the generally accepted sense for it grows perched up in trees and provided the requirements of its clambering root system are met, there is a strong likelihood of success in introducing it into cultivation where, upon close inspection, it will be found to

produce perfect miniature orchid flowers.

Having suggested that this species lends itself to cultivation I hasten to add, however, that in the interests of protecting a sadly depleted native flora the question of whether or not one should collect any orchid from the wild must be carefully thought about. There are certainly circumstances where collecting can save plants from inevitable destruction and removing them in an endeavour to cultivate or study is morally justified, but I suspect that in many cases plants are removed illegally from parks and reserves for purely avaricious motives and this cannot be condoned. We each have a moral obligation to protect our flora and enthusiasm does not exonerate us from responsibility.

I am reminded of park visitors tempted to pick 'just one' from a large floral display. Inevitably they observe that they didn't think their indiscretion would be noticed, to which I ask whether their visit would have been worthwhile had the previous 1000 visitors taken the same liberty!

*Earina mucronata*, one of our earliest described orchids is found in lowland areas throughout N.Z. and even extends to Stewart Island and the Chathams but is not found in other countries though there are earinas of other species in the islands of the Pacific.

The plants appear as dense tufts of grasslike vegetation up to one metre long hanging from trees and occasionally on rocks. They are held in place by wiry rhizomes and thick mats of fleshy roots which seem to represent the bulk of the pseudobulb found in many orchids but not this one. The extremely slender stems give rise to alternating narrow leaves up to 150mm long x 5mm wide and from the apex arises a panicle of dainty blooms each approximately 8mm across, usually cream to green but in some cases yellow to orange, sweetly fragrant and with the lip usually darker than petals and sepals. The base of the flower spike may persist to flower in a succeeding year. The growth and flowering habit is flaccid and particularly graceful.

Flowering usually occurs in September to November, but I have noticed in the park several examples of a very rich orange form which consistently blooms in mid-December and I have often wondered whether this occurs elsewhere.

When neither is in flower confusion in identification can arise between this species and *E. autumnalis* which has similar habit and distribution. If one cannot detect the coarser growth of the latter, a close inspection will usually reveal the tell-tale upturned nature of the tips of at least some of the old flower spikes which does not occur in *E. mucronata*.

Although able to survive in the most rugged and exposed natural conditions, some care is required in cultivation. I think survival in the wild is largely as a result of the expanse of the root system which can only be likened to a woven mat capable of securing every vestige of moisture and nutrient. Removal devastates this vital bond and re-establishing it is the critical factor requiring shade and constant

moisture, especially if tied to a new branch or slab of fibre. I had success in making a 'mattress' of black netlon (the type used for wind protection). The bag was formed by folding a strip in two and securing the edges with fine copper wire. A few 'tacks' were made in the middle to stop it ballooning and after filling with fine orchid mix the plant was secured to the outside, whereupon it began to grow right through the mattress and form a spherical specimen.

Our most successful efforts, however, have been to cut the whole branch well beyond the actual centre of growth thus avoiding root damage and mount this by nailing it to two posts of preserved timber driven vertically into the ground to coincide with the length of the branch and about 1.5m tall. This method produces an interesting garden feature and if the branch is screwed or wired to the posts it can be removed for display.

A final note of warning. Do not assume that because a native plant is prolific in an area that it is therefore common: furthermore that because it appears to be prolific that it will therefore be easy to cultivate at home. A plant is far more precious surviving even where few may see it than as a few dead twigs in someone's garden.

George Fuller,  
Curator, Pukekura Park

### **WANTED TO BUY**

Laminar flow cabinet in good condition. Please send details to Norman G. Wood, 409 Tremaine Avenue, Palmerston North. Phone 83-489.

### **ADVANCE NOTICE**

Taranaki Orchid Society Inc. Annual Exhibition will be held from 8th to 10th October 1982. Further particulars later.



# South Island Seminar 1981

A most successful South Island Seminar was hosted by the Marlborough Orchid Society on the weekend of 17—18 October. It had limited support from the North Island but South Island Societies were well represented and all agreed that it was well worthwhile.

Dr Ken Patterson, M.B., Ch.B. proved a very efficient Chairman in keeping the programme to time and the speakers to the point.

Many fine flowering plants were shown in the displays mounted by the Host Society, Canterbury and Wellington, and special mention must be made of the small display from the Southland Society. A fine effort!

The speakers were eager to share their knowledge of orchids and orchid growing, with emphasis on the conditions pertaining to the southern regions of N.Z. the audience being keenly attentive.

Some of the challenges encountered by South Island growers and covered in the lectures:

In building — making the best use of available heating by insulating areas not needed for light.

In potting — using local shredded bark and other local materials.

Varieties to grow — choosing the right position in the house to suit the requirements of particular genera.

Mechanical knowledge — methods of heating, providing air movement, operation of ventilators etc.

All the above subjects were covered in the lectures plus much more useful information for growers in the cooler regions.

The orchid display was enhanced by several Commercial stands,

some bringing their flowering plants long distances.

Altogether a very enjoyable and helpful weekend.

Next year the Canterbury Orchid Society are offering to host a similar weekend. When all who attended this year tell their friends of the value of the 1981 Seminar, how many can we expect to travel to Christchurch for the 1982 Seminar?

A great opportunity to display your best plants, to get information on new varieties, have any queries answered, and besides that, a time to meet with the nicest people around.

See you all in Christchurch the weekend before Labour Day 1982.

W. Ross-Taylor,  
President, Orchid Council of N.Z.



## Book Reviews

### 'A Field Guide to New Zealand Native Orchids'

by Dorothy Cooper

Forty pages of line drawings, 16 full colour illustrations and descriptions of all 73 New Zealand species.

Dorothy Cooper lives in Lower Hutt with her husband, a geologist in the D.S.I.R. and their two teenage children. She is a science graduate from Victoria University and combines her botanical interest with a love of camping and tramping. Other interests include art and music.

'N.Z. Native Orchids' was several years in preparation and the bulk of the work was completed during the two years the family spent in England whilst her husband was on a Nuffield scholarship.

Since the publication of 'Flora of N.Z.' (which can't be really classed as a field guide) there has been no

collective comprehensive work on N.Z. natives. Excellent articles have been written on selected genera and are to be found in scientific journals and other publications, but nothing such as this — a genuine field guide, easily readable, accurate line drawings and good photography, even new chums should have no difficulty in recognising plants or flowers. All in all a must for both the ardent collector and those who just wish to familiarise themselves with our own native orchids.

Published by Price Milburn and Company Limited, Wellington. Since its publication 'N.Z. Native Orchids' has received a good deal of local interest and a number of enquiries have already been received from overseas. Price \$9.95.

### **'Proceedings of the Orchid Symposium, Sydney, Australia 1981'**

The first Australian Orchid Symposium was held in Sydney, Australia, on 29 and 30 August 1981, sponsored by The Orchid Society of New South Wales.

This Symposium was unique in so far as the speakers came from all parts of the world (including Dr F.H. Wang of Peking, China) and although it was the first Symposium, it was a satellite function of the 13th International Botanical Congress and, as such, it is highly unlikely to be ever held again anywhere.

Proceedings of this Symposium are now available. They cover a whole range of interesting subjects, including 'Orchids Present and Future' by R.E. Holttum M.A., Sc.D. 'A Contribution towards the Improvement of Scientific and Market Research in Orchids' by Prof. A. N. Rao, 'Tissue Culture of Orchids' by Prof. C.J. Goh & Prof. J. Arditti and 'Why the Hell do they keep Changing Orchid Names' by Don F. Blaxell. These are presented in easy to understand language and

have some wonderful reference data with 14 pages of colour plates and some black and white.

The price of the Proceedings is Australian \$10.00 each, plus \$1.50 for surface mail outside Australia and Aust. \$5.00 air-mail (inclusive of packaging). Bulk prices and postage rates are available on request. These books are available from Mr I.D. Chalmers, 25 Turriell Point Road, Caringbah, NSW 2229, Australia.

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## **KIWI HERITAGE**

*by Bruce MacKay, New Plymouth*

I quote, "Where there are honeyed words beneath lies the mischief." (Maori proverb).

With that thought in mind I will put pen to paper and bring to the attention of all readers the sad obituary notice of some very dear friends.

It is with heartfelt grief and tears in my eyes I scribe the passing of well loved friends and companions. Their unnecessary and violent death could have been avoided. Three lifelong friends fell from sixty feet while holding hands helping each other climb a magnificent specimen Rata tree. The leading climber, *Dendrobium cunninghamii* had just reached down to give his two companions a hand to climb another branch when the tragedy happened. *Den. cunninghamii*, *Earina autumnalis* and *Earina mucranata*, whilst lovingly entwined, plunged to a horrible death. Bruised, battered and broken these three friends who had offered nothing but happiness to mankind and birds alike, were unable to crawl clear of the oncoming bulldozer and were mercilessly crushed beneath its tracks.

Friends and mourners were spared the sight of their suffering as a quick diesel cremation was their ultimate end. Some thoughtful person had the presence of mind to write the funeral date in the local paper with a proper notice. "Road closed for reconstruction, motorists advised to detour via marked signs."

New Zealand native orchid species are my interest and concern and I would like Orchid societies to give more thought to saving the lives of many New Zealanders and encourage members to grow and not feel ashamed of our own NZ orchids. Let the NZ orchid be seen and be competitive within itself with a class for them at our shows.

C'mon New Zealand, in all my travels to various shows I get the feeling of almost contempt for our native orchids, these are always very conspicuous by their absence. Beauty is in the eye of the beholder, so next time you are in the bush have a closer look, you'll be surprised.

At the National Orchid Show held at Eilerslie I was speaking to an American who said "Where are the typical New Zealand home grown orchids? I have come all this way to see what you can offer and nearly all I see here we have at home, don't you have your own orchids here in New Zealand?" I knew where every NZ orchid at the show was situated so I filled in the next 30 seconds showing him our pride and joys. Maybe I am exaggerating, it was actually two minutes but you know what I mean.

With the prospect of New Zealand hosting a World Orchid Conference in a few years I would like to see an effort made now to grow NZ native orchids so we can put on a display of them and show the rest of the world our Kiwi heritage.

# Growth and Development

continued

by P.C. Tomlinson

## What controls plant growth:

We have considered the factors essential for plant growth and development to take place. From a practical point of view it is appropriate to consider what controls the size and production obtained from any plant.

You may think that the areas of your culture covered by the above factors that you complete best, will control your growing success. In fact this is not the case. It is the areas where you provide the least acceptable conditions for a plant that will influence the results obtained. The position can be summarised as follows:

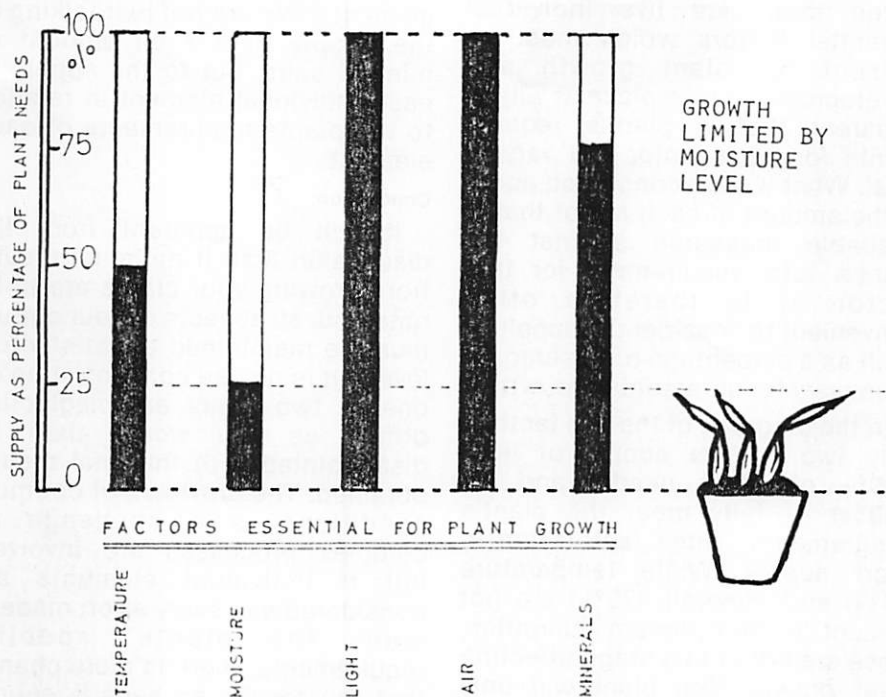
- It is the factor of growth present in the minimum amount in relation to the plant's requirements of each element that controls the growth achieved.
- Growth rises and falls depending on whether this growth limiting factor is increased or decreased.

This can be illustrated by an example that well portrays the principles involved. If everything else is provided in the amount and form required, but water is in short supply, then it is the lack of this water that will restrict the growth.

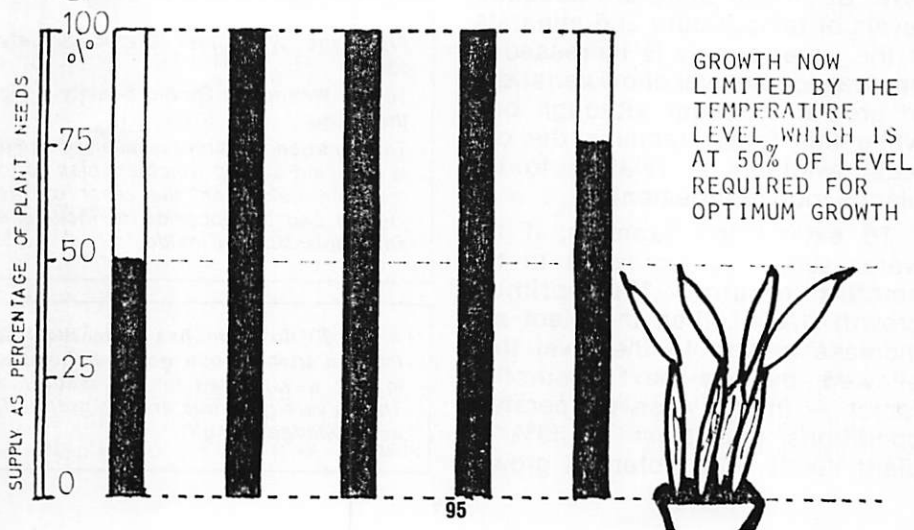
If no moisture is available, the plant will die. If only a very small amount is available, some growth will occur, but the plant's full potential will not be obtained, this

# Control of plant growth

## fig 1



## fig 2



potential not being achieved until all factors are present in the amount required.

The process which controls plant growth can be illustrated in the following diagram. As previously noted there are five individual essential factors which must be present for plant growth and development to take place. It will be apparent that a plant's requirements for each factor will vary in total. What we are concerned about is the amount of each factor that is available measured against the plant's total requirement for that factor. It is therefore often convenient to consider the supply of each as a percentage of the amount necessary for unrestricted growth.

In the diagram, of the five factors, only two — the supply of light (100% of plant needs) and air (100%) — fully meet the plant's requirements. Three factors are in short supply. While temperature (50%) and minerals (75%) are not present in the optimum quantities, these are not at this stage affecting plant growth. The plant will only grow to the extent allowed by the shortage of water (25%), as at that level of growth there are adequate levels of temperature and minerals. If the water supply is increased or decreased, this will allow variations in growth to occur although only while this factor remains the one least available in relation to the plant's total requirements.

To extend the example, if the water supply is increased to the amount required for optimum growth (100%), then the plant will increase growth to the level then allowed by the next restricting factor — in this case temperature conditions that exist at 50% of plant needs. Full potential growth

and production levels will not be achieved until all five factors are available at 100% of requirements.

It is relevant to note that the above principles apply also to each of the 16 essential mineral elements. We are not just talking of the supply of a total amount of mineral salts, but to the supply of each individual element in relation to the plants requirements of each element.

#### **Conclusion:**

It will be apparent from the discussion that, if optimum results from growing your plants are to be obtained, all aspects of your culture must be maintained at satisfactory levels. It is no use concentrating on one or two areas and neglecting others as you would then be disappointed with the final results obtained. The provision of optimum conditions is a challenge as complex processes are involved, but if individual elements are considered and every effort made to meet the plants' specific requirements, there is more chance that the results so eagerly sought will be obtained.

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# O.C.N.Z. AWARDS 1980

Award No. 1/80: Paph. World Frolic 'Samba' — Mr F. Askin — HCC. Dimensions: Natural Spread 90mm. Dorsal Sepal Length 64mm, Width 90mm; Ventral Sepal Length 60mm, Width 66mm; Petals Length 73mm, Width 51mm; Lip 58mm, Width 38mm. Dorsal Sepal White with apple green centre and base, maroon spots all over white portion. Ventral Sepal light apple green with maroon spotting. Petals well defined median stripe, apple green bottom half over-laid with some maroon spots. Top half petals maroon. Pouch maroon, changing to apple green at the bottom.

Award No. 2/80: Paph. World Spa 'Irene' — Mr F. Askin — FCC. Dimensions: Natural Spread 100mm. Dorsal Sepal Length 71mm, Width 100mm; Ventral Sepal Length 64mm, Width 73mm; Petals Length 73mm, Width 57mm; Lip Length 56mm, Width 33mm. Dorsal Sepal white with apple green centre over-laid with maroon spots. Ventral Sepal light apple green with a few maroon spots. Petals broad horizontal, upper margins symmetrically waved, maroon with narrow yellow margin, green towards base. Pouch overall deep maroon with yellow-gold top edge.

Award No. 3/80: Odontoglossum Chilliwick 'Tuatahi' — Mr A.H. Blackmore — HCC. Dimensions: Natural Spread 90mm. Dorsal Sepal Length 46mm, Width 36mm; Lateral Sepals Length 45mm, Width 31mm; Petals Length 43mm, Width 52mm; Lip Length 22mm, Width 27mm. White flower, Sepals faint maroon flush. Lip white with yellow centre, some maroon spots on white portion of lip. One spike, 12 flowers.

Award No. 4/80: Cym. Via Vista 'Winter Sunrise' x (Rincon x Self) 4N 'Meda' — Mr F.A. Ballard — HCC. Dimensions: Natural Spread 105mm. Dorsal Sepal Length 72mm, Width 45mm; Lateral Sepals Length 69mm, Width 49mm; Petals Length 61mm, Width 38mm; Lip Length 45mm, Width 36mm. Pale yellow with maroon band on lip. Two spikes with 7 and 8 flowers.

Award No. 5/80: Odontocidium Tigerson 'Paradise' — Mr R. Maunder — HCC. Dimensions: Natural Spread 105mm. Dorsal Sepal Length 59mm, Width 28mm; Lateral Sepals Length 56mm, Width 25mm; Petals Length 48mm, Width 24mm; Lip Length

38mm, Width 30mm. Brown and yellow striped petals and sepals. Yellow lip with brown band. One spike with short branch. Sixteen blooms and two buds.

Award No. 6/80: Cym. Levis Duke 'Bella Vista'; — Adelaide Orchids — HCC. Dimensions: Natural Spread 113mm. Dorsal Sepal Length 65mm, Width 43mm; Lateral Sepals Length 65mm, Width 42mm; Petals Length 62mm, Width 40mm; Lip Length 30mm, Width 28mm. Lime green with wine spotting on lip and pale pink edging. One spike of 12 flowers.

Award No. 7/80: Paph. Kay Rinaman 'Golden Touch' — Adelaide Orchids — AM. Dimensions: Natural Spread 95mm. Dorsal Sepal Length 63mm, Width 95mm; Ventral Sepal Length 52mm, Width 60mm; Petals Length 70mm, Width 51mm; Lip Length 52mm, Width 35mm. Dorsal yellow green, white edged. Ventral Sepal yellow-green. Petals lower halves yellow green, upper halves faint orange brown blush. Pouch orange brown blush changing to yellow green at the bottom. Single bloom.



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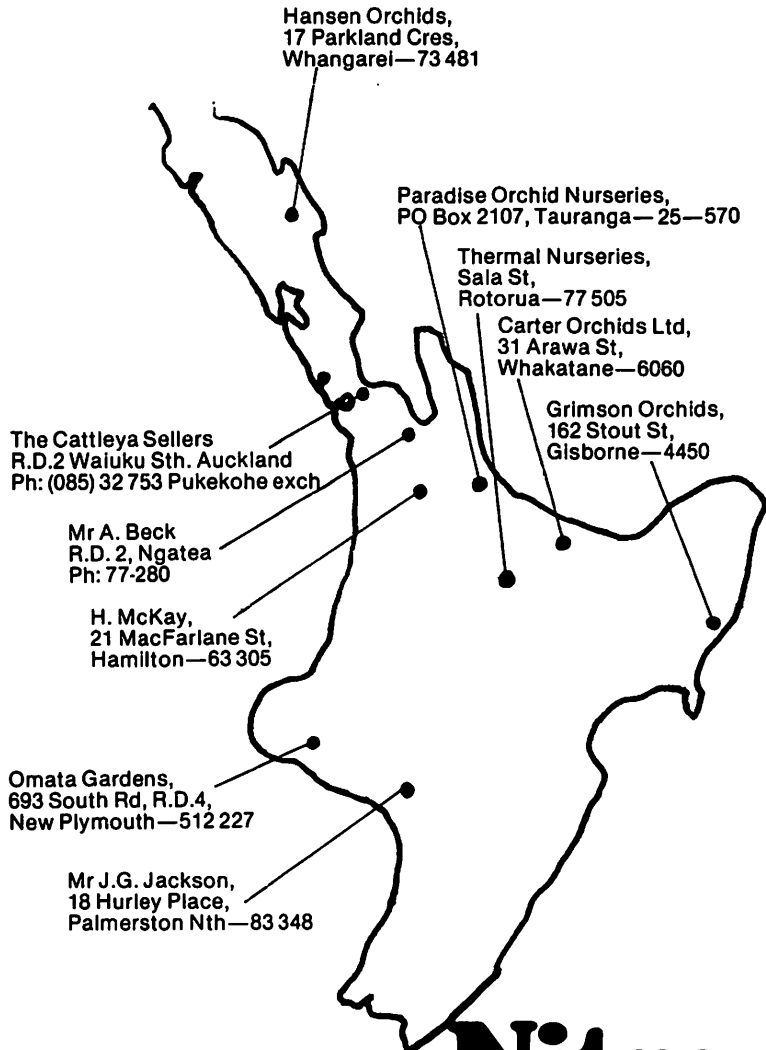
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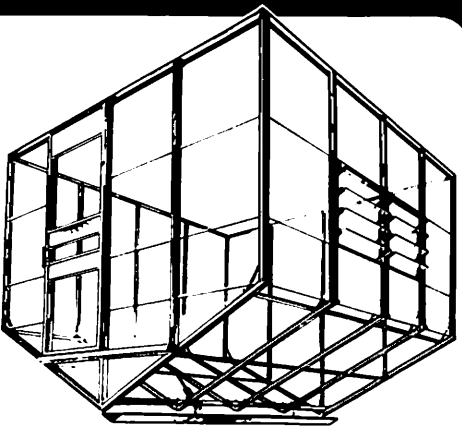
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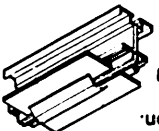
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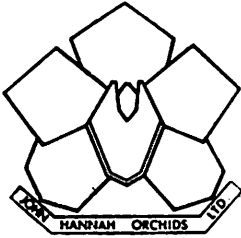
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