



*The*  
***Rhododendron***

*Official Journal of the Australian Rhododendron Society*

**2002**

**Volume 42**



*Rhododendron* 'Konori'



*Rhododendron nuttallii* · see page 10

# The *Rhododendron*

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The *Rhododendron*, the journal of the Australian Rhododendron Society Inc., is published annually by the Society. Material for publication in *The Rhododendron* is welcomed and contributors are requested to note that the closing date for each issue is August 1.

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# The Australian Rhododendron Society Inc.

## Aims

The Society's objective is to encourage interest in and disseminate information and knowledge about the genus *Rhododendron* and to provide a medium by which all persons interested in the genus may communicate and co-operate with others of similar interest

## Membership

Membership of the Society is open to all persons interested in the objectives of the Society upon payment of the annual membership subscription. For further information contact Branch Secretaries or the National Secretary.

## Subscriptions

Annual subscriptions cover the period 1 July to 30 June, and vary up to \$25 depending on the Branch selected. (Branches set their own level, out of which an amount is paid to the national Society). The annual journal *The Rhododendron* is included as a benefit of membership.

Overseas members annual subscription is A\$25, which includes affiliation with a nominated Australian Branch and *The Rhododendron* sent by airmail in the last quarter of the calendar year. Contact the ARS National Secretary. Overseas subscriptions may be paid by bank draft or cheque payable in Australian dollars. The Victorian Branch can accept Visa or Mastercard payments.

## Contact details

Details of local Branches, along with Office Bearers of the Australian Rhododendron Society, are listed on page 79.

# *The President's Report*

**T**he month that I am writing this report for the Rhododendron Journal is late July. It needs to be received for publication by the deadline in August. Please, bear with me. As someone from the past once said; 'life was not meant to be easy'! Those who bother to read this report must excuse me for producing a rather disorganised product. I can imagine most members stifling a yawn, a little one at least, and saying 'not another ear bashing'.

Indeed, I did produce a letter to all Society members earlier this year, and I asked the Branch secretaries if they would be so kind as to photocopy this boring epistle and distribute it to their members. As I have indicated before it is my strong belief that proper communication is essential in these days of stress and strain in the community.

The fact is that I did not receive any response from the secretaries or their members in regard to the start of this year's missive. It caused me to wonder (1) was the letter not read? (2) was it very boring or useless? or (3) were there no problems? (4) did the members not receive a copy? It will be understood that I am most reluctant to try and approach everyone again, but I do feel obliged to try. In any case, our National Secretary said that I had to try! So did my wife.

At this stage of the year we are more than halfway through. Exciting days are just beginning and we rhododendron lovers are going to be kept very busy in a number of ways. Apart from this, I must try to give notice of things that are almost certain to happen later in the year, and I make no apologies if these things do not occur. So! Here goes!

Changes will probably occur in the Society's Council and its Executive make up. Val Marshall, after very many years of very dedicated and excellent service, has indicated her intention to resign as the National Librarian. She will be missed with great sadness. Bearing in mind the fact that the National Library is situated in Victoria, and that a number of the books are very precious, it seems to be essential that another member of the Victorian Branch should take over the responsibility for the National Library books. There is a significant problem in letting these expensive books go on loan interstate because of the costs involved and the risk of loss. However, this could be discussed further by Council if necessary. If anyone in the Society can suggest a solution to this problem, I would be pleased to hear from them.

After many years of excellent, dedicated and meticulous work Barry Stagoll has indicated his sincere wish to retire as National Secretary. I am quite sure that Barry needs a rest. One of the problems is that he has high standards and another is that it's hard to find anyone willing to take over. I would emphasise the need for a replacement and I would ensure anybody that the foot does not

have to be on the accelerator all the time. It is essential that someone steps Rhododendron to take over. I do not want to be responsible for Barry's further exhaustion! It is rather lonely being a President, and not always a lot of fun.

The important matters in our Society are related to the make up of Council. I am very positive that there must be two delegates from each Branch and that these delegates are responsible for looking after the Branch members and keeping them informed on all matters related to our Society. Indeed the necessary responsibility for delegates is to produce a sense of equality in the various Branches. This has always been important in the National Council in which I have been involved in over the years. With the distances between the Branches, all members must feel a part of the organisation. A top heavy Council is not acceptable.

The problems in relation to the present situation is, in part, the cost to the Society for reimbursement for travel etc. I am convinced that Council's membership could be reduced by four without reducing the number of delegates. This is, in no way, any criticism of any of these very fine persons. The Librarian, Technical Officer and Registrar could all report to Council. The fourth person is the Past-President! In all the societies in which I have been involved, past-presidents were left off the map many years ago. In our Society where a president serves for three years, and then another three years after presidency; there can be a grave danger of the 'old General' factor. There is nothing so past as a past-president. I have no desire to be a nuisance and fill that role. We are living in the past. After all these persons can always come to a meeting and say wise things to the general body of members from their wealth of experience. The loss of the above four people must allow finances for delegates to attend meetings and play their part. The Council needs changing faces and minds to blend our Branches together. This is essential in any organisation which has a purpose and responsibilities. It is important to maintain a rhododendron fellowship.

By the time that this report makes any sense to Society members we will probably have met in Hobart at the National Convention. I look forward to meeting everyone who can possibly come. It promises to be a wonderful meeting.

For advance information the 2003 National Convention is at Emu Valley and in NSW in 2004. I think the wonderful NSW Branch may need some help for this.

Finally, I would ask every member to think on what has been written and support all of those who do their best to support you.

*Allan Kerr Grant*  
*July 2002*

*AUSTRALIAN RHODODENDRON SOCIETY INC.*

*Annual Report for the Year 2001–2002*

BARRY STAGOLL

The 2001 Annual General Meeting of the Australian Rhododendron Society was held on Saturday 13th October at the Mount Lofty Golf Club, 35 Golf Links Road, Stirling, South Australia, during the Society's annual National Convention held in the Adelaide Hills and hosted by the South Australian Branch. A meeting of the Society's Committee (National Council) was held on the previous evening at the home of President Allan Kerr Grant.

The President's Report delivered to the AGM was published in *The Rhododendron* 2001.

The AGM was advised that the National Council at its meeting had accepted with regret Graeme Eaton's decision to retire as Australian Rhododendron Registrar after dedicated service in this role over a number of years; the results of which included a much-upgraded database of Australian hybrids and a slide collection recording most of these plants. It was announced that Ken Gillanders, who served as Registrar many years previously, had agreed to take this role again. The Council had decided not to make a fresh appointment to the role of Technical Officer vacated by Ken Gillanders.

The remaining officers on National Council were confirmed in their existing roles. Neil Jordan continues to serve as Immediate Past President.

The full membership of National Council, to serve from the close of the AGM, as reported to the AGM comprised the following:

*Officers*

President	Allan Kerr Grant
Vice President	Lesley Eaton
Secretary	Barry Stagoll
Treasurer	Neil Webster
Librarian	Val Marshall
Registrar	Ken Gillanders
Immediate Past President	Neil Jordan
Public Officer	John Schutz

*Branch Delegates to National Council*

Southern Tasmania	Barry Davidson Sue Wells
Emu Valley R.S.	Maurie Kupsch Ivan Johnson

South Australia	John Schutz Robert Hatcher
Victoria	Carole Quinn John Quinn

The Society's Financial Statements for the year ended 30th June 2001 were received and adopted (as published in the *The Rhododendron* 2001).

A highlight of the AGM was the announcement that at the National Council meeting an application for affiliation by the Australian Rhododendron Society New South Wales Branch Inc. was approved, and the representatives of the new Branch present (Hazel Holmwood and Jan Skott) were welcomed and congratulated on behalf of its full membership. Incorporation of the new Branch had been achieved in the early part of 2001. The AGM was informed also of the election to Life Membership of Mr. W. (Bill) McClure of the Victorian Branch (reported separately in this issue).

National Council held a further meeting by teleconference in April 2002.

Aside from the usual routine matters, during the year National Council dealt with the following:

- continued development of the national internet website, and planning for future features and interaction with Branch sites.
- the affiliation of the new New South Wales Branch, as mentioned above
- concurrence in the planning of the 2001 Journal, including retention of the Editorial Committee to foster, assemble and review material for publication, and re-appointment of Richard Francis as Editor
- a review of the legal situation relating to copyright in articles published by the Society, and the establishment of an agreed approach to handling requests of the Society for consents to republish such articles, including republication on the internet
- oversight of the "Vireyas in Botanic Gardens" project, and approval of an initial modest budget for expenditure on preparing to assist gardens' staff with relevant planning and cultivation information
- Council was also pleased to be informed at its April meeting that Australia Post intends to include a rhododendron stamp in a 2003 stamp issue depicting Australian hybrid garden plants

Paid membership numbers have been stable to improved at the various Branches, with the overall total increasing slightly, partly due to the addition of the members of the New South Wales Branch (who will commence to pay the national membership levy during the present financial year). As hoped our internet presence is attracting a modest flow of new memberships, including members based overseas.



The financial outcome for the 2001/2002 year was somewhat down on that for the previous year. The national accounts for the year, which appear elsewhere in this issue, disclose a deficit (decrease in net assets) of \$431 (2000/2001 surplus \$581). The main area where costs increased was production of the annual Journal *The Rhododendron*, partly because of the commencement of payment to the Editor for his professional work on preparing the digital input for the printer, and partly because we were successful in attracting a high volume of quality content which was accommodated by increasing the page count. Printing costs have been rising still from year to year in any case. However, despite considerable effort to acquire new advertisers, advertising revenues have fallen considerably over recent years. Some long-standing advertisers have closed their businesses, whilst others have dropped out citing reduction in advertising budgets. Members' promotion of the Journal as an effective and economical advertising medium to firms with which they have contact could be helpful in this regard. Any interest should be referred to the Secretary.

Council's teleconference costs and secretarial costs for the year were held under those for the previous financial year, but travel costs for the October meeting were over twice the 2000 level. The national membership levy was held at \$15 per member; the total of members' levies paid to National Council from Branch subscriptions being almost identical to that for the previous financial year (no GST is required to be collected on these, nor is any incurred on their transfer to the national Society).

National Council will hold its next meeting in Hobart during the October 2002 National Convention hosted by the Southern Tasmanian Branch. The Branch has put much effort into organising this event, which for the first time will be held in conjunction with the Annual Rhododendron Show held at the Hobart Town Hall, and a Rhododendron Art Show will also be staged. Next year's National Convention is to be held in Burnie, Tasmania, with our hosts to be the Emu Valley Rhododendron Society.

The Annual General Meeting of the Society for 2002 will be held during dinner on the Saturday evening during the Convention (members have received formal notice of meeting, and their personal invitation to the Convention, through their Branches). ❀

# Life Membership

Bill McClure of Victorian Branch was granted Life Membership of the Australian Rhododendron Society, on the nomination of his Branch, at the National Council meeting held in October 2001. The citation presented by Victorian Branch, and prepared by members Arnold Teese, Bill Taylor and Murray McAlister, read:

“William (Bill) McClure was one of the 53 members of the Rhododendron group of Ferny Creek Horticultural Society (a subset of the Society formed in the 1950s and known as the Australian Rhododendron Society), who chose, at a tempestuous meeting at Ferny Creek Hall, in February 1960, to set up the ARS as an autonomous group.

Of the 53, those still members of the ARS can be counted on the fingers of one hand.

Under the guidance of the founding President, Alfred Bramley, this small group, now without a venue for its meeting or shows, used the facilities of the Olinda Hall and Football Ground. Bill had for several years been a close friend of Alfred Bramley, and under his tutelage developed a sound knowledge and abiding interest in the genus.

Along with others of this small group, Bill gave a great deal of his time to the fledgling society, which included the arduous tasks of setting up and conduct of the early Cup Day Shows at the Football Ground, formative planting of the National Rhododendron Gardens, and construction of the buildings which were to later serve as Clubrooms and Show space.

He was a valued member of the Society in those early years, not only for his physical contributions, but also because of his devotion to the *Rhododendron* genus particularly in the areas of cultivation and propagation.

Bill has persisted with his interest in the genus over the succeeding forty odd years. As a serious enthusiast, he was one of the first members to volunteer to join the reconstructed support group about ten years ago, where he has further contributed in a practical manner to the society through propagation and at Society Shows.

Bill is a consistent and persistent advocate of the Society; and for the genus in his own modest and inimitable style.

His contribution over such a long period of time is therefore unequalled.” ❀

*The Spring 2003*  
**ARS NATIONAL CONVEN-  
TION**

The Society's next National Convention will be hosted by  
the Emu Valley Rhododendron Society

**Weekend of 18th and 19th October 2003**

*Place the dates in your diary now.*

It promises to be a great weekend of garden visits and camaraderie  
between rhododendron enthusiasts. Featuring the Emu Valley Rhododen-  
dron Garden, which just gets better and better.

As usual, Branch Newsletters (and the ARS website at [www.austar-metro.com.au/~mirra](http://www.austar-metro.com.au/~mirra)) will carry more details of the event, the booking  
arrangements, and the contacts for registration nearer the time.

*We hope to see you there!*

*You are cordially invited to join the*  
**American Rhododendron Society**

**Annual Subscription of \$28 (USA)**

**Benefits: quarterly journal, seed & pollen exchange,  
chapter affiliation, conventions.**

Dues may be sent to:  
Dee Daneri, Executive Director  
11 Pinecrest Drive  
Fortuna, CA 95540 USA

ARS Home Page: <http://www.rhododendron.org>

Rhododendron & Azalea News:  
<http://members.aol.com/RandANews/news.html>

# *My Edinburgh rhododendron experience*

## *Rhodo '02 Conference and vireya study Visit*

GILLIAN BROWN

School of Botany, The University of Melbourne, Melbourne, Victoria &  
Centre For Plant Biodiversity Research, CSIRO Plant Industry, Canberra

I was extremely excited when Dr George Argent invited me to present a paper at the Rhododendrons in Horticulture and Science conference held in Edinburgh earlier this year. Going to Edinburgh also gave me the opportunity to see and study the fabulous collection of vireyas at the Royal Botanic Garden Edinburgh, probably the biggest collection of vireya species in cultivation.

### *Vireya research*

My PhD project is the reason I was invited to Edinburgh so I thought I would relate a little about my research and results to date. I am investigating the evolutionary and biogeographic relationships of *Rhododendron* section Vireya, which is the largest section of the genus – consisting of approximately 300 species. Vireyas are predominantly montane plants that extend from India in the west to the Solomon Islands in the east, Taiwan in the north and northern Queensland in the south.

Vireyas are scaly rhododendrons possessing seeds with a tail at each end; they are also defined by their unique distribution. There is a large range of morphological forms in section Vireya and these have been further split into seven subsections on the basis of scale type and corolla shape: Albovireya, Euvireya, Malayovireya, Phaeovireya, Pseudovireya, Siphonovireya and Solenovireya. Despite taxonomic progress within the section over the past 20 years, the evolutionary relationships of vireya rhododendrons are still poorly understood and this is where my project comes in.

I am using molecular (DNA sequences) and morphological data sets in phylogenetic analyses to test the naturalness of the presently-defined subsections and the relationships of a number of species. My results to date, from two chloroplast DNA regions and preliminary morphological investigations, do not support the presently recognised subsections of section Vireya. Instead, many of the groups supported correlate strongly with the geographic areas in which they grow. I still have a lot of work to come, but the results are telling an intriguing story, similar to some other plant groups growing in the region.

## *Rhodo '02 Conference*

The Rhododendrons in Horticulture and Science conference was held at the Royal Botanic Garden Edinburgh (RBGE) from 17 to 19 May 2002. It was a great success, the mix of scientists, horticulturalists and avid rhododendron growers worked really well. Delegates came from all over the world with representatives from Australia, New Zealand, Asia, Europe, USA, and the majority from the UK. There was something for everyone to enjoy with 30 talks presented over three days, poster displays on recent developments of the rhododendrons, garden tours, book sales and social events every night. As well as all the scheduled events there were many opportunities to stroll around the gardens. The rhododendron collection at the RBGE is extensive and even though many of them had flowered early due to unseasonable conditions prior to the conference they still looked fabulous. I think the Royal Botanic Garden Edinburgh is a must-see for lovers of rhododendrons.

The presentations were all of a high standard and the topics were wide-ranging, with talks from rhododendron collecting expeditions in exotic places such as Yunnan and Tibet, to rhododendron garden updates and cultivation techniques, to the latest scientific work on the genus. There were several lectures concentrating on the vireya rhododendrons: Professor Erik Nilssen talked about leaf anatomical traits unique to the vireyas, David Binney told us of his adventures collecting vireya rhododendrons in Sulawesi (Indonesia), Dr George Argent discussed species patterns within the section, and I presented the results to date from my PhD work, titled "Vireya Rhododendrons: an insight into their relationships". My talk was well received and a number of people came and spoke with me about my research – there was even an offer of some unique plant material for my project.

Attending the conference gave me the opportunity to meet and talk with rhododendron experts and devotees, including people I have been in contact with over the past few years. I made a lot of new friends and contacts throughout the conference, especially through the social gatherings, all of which had a rhododendron theme. The conference commenced with the opening of the Rhododendrons in Art Exhibition, which displayed stunning rhododendron paintings, scanning electron micrographs, and also photographs from both historical and recent rhododendron expeditions. The conference dinner was the following night. It was a grand affair held in the beautiful Signet library, a building not always open to the public, and on arrival we were welcomed by a man playing the bagpipes in full Scottish kilt. The after dinner speaker, Sir Peter Hutchison, gave us an extremely entertaining talk on one of his first collecting trips to China. Also at the conference dinner Dr George Argent was presented with a Gold Medal by the American Rhododendron Society for his years of dedication and research on the Ericaceae of S.E. Asia.



All in all it was an extremely interesting and stimulating meeting and I thoroughly enjoyed it. The conference proceedings will be published in the *Edinburgh Journal of Botany*. Publication is planned by around May to June 2003.

### ***Studying the vireya collections at RBGE***

After the conference I stayed in Edinburgh for two weeks to study the extensive living and herbarium collection of vireyas at RBGE. The living collection was amazing, with about 150 species – about half of the section – growing in the glasshouses. It was a fantastic sight walking through so many vireyas, a large proportion of them in flower. For me it was the first time I had seen many of the species, as they grow across such a large geographical area and in difficult to reach places such as isolated mountains. Some of my favourites were *Rhododendron praetervisum*, *R. konori*, *R. citrinum*, *R. stenophyllum* and *R. vitis-idaea*. The flower buds and foliage of some species were often as attractive as the flowers themselves. In my time with the living collection, I walked around the vireya glasshouse with Dr George Argent, the world expert on vireyas, who kindly shared his knowledge of the plants that he has collected and investigated for the past 20–30 years. I spent a number of mornings in the glasshouses photographing the vireyas and taking in everything I could about different species. I made notes on the stamen arrangement of species that were in flower and I also collected leaves of several species to be used in my molecular work.

I could have spent days in the research glasshouse ogling the vireyas, but I had other work to be done during my stay in Edinburgh. The rest of my time was spent in the herbarium sorting through specimens, gathering location information on individual species and making morphological measurements. I also spent a morning on the scanning electron microscope (SEM) with Maureen Warwick, a staff member of RBGE, looking at the finer details of some vireya leaves and flower buds. Over my two weeks in the Edinburgh herbarium I had many interesting conversations with scientists based there, and the time went by so quickly I couldn't believe it when it was time to go home already.

My trip to Edinburgh was very rewarding and productive and I hope to go back and visit again soon. ❀

### ***Acknowledgements***

This trip was extremely beneficial to me and wouldn't have been possible without the generous funding support of the Australian Rhododendron Society Victorian Branch, The Royal Horticultural Society and the University of Melbourne's School of Botany and Scholarships Office.

# *Management of Lace Bug at Mount Tomah Botanic Gardens*

KATHY WILSON

With the ongoing “lacebug on rhododendrons” discussions that inevitably occur amongst Society members and horticulturists, some information from Mount Tomah Botanic Gardens’ Procedures and Plans may be of interest, and perhaps even offer some hope, for the management of this very clever, but very damaging, insect.

Over the last 15 or so years many changes have been implemented, and are ongoing, in the management practices for rhododendron lacebug at MTBG. These changes have been brought about by many factors including pesticide resistance, a greater awareness of the unacceptable aspects – both to humans and the environment – of the use of upper range S-rated chemicals, and changes in the range of new products available.

Initially the rhododendrons, some 1,800 specimens, were “preventively” sprayed with a systemic – up to an S7, such as Lebaycid®; an S6 – Folimat®; an S7; or Metasystox® – which was de-registered six or seven years ago. These are no longer considered best options due to their toxicity to operators, and the inconvenience of withholding periods required before re-opening areas to the public after spraying. The toxicity effects to bees and other insects are also taken into account. Products containing pyrethrum are also not favoured as pyrethrums kill all insects. The marketing of the “natural” qualities of pyrethrums has masked the fact that it kills all insects, the “beneficials” as well as the targeted “problem” insect.

For the last few seasons two trials have been running using DC Tron Plus®, a highly refined petroleum-based “winter oil”, and lately, Azamax®, derived from neem oil and recommended to be mixed with Eco Oil®. Although Azamax® has some systemic action (a few days) it is mainly a contact insecticide, and DC Tron Plus® has a physical (smothering) action rather than a chemical one. These products do not have fast/knockdown and systemic action to the levels we are accustomed to expect from previously mentioned systemics, thus requiring more frequent applications (as often as every ten days, or as hatching/emergence of nymphs is noticed). The most critical aspects of using these are the timing and comprehensive coverage, i.e. at the onset or presence of nymphs, before they become adults.

Both the products we are trialling – DC Tron Plus® and Azamax® – only control nymphs. Therefore, if it is a population of adults rather than nymphs to be managed an application of Confidor® is appropriate.

Presently Imidacloprid, an S5 sold as Confidor<sup>®</sup>, is used as the main backup treatment if the latest trials are not keeping adult numbers down to acceptable levels.

Caution: The use of Confidor<sup>®</sup> more than once on any plant in any one season, can bring on a resistance. This is well documented from use in glasshouse vegetable production in Europe. So a return to frequent applications of Azamax<sup>®</sup> or DC Tron Plus<sup>®</sup> will control nymphs. There is a short period of systemic action from Azamax<sup>®</sup>, and both these products need to be generously sprayed onto the undersides of the leaves of affected plants to make good contact with the nymphs. Applications as frequently as ten day intervals will not harm plants, providing drought conditions are not being experienced, with continuous bright hot sunny days.

Our records show that results have been good overall, with only occasional use of S5 treatments, as the back up for the two “softer” options. The weather conditions are the unpredictable factor, of course. Warm, dry conditions over extended periods are an alert to check for outbreaks. In managing such a large and widespread collection of rhododendrons, communication between staff responsible for different areas is critical to timing of spraying .

There is some discussion amongst staff about specimens which are planted in direct sunshine and which are repeatedly attacked by lacebug. These susceptible plants are from the flowering groups varying from white, cream, purple or even vermillion-red, so the theory that pale coloured flowers are the most likely to be affected is not reliable. Certainly any specimens with an easily visible indumentum are mainly unaffected. Walter Lobbezoo at the National Rhododendron Gardens, Olinda, has found that shade on group plantings can be most beneficial. We have also found that new growth is not favoured, either because it hasn't the preferred nutrition content, or perhaps simply because the nymphs, after hatching, are still on the previous season's foliage because it's convenient. Some pruning after flowering can also be very beneficial, although not always achievable in tall specimens.

The best management of lacebug is now a long term process, and an investment. Our records show that if one season is well managed, by good practices and/or favourable weather conditions, then the following year can be more easily managed. The new products available mean a constant re-examining of our programs. ❁

Kathy Wilson is a Senior Horticulturalist at the Mount Tomah Botanic Gardens, the “cool climate” gardens of the Royal Sydney Botanic Gardens, situated in the Blue Mountains west of Sydney.

Her article makes mention of certain commercial pesticide products. The views expressed about these and as to their usage are those of the author, and the Society's or the Royal Botanic Gardens and Domain Trust endorsement of any particular products, or suggestions on their use, should not to be implied by the reader.

# *More on Australian hybrids*

KEN GILLANDERS

Once the hybridising of rhododendrons was mainly confined to the owners of large estates in England, and on a smaller scale, large nurseries specialising in rhododendrons. Reading back over past records reveals the same names of early hybridisers in Great Britain recurring frequently over a long period prior to the last World War. In those days buying a rhododendron was quite an expense, with the result that they were not as common as garden plants as they are today.

Now everyone can afford to grow them. Propagating techniques have made the producing of rhododendrons an easy matter, and they cost no more than any other common garden plant. As a result of this many amateur growers now enjoy the interest of hybridising. This is obvious from the large amount of registrations in Australia, New Zealand and the United States of America. In the past 50 years I have been involved as a nurseryman in propagating, growing and selling rhododendrons, and it is obvious that some plants appeal to the public more than others. This demand by the public for certain plants is based on the flower colour, flowering time, colour and shape of the leaves, and size and appearance of the plant. This preference and demand helps to distribute plants of these particular hybrids and prolongs their continuing presence in our gardens. For instance, take *Rhododendron* 'Pink Pearl' and *R.* 'Cornubia', hybrids made over 100 years ago but still asked for. These are only two of many that are still grown and asked for today. One could say these plants have been surpassed by some recent introductions but they have stood the time test. One wonders what hybrids made in the last 40 years will be still be grown 100 years from now.

I would like to mention several Australian-registered rhododendrons that I have found popular with the public, all of which are good commercial plants that may stand the test of time. There are many more I could mention and those I have selected are not necessarily my own choices, but what I have found in demand by customers over the years. This in no way detracts from the wealth of great Australian hybrids that have been produced. What new hybrids will be developed in the future is of course quite unknown, also climatic conditions in different areas can affect the popularity of some plants, and growers from another area may come up with a different selection.

'Bronze Wing': Raised and registered by Arnold Teese; parentage unknown. Always popular for its conspicuous young bright bronze foliage. Forming a

good compact shrub, its leaves are well shaped and deep green. Free flowering, its small soft pink trusses appear in October.

'Colehurst': A hybrid of 'Houlstonii' × unknown or 'Van Nes Sensation'. Named by V.J. Boulter in 1978. A strong grower with good firm foliage standing up well in a sunny position. Makes a well-shaped bushy plant that will grow quite tall with age. Its large lilac-pink flowers are flushed creamy pink in the centre and are held in a firm compact truss. It is free flowering as a young plant and blooms in October.

'Freckle Pink': A hybrid of ('Marion' × 'Midnight') Raised by Karl Van de Ven and named in 1984. This plant, due to its flowering in late August and early September, is a valuable addition to the early hybrids. Flowers a beautiful pink with heavy spotting. A very popular plant, although its growth tends to be a bit open and it is not a vigorous grower. However, I feel its good points outweigh these negative comments. Its availability is affected by it being difficult to propagate.

'Denise': (Iepidote) 'Winter Favourite' × 'Chrysomeanicum'. W. J. Boulter 1971. Flowering early in the season August–September. A great little plant as long as your area does not get frosts. Unfortunately for me spring frosts are an annual occurrence and I lose some flowers. It has good deep green foliage forming a compact bush up to 60 cm or so. It covers itself with deep rose-pink buds opening to soft apricot pink flowers with a hint of yellow, this becoming more obvious as the flowers age. Upper lobes speckled red. There are not many rhododendrons flowering with this colour at this time of the year.

'Midnight': A cross of 'Purple Splendour' × 'Cup Day' by Karl van de Ven 1978. A strong grower forming a good compact shrub. Well formed deep green foliage. Free flowering with trusses of 16 florets of deep red-purple with a dark throat, heavily spotted on the upper lobe. It is a medium to large grower producing its flowers in November. ❀

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# *Adelaide, Spring 2001*

## *Who volunteers? You, you and you?*

TANIA THOMAS, VICE-PRESIDENT  
AND ROSEMARY THOMSON, MEMBER  
SOUTH AUSTRALIAN BRANCH

**E**very successful event like the 2001 Annual Weekend Event in Adelaide is supported by a devoted bunch of volunteers. The planning starts a year or so before when they willingly take on the idea that it is their turn to invite people from interstate and overseas and provide an interesting programme of activities and meetings. It is somewhat daunting but within most groups there is the expertise and enjoyment of a challenge that will carry the others and get their support.

In our case the South Australian Branch had some very committed members and considerable experience gained from being guests at other Rhododendron Societies' conferences! The committee began to plan the program and look into local facilities a couple of years before the event. We also had to find some lovely gardens and some lovely owners who were prepared to groom and share their treasured places. One wishes to not only showcase the local rhododendron scene but also to present local aspects that perhaps differ from other places where rhododendrons are grown and loved. So among the gardens chosen were the Mount Lofty Botanic Gardens and the Culvers' garden – both of which had been burnt out by bushfires some years ago and both showed some of the regenerative strengths of the rhododendron family. Other gardens such as those owned by the Illmans, the Kerr Grants and the Chandlers were intensively developed and showed the enormous range of plant sizes and styles available in the rhododendron family and how they can form the basis of wonderfully eclectic plantings.

The Whibley garden was one where rhododendrons had been grown for decades and many of the plants are truly tree-like and where David Whibley Snr had developed and hybridised many rhododendrons especially suited to our hot dry summers. The Ganguly garden was another old one which is being restored and redeveloped and shows the work in progress while the garden owned by the McFarlanes is a wonderful example of a large old Adelaide Hills garden with mature plantings and continuing care and development. Most gardeners love sharing plants and taking you for a wander around their gardens but it takes an extra willingness to be able to agree to take on the extra work needed to welcome larger groups and to have your garden at its best at a particular

time. Yet even some of their neighbours also kindly opened and shared their gardens with us.

Leaving the gardeners weeding, tending, willing their gardens into peak performance there are many other volunteers needed. Dr Chris Laurie was asked to be guest speaker at the Australian Rhododendron Society's AGM on the Saturday night. He formerly owned and restored Panmure, another lovely old Hills garden, and had travelled among the rhododendrons in the Himalayas. Others dealt with publicity and sending out information to other branches and societies both interstate and overseas. Sponsors were approached and Neutrog Organic Fertilisers gave a generous donation of fertiliser which was sold to members to raise funds and also sample bags for everyone at the weekend. We were also delighted to have some local wine donated for the dinner by Petaluma and Shaw & Smith's since the Adelaide Hills prides itself on its wines as well as its gardens.

Yet others tackled the housekeeping aspects and planned the Saturday night dinner menu and arrangements at the Mount Lofty Golf Club – Daphne Chandler co-ordinated the lovely and topical table flowers. A group led by Tania Thomas organised the morning and afternoon teas. They baked delicious biscuits and slices, collected 50 or 60 mugs, and moved the feasts from garden to garden as required. The same group provided a simple picnic style lunch at the Mount Lofty Botanic Gardens on Saturday. Lunch on Sunday at the McFarlanes was a wonderful sit down garden party with colourful awnings, sunshine, a buttonhole of lilac and a glass of champagne to welcome us, silver service, well-known chef Ann Oliver to cook for us, wines, etc. etc., etc.!

So a lot of work and planning went into a weekend like that, a lot of volunteers were needed but those volunteers gained such a lot too. We enjoyed the ideas and suggestions, the planning and the working together but most of all we enjoyed the company of all the interstate and some overseas visitors. We learnt a lot about how they grow rhododendrons, which varieties do best for them, which ones they can't do without (vireyas, species, miniatures, blousy pink ones, fragrant white ones, big leaved ones) and, above all, made new friends and a resolution, if at all possible, to go to the next Weekend Event which will be hosted by many more willing volunteers in Tasmania in October 2002. ❀

Thanks to all for their help.

# When is a rhododendron an azalea?

PETER VALDER

This article was first published a number of years ago. The author has updated it to incorporate a table relating the names assigned by Linnaeus to plants mentioned in the text to their modern names. We feel that it could be of interest to many readers who won't have seen it previously.

“Look at that lovely blue azalea”, they say, “I’ve never seen one that colour before”. How on earth can one begin to explain that *Rhododendron augustinii*, or ‘Blue Diamond’, or another blue variety, isn’t an azalea. It certainly looks like one and bears little resemblance to most people’s concept of a rhododendron. Anyway what is an azalea? After all, the deciduous and evergreen azaleas look as different from one another as they do from most rhododendrons. Unfortunately there isn’t an easy answer, so you must either stop reading now or be prepared to put up with a bit of botanical history.

In the 18th century the Swedish botanist Linnaeus devised a system of classification of plants based on, among other things, the number of stamens. This system of classification, which turned out not to be a good one, was known, rather awkwardly, as Linnaeus’s Sexual System. Following this system he divided the rhododendrons known to him between two genera. In his genus *Rhododendron* he placed the species with ten stamens (*R. ferrugineum*, *R. hirsutum*, *R. dauricum* and *R. maximum*). In the genus *Azalea* he placed those with five stamens (*A. indica*, *A. pontica*, *A. viscosa*, *A. lutea*, *A. lapponia*, and *A. procumbens*). Their modern names are:

Linnaeus’s names	Modern names
<i>A. indica</i>	<i>R. indicum</i>
<i>A. pontica</i>	<i>R. luteum</i>
<i>A. viscosa</i>	<i>R. viscosum</i>
<i>A. lutea</i>	split between <i>R. calendulaceum</i> and <i>R. periclymoides</i>
<i>A. lapponia</i>	<i>R. lapponicum</i>
<i>A. procumbens</i>	<i>Loiseleuria procumbens</i>

Of these the first is an evergreen azalea, the next three are deciduous azaleas, the fifth is a scaly rhododendron that happens to have only five stamens, and the last is a prostrate shrub from Lapland, which is now not included in *Rhododendron* at all and is called *Loiseleuria procumbens*. This is ironic because Linnaeus based the genus on this last plant, deriving the name *Azalea* from the

Greek word 'azaleos', meaning 'dry', in allusion to its occurrence in dry places.

In spite of the fact that botanists have transferred Linnaeus's species of *Azalea* (other than *A. procumbens*) to the genus *Rhododendron*, where they properly belong, the name has stuck. As a result this distinctive group of rhododendrons are kept apart by gardeners and often by nurserymen.

Unfortunately this is a little awkward since there are other equally distinctive groups. However what it amounts to is that all azaleas are rhododendrons but only some rhododendrons are azaleas.

Well then, I can hear you asking, how do you decide which is which? The number of stamens certainly isn't a reliable guide. In fact telling the difference isn't at all easy.

First of all you should look at the leaves, particularly the under-surfaces, with a microscope or magnifying glass and see whether or not scales are present. If they are present then it is not an azalea but one of the 600 or so scaly rhododendron species, none of which fits the popular concept of a rhododendron either. *R. augustinii* and most other azalea-like rhododendrons have scales.

If scales are absent then it is either an azalea or an 'ordinary' rhododendron. From this point on you can usually tell the difference by using common sense. But, if you really want to go all botanical, then you'll need a microscope to look at the hairs these plants usually bear. The 'ordinary' rhododendrons produce some hairs which branch, the azaleas never do.

Whereas most of the 'ordinary' rhododendrons bear a considerable similarity to one another, this is not true of the azaleas, a group into which have been placed unrelated types. The deciduous azaleas seem very distinct from the evergreen azaleas, for instance. And there are some odd subtropical rhododendrons which seem more closely related to the azaleas than to other types of rhododendron. It will be some time before the botanists get the whole thing sorted out.

In the meantime you won't be far wrong if you recognise four main groups within the genus *Rhododendron* – ordinary, non-scaly rhododendrons (e.g. *R. ponticum*, and the hybrid 'Pink Pearl', etc.); tropical scaly rhododendrons (the vireyas, e.g. *R. lochiaie*); 'ordinary' scaly rhododendrons (e.g. *R. augustinii*, *R. nuttallii*); and the azaleas. And if you are a hybridist you will find that, while crosses between species within each of these groups are often successful, crosses between species from different groups rarely are. So it will probably be some time yet before we see a real azalea which is blue.

Within the azaleas themselves, crosses between distinct types are rarely successful either. As a result breeders aiming to produce yellow evergreen azaleas have been making slow progress too. Even so there have been crosses between

deciduous azaleas and 'ordinary' rhododendrons which have produced useful garden plants. These are the so-called 'azaleodendrons', of which 'Broughtonii aureum' is a well-known example. These, however, seem to be sterile, and thus have not been used in further breeding. ❁



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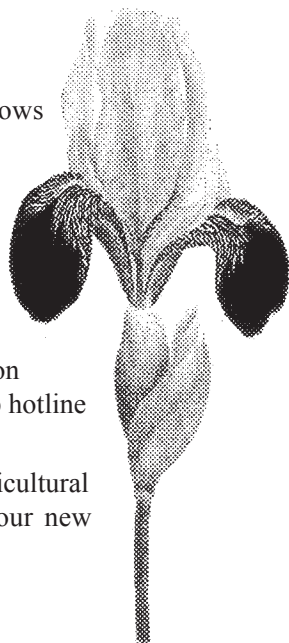
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# *Vireya species regenerated*

BRIAN CLANCY

**R**hododendron species are seedlings which have been growing in the wild for millions and millions of years. As ancient, undisturbed species they have adapted to their particular habitat. Due to their adaptations of living in an undisturbed environment, these species in cultivation are generally difficult to grow, resent being disturbed and are reluctant to flower. Notwithstanding, remarkable improvement in ease of growth and flowering of a vireya species has been obtained by crossing distantly separated forms of the same species of *Rhododendron zoelleri*.

World authority on vireyas, Dr H. Sleumer, considered that the best way to see the extent of a given species was to grow a large number of seedlings. Species specialists have interpreted this advice to self seedlings or to cross with nearby siblings. To enhance genetic biodiversity, the best results are obtained by crossing the same species from distantly separated habitats. With this in mind I set out to cross the most distantly separated forms of *R. zoelleri*.

*R. zoelleri* in the wild extends from the Ora Mountains in West Ceram (Moluccas, west of Irian Jaya), through the main island of Irian Jaya and New Guinea and extending to Goodenough Island in Milne Bay east of New Guinea – a distance of 2,615 km long and about 800 km at its widest point. Throughout this huge area *R. zoelleri* varies from a weak epiphyte clinging to tree tops in high forest to a terrestrial shrub up to nine metres high with some specimens so close to the sea that they are regularly sprayed with sea water. It has been found in secondary growths, in open grassland, hanging over precipices and rivers, in bogs and on cliffs, in limestone dust at the bottom of glaciers with no organic matter and in high scrubs from sea level to 1,500 m. In other words, it should be noted that *R. zoelleri* has been found in all ecological areas of the main island of Irian Jaya/New Guinea except the dry savannas of the south. Each of these *R. zoelleri* seedlings has adapted to their particular habitat over millions of years but are still able to cross naturally with other members of that species from different habitats. Each seedling has its own separate individuality these remote relatives when crossed together provide a certain vigour to the new seedling species.

To appreciate the great age of species it is necessary to go back to origins. According to recent scientific data from Hubble Telescope/NASA the Earth was created 12 billion years ago. The earth, land and oceans, is travelling through space at 119,440 km per hour and revolving with precision around a fixed circuit to provide night and day and the four seasons of the year. The

diameter of the earth is 12,756 km compared to the magnificent sun with a diameter of 1,392,000 km. Consider the wonderful providence which is the multiplication of seeds that is renewed each year to provide for the continuation of the species. The little seed has 26 chromosomes and a lengthy DNA which determines what it becomes, when scattered by the wind and finds a favourable lodging place to germinate with the right quantities of light, water and heat.

*R. zoelleri* was first raised in Australia from seed sent direct to myself by Dr H. Sleumer from New Guinea. It was collected when he and a colleague were invited by the Forest Authority in Manokwari at the end of 1961 to join a brief expedition to the Arkfak Range, Irian Jaya. So, on 8 January, 1962, they flew by helicopter direct to a landing spot near the Anggi-Gita lake at a height of 1,840 m. This expedition was completed on 25 January and they were flown back to Manokwari on 29 January. Two days later, one of the helicopter pilots arrived at Manokwari with a large bunch of rhododendron flowers which he had seen hanging high above the Warjori River near the emergency landing strip on the north side of the Arkfak Tange. Naturally, Dr Sleumer had to see them in their natural habitat. So, two days later, he and the Chief of Forest Planning in Manokwari were flown right to the spot. It was an open, swampy place overgrown with ferns, encircled by forest and located on a mountain ridge (1,350 m high) which was difficult of approach. Here they found the usual orange-yellow form of *R. zoelleri* (reddish at the last stage of blooming) and the pure white form of *R. phaeocephalum* which Dr Sleumer knew from the Wissel Lakes approximately 400 km away. After spending 21 hours at the site they were flown back to Manokwari in less than 20 minutes. This helicopter flight traversed the route taken by botanist Beccari, in 1875, and which took Beccari five days with great difficulty.

*R. zoelleri* 'Island Sunset' was raised by Don Stanton from seed collected on Goodenough Island and registered in 1972 with trusses of nine flowers. Goodenough Island is a small island in Milne Bay east of New Guinea. It is some 30 km long and about 25 km wide and consists of a nearly vertical range of mountains with a maximum height of 2,554 m. From the south the mountains rise dark and sheer from the water's edge. This cultivar is a very showy rhododendron and, being a terrestrial, it is easy to grow.

Without doubt, the best form of *R. zoelleri* collected from the wild is the cultivar selected by Michael Black from a large number of plants in full bloom on a bank near Aregenan, East New Guinea. This spectacular cultivar is well illustrated with Arthur Headlam's photograph on the cover of *The Rhododendron Year Book* 1993. Being a terrestrial it is easy to grow and, given the right conditions, easy to flower.

Whilst I grow each of the aforementioned cultivars, after due consideration, I decided to cross 'Island Sunset' with pollen from the 'Michael Black' form mainly because they are both terrestrials and their habitats were separated by a great distance. The pollen utilised had been stored in a can of dry milk powder for just over 12 months and a good germination resulted in a large number of seedlings. Due to space limitations, I took five tip cuttings 2–3 cm high from the seedlings and gave the remaining seedlings away. The five cuttings produced good roots in pine bark, were easy to grow and all initially bloomed in 2½ to 3 years.

All the flowers on the five tip-cutting plants were identical to the flowers of the 'Michael Black' cultivar with five petals and lobed half-way. The only variation in three seasonal flowerings was the number of blooms on each plant and, on one plant, the number of flowers in the truss. At five years of age, the height of the plants measured 48, 64, 68, 76 and 85 cm. The 85 cm plant was inclined to be a bit leggy and had no shoots from or near the base whilst, at its third flowering, it had five blooms each with 12 flowers to a very attractive truss. Each of the other four plants had shoots at or near the base but varied in compactness.

When trusses of the 'Michael Black' cultivar and the selected best of the regenerated species were staged side by side by side, two specialist vireya growers could not differentiate between them. Then one of the specialist growers asked to see the parent plants. The 24-year-old plant of 'Michael Black' had only one truss of flowers and no flower buds whilst the selected best of the regenerated species, just five years old and 64 cm high, had four trusses of flowers and ten flower buds ready to burst. Subsequently, this plant had 14 blooms each of eight flowers to a very showy truss.

Based on 40 years experience in growing and observing *R. zoelleri*, it is my considered opinion that each of the five plants of the regenerated species is an improvement, in one way or another, on the available plants of *R. zoelleri* in cultivation. The 64 cm plant selected as the best of the five, has been named *R. zoelleri* 'Young Blood' and, like *R. zoelleri* 'Michael Black' deserves to be registered for future generations. ❀

# *The case for deadheading*

BARRY DAVIDSON

Barry Davidson is a former Secretary and current President of the Southern Tasmanian Branch, and has served as a National Council member and Editor of *The Rhododendron*. He grows a huge range of rhododendrons, magnolias, and other ornamental plants at his garden in Claremont, near Hobart, Tasmania.

**F**requently newer members ask about deadheading. Basically the questions are, what is it, why do we do it and how do we do it? We do ourselves great disservice if, as established growers, we appear divided on the merits of this very basic horticultural procedure. The lack of consensus and understanding among recognised growers is quite surprising. This was recently revealed in an email group on the net. In Australia, we expect each presently flowering shoot to produce two or more flowering shoots the following year if the plant is in a well-lit position with adequate fertiliser and water, good drainage and deadheaded promptly after flowering. Not only is the flowering for the next year promoted by deadheading, most would agree that the appearance is more aesthetic. This article presents evidence for deadheading.

Deadheading is the removal of dead flowers and young seed pods. It is best done immediately after the flowers are past their peak. Methods vary depending on the variety. Taking the truss between the index finger and thumb and bending easily deadheads most elepidotes. If the spike is curved, bend the stalk outwards. Some elepidotes and many lepidotes, including vireyas, will take the top few leaves with it with this method. A stripping and nipping action may be necessary.

In Frank Kingdon Ward's *Riddle of the Tsangpo Gorges*, originally written seventy-five years ago, the following wisdom is offered on page 166.

In nature Rhododendrons rarely flower well for two consecutive years, because a good flowering period, if followed by a heavy seed crop, uses up all the plant's energy; there is none left for building up next year's flower buds. If the plant flowers well this year, but for some reason does not set seed, it may at the same time lay down resting-buds and flower well the following year.

This is a biennial bearing pattern when the plants flower well every alternate year. Note that it is the production of seed that is the critical drain on the plant, having a much more profound effect than flowering.

What is actually happening in the plant? Plants make their own food from carbon dioxide in the atmosphere and water from the soil using the sun's light energy. The energy of the sun is converted to food energy. One of the first products produced is glucose, which is then used either directly for energy, stored as starch, or converted to other substances such as protein and vitamins. One molecule of glucose can only be used for one thing in a plant and there is competition within the plant. It can only go into one of the non-flowering shoots, or a flowering shoot, or a developing seed, or a root etc. When food goes to seeds, they have a very high dry matter content and use up a considerable amount of the plant's available energy.

Natural selection is where nature selects the best-adapted plants for the particular environment that they are growing in. Best-adapted can mean tallest and fastest growing in a shady site so that the new rhododendron can get plenty of light. It may mean short stumpy growth, ability to withstand freezing, and the capacity to flower and produce seeds quickly with a short growing season in alpine conditions. Good old mother nature helps the young plant in two ways. Firstly, she does not permit flowering for some years. This stops nutrients being wasted when the rhododendron needs all it can get to grow. Also, she disposes of the old through death to make way for the new. Growth energy is not wasted on seeding in the early years.

Nature does more than this – she must also preserve the species as well as the individual. The young strong grower must eventually reproduce effectively to pass on its good combination of genes, or they will be lost. We are faced with the question, why does nature permit such wastage on sexual reproduction? There are flowers, nectar and scent to attract pollinators, eggs to be fertilised, pollen to fertilise the eggs and massive wastage of seed. The short answer is of course spread of the species, but there is much more to it than that. The genes in the parent plants are mixed in sexual reproduction when the egg is randomly fertilised by a pollen grain. This gives variation in the offspring and variation is the essential ingredient for natural selection. The majority of the seeds are lost, but those that do survive are the most likely to have the best genetic combinations. Also, desirable gene changes, or mutations, in one plant can get incorporated into the genes of other good plants. The conclusion can only be that the advantages accompanying sexual reproduction outweigh the vast amount of energy that the plant must invest in the process to increase its ability to compete in the continuation of the species.

All of this is wonderful, but we gardeners want fine plants with outstanding flowering. Survival of the species is another issue. The flowers that we are after are just the first step in sexual reproduction and a drain on the plants reserves. If we let the process continue to seeding, then unless we grow all of the seed



produced, we are letting the plant waste more energy that could be better used. There can only be one conclusion – deadhead those flowers immediately after each truss has past its peak and send the nutrition to developing flowers and new growth.

There is more to it than this. Kingdon Ward noted biennial bearing. Apple trees will do this and the process of reproduction is very similar to rhododendrons. Orchardists prune and thin their crop to get optimal sized fruit at the expense of more small fruit. They do it for another reason too. Research has shown that seeds release hormones. More small fruits mean more seeds and more hormones. These hormones flow through the tree and inhibit the formation of flower buds, but promote the development of non-flowering shoots. The flowers for next year's crop are produced while this season's fruit is developing. This is the same pattern with rhododendrons. To the best of my knowledge this process has not been demonstrated in rhododendrons, but Frank Kingdon Ward's observations were very astute that it is the seed production that counts rather than just flowering. It would make interesting research, as the process is common in fruiting plants that have been investigated. Some plants flower on the new growth, such as stone fruits and roses. Rose growers know that if they do not remove the developing seed capsules, then flowering will stop. The same process is in operation. There is not only competition for nutrients within the plants, but this seasons heavy flowering can reduce the next seasons flower initiation if we do not deadhead.

The competition within the plant issue gets worse. There is a priority order for nutrition use in a plant. Developing seeds have first call on the nutrients available, followed by other processes. The young seeds not only waste our nutrients that we want channelled into new flower buds, they also get first go at them and our flower bud initiation and young growth must wait in line. Simple observation of seeding shoots through a season will support this. The solution for flowering is to deadhead at the earliest possible convenience.

I have heard it said that some dwarf lepidotes, in particular, flower so profusely that it takes too much time to deadhead them. These are of course just the ones that are crying out to be deadheaded and the correct argument is get out there and deadhead them as soon as possible. Many growers have been heard to say that many lepidotes run down with time. Perhaps part of the process is that they run out of energy because they are so generous with their flowers and the subsequent energy loss to seeds? I have experienced 'Kallista' and *R. nuttallii* dying through over-flowering if they are in too much sun. They will flower profusely and set their seed and have no energy left for any growth. They simply do not come away again. Spare a thought for 'Seta', which does its best in July and deserves to be deadheaded.

Deadheading is a sound horticultural practice that we should all promote. Developing seeds rob our plants of nutrients and reduce growth and flower bud initiation. If you think that plants, which are not deadheaded, are unsightly, then that is only the beginning of it. We can all have regularly flowering plants. Frank Kingdon Ward did more than brave the wilds to find new rhododendrons and bring back seeds; he was an observant and insightful man.

## Reference

Cox, Kenneth ed., *Frank Kingdon Ward's Riddle of the Tsangpo Gorges*, Antique Collectors Club, England, 2001.

## Australian hybrids

Australian Rhododendron Registrar Ken Gillanders is always on the lookout for more information about the whereabouts of Australian hybrids which are not widely grown. Some of those on the current 'rare or missing' list are:

*R. Bellbird*; *R. 'Burning Embers'*; *Azaleas R. 'Doreen'*, *R. 'Doris'*

Any information on the breeding of *Rhododendron* 'Kallista' would be appreciated.

If you believe that you can help with either information or photographs which could provide more comprehensive coverage of our hybrids heritage, please contact Ken.

**Ken Gillanders, 2040 Huon Road, Longley, Tasmania 7150**  
 telephone (03) 6239 6455 · email [gillwoo@optusnet.com.au](mailto:gillwoo@optusnet.com.au)



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# *Emu Valley Fairyland*

## *... our own piece of magic*

MAURICE KUPSCH

**T**he Emu Valley Rhododendron Garden burst onto the music scene on October 26 and 27, 2001 with a two-night concert, featuring the world renowned pianist David Helfgott. The concert was one of Tasmania's major events to celebrate the Centenary of Federation.

The two weeks before the event, the area around the main lake became a hive of activity with a scaffolding firm busily constructing four stands to hold around 250 people each. On the shore of the lake, a stage was constructed. To the right of this there was a wide pathway along the edge of the lake and this was to become the promenade for one of the supporting acts.

Next came the lighting and sound crews, and they transformed the amphitheatre around the lake into a fairyland. Some 600 lights were placed under trees, up in trees, banks of lights upon high poles, all of different colours and intensity and programmed to be switched on progressively as night fell.

A large marquee was erected in the car park in case of rain, but we hoped that it would not be needed. All eyes were on the weather; showers came and went in typical spring fashion as Friday drew near. Thursday evening was wet so rehearsals were curtailed somewhat.

With our car parks taken up by the marquee, fine food-vending outlets and dining areas we needed parking facilities. Some nearby farmers kindly allowed their paddocks to be used as car parks and buses provided a shuttle service to the event.

The first buses arrived in the garden around 6pm. People arrived well prepared for all weathers, some with picnics and other to sample the food on offer. Visitors enjoyed the background music provided by the Burnie Concert Band as they found their seats. The weather remained fine and surprisingly warm throughout the evening.

As darkness fell, on came the lights – absolute magic! All the colours of the rainbow and then some. There wasn't a ripple on the lake and the reflections were magnificent. The resident frogs serenaded the audience throughout the evening letting us know that we really were enjoying an outdoor concert.

The concert showcased local talent, featuring the singing group Segway with local concert and brass bands playing brackets of rousing music, which gave way to the haunting sound of the Burnie Highland Pipe Band. They paraded on the promenade, and to see the brightly clad pipers and drummers reflected

in the lake just doubled the pleasure and patrons showed their appreciation with spontaneous applause.

A short break, then the stillness of the night was broken by the eerie sound of the didgeridoo, expertly played by two local schoolboys, filling the valley with primitive sound. This was a lead-in to the combined efforts of the Pipe Band and the local group Route 66, four musicians whose music blends the flavour of country with a dash of rock'n'roll, with their rendition of Mull of Kintyre. This really did amazing things to the hairs on the back of the neck.

After intermission, David Helfgott stepped up to the grand piano and enthralled the appreciative audience with his brilliance, playing selections from the works of Rachmaninov, Mendelssohn, Liszt and Beethoven.

People would queue for hours in New York or London to hear such talent, but here we were, able to enjoy the performance in a magnificent natural setting, right in our own backyard. What a treat!

A lone piper played to call the patrons back to the buses or to dance the rest of the night away to the upbeat tunes from the Centenary of Federation Swing Band.

On Friday night 800 patrons, then 1,200 on Saturday night enjoyed the serenade of the frogs, absolutely beautiful music and the magic of the lighting.

Everything worked together, including the weather, to provide two magnificent, unforgettable evenings. ❀

David Helfgott at the garden with stage being erected in background.



# *Emu Valley revisited*

TERRY SHADBOLT

**T**he late Dr Noel Sullivan envisaged Emu Valley as being a large natural amphitheatre with a geographical sequence of sections around the amphitheatre representing countries of the world where rhododendrons may be found as native plants. In each of these sections were to be planted the appropriate rhododendrons together with their companion plants, mostly conifers and deciduous trees.

This basic plan remains in place today. The only additions to the original outline have been infrastructure supplements such as a North American gazebo, wisteria walks, and several features in the Japanese section including water features, entrance gate and bamboo fence. To honour Noel we have named our main walk around the garden, which traverses many of the species areas, in his memory.

The North American gazebo is a very recent addition and has been surrounded by an extensive area of lawn together with exquisite stone walls featuring the natural brown field stone that is to be found in the garden. To be completely honest, the field stone was obtained from nearby farms – the stone available within the garden having been used to construct the very extensive stone walls throughout the garden. The building of this gazebo was generously supported by the Emu Bay Lions Club in Burnie and is very popular for weddings and for musical performances.

Our local Victoria League ladies have shown a keen interest in Emu Valley for many years. They have donated and planted many trees. This year they sponsored the construction of a water fountain of unique design. A huge dish-shaped basalt boulder was found, and using a crane, placed on concrete supports so that the bottom of the boulder sits in the water. Three jets of water rise about four metres from behind the boulder and splash down into the dish cavity on top of the boulder. This feature is found at the opposite end of the main lake from the bridge and once again has a new lawn nearby, together with more stonework.

Don Dosser is a name well known in Australian rhododendron circles. Don lives at Wilmot about 50 km south of Emu Valley, where he has established a remarkable garden of rhododendrons and maples mostly in a steep-sided valley complete with attractive stream. In order to preserve Don's material for posterity we have set aside an area of about half an acre at Emu Valley where we are currently planting material that he has made available.

This financial year, thanks to a grant from the Tasmanian Development Fund, we were able to embark on a major irrigation upgrade. This consists of

placing three large concrete tanks at the highest point of the amphitheatre in order to gravity-irrigate plus the installation of two big new pumps for lower areas. To facilitate the new pumps we had to lay underground three-phase electric cable throughout the garden – not an easy task!

The Southern Tasmanian Branch has always shown great interest in Emu Valley and most years have made generous donations. In earlier years these donations were significant in our survival as we battled to control our overdraft. There has been a desire to acknowledge the generosity of the Southern branch for some time. Consequently it has been decided that the Yunnan section of the garden be regarded as the area sponsored by the Southern Branch and a plaque to commemorate this was unveiled at Emu Valley on Sunday July 21 this year.

The sections Assam, Burma, North. America, Yunnan and Taiwan were the original sections planted with material that was held in our nursery. These sections are now well planted and new plantings continue to be added to these sections as they become available.

Japan was added soon after and is composed of four sections. Section 1 is the Maple Forest with a large planting of *Acer palmatum* and its cultivars – these extend down to the edge of the large lake. Section 2 is the Mountain Range, where we have planted a large collection of Satsuki azaleas on one side of the main pathway, with kiusianum and many species of evergreen and deciduous azaleas on the other side, complete with conifers and deciduous shrubs. Section 3 is The Reflecting Pool area, where the water from Lake Pearl in the American section flows into a small reflecting pool surrounded by trees, bamboo and azaleas. In front of this pool is a bridge from which delightful views of the smaller lake in Japan are seen. This section contains our collection of *yakushmanum*, *degronianum*, and *makinoi* rhododendron species. From a vantage point surrounded by conifers and azaleas a delightful view of the last section, Section 4, is to be seen. This is The Lakes section, which incorporates two lakes, and where most of the building will take place in the near future. This will consist of a covered bridge, teahouse, and bridges to the islands.

Hubei and Guizhou sections have been planted during this planting season, with more to go in when weather permits.

Most of Sichuan is untamed, but some areas will be planted next year.

Plants are becoming harder and harder to source as most of the species generally available locally are now in the garden. We continue to seek plants from outside the State, and seed from the American Rhododendron Society, Rhododendron Species Foundation and other sources as they become available.

This year we embarked on a program of bringing plants from overseas and at the moment have a number in quarantine. Plants other than rhododendrons are still being collected and planted in their geographical homes.



Our own nursery is capable of turning out around 1,500 cutting-grown plants a year depending on the work force, with most being planted in the garden and surplus stock being sold at our feature weekends.

We have a small and dedicated workforce tending to most of the garden's needs. Additional help comes from the Work for the Dole program, which gives us up to 10 young people, who occasionally work enthusiastically and are of benefit, but the financial assistance we receive because we participate makes this worthwhile.

Each year sees vast improvements to the garden and it continues to grow in beauty as plants mature and other developments take shape and the original plan unfolds. ❁

Gazebo in the American Section at Emu Bay Rhododendron Garden.





VALE

# Dr John Layton Rouse OAM

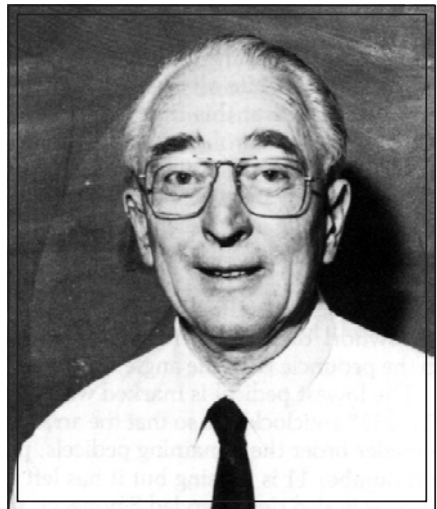
APRIL 21 1925—MARCH 13 2002

The members of The Australian Rhododendron Society were saddened when one of our most esteemed members, Dr John Rouse, passed away on Wednesday March 13 2002, after a long and debilitating illness. Dr Rouse served in the RAAF as a Leading Aircraftsman from 1944 until 1946 after leaving school, and during this time commenced an Arts course in Mathematics at the University of Melbourne. He completed a BA (Hons) course in 1950, a BSc in 1951 and an MSc in 1953. He worked as a Physicist at the University and in 1957 obtained a PhD for studies and work involved in the development (design and construction) of a Variable Energy Cyclotron at the University. It was here that he became acquainted with the late Mr Tom Lelliot (a key member in the Society's early years) who worked in his department as a technician employed in running the Cyclotron. He first became known to members of the Society at a meeting held in the National Herbarium on the May 27 1960.

His interest in rhododendrons increased rapidly during this period, and through his association with Tom Lelliot, especially in vireya rhododendrons which were only just beginning to be grown by members of the Society. He soon became a very active member, continuing until his illness in recent years.

Dr Rouse soon developed an outstanding ability to raise vireya species from seed, perfecting the art of germinating seed and growing plants on more quickly than other growers. As a result, over the following years he was able to distribute seedlings of vireya species in enormous numbers to members at monthly meetings.

He developed an interest in hybridisation at an early stage, studying what crosses were possible between a wide range of species. This research progressed into studies of the reasons for compatibility and incompatibility between different vireya species. Of the numerous vireya hybrids raised by Dr Rouse, following observation and evaluation, more than 35 have been named and registered.



Dr Rouse progressed further and studied hybridisation between vireya rhododendrons and non-vireya rhododendrons with some success. As with vireya species, Dr Rouse distributed large numbers of his vireya hybrid seedlings to members at monthly meetings.

A further field of propagation in which Dr Rouse did considerable experimental research work was propagation by grafting and he was a leader in this field. Hardy vireya hybrids and a range of non-vireya rhododendrons were used as understock. Saddle grafting was found to be very successful and of the non-vireya understocks, *R. 'Fragrantissimum'* was the most successful. He grew magnificent grafted plants of difficult to grow vireya species such as *R. saxifragoides* and *R. rubineiflorum*.

As a lecturer he was outstanding in imparting his knowledge to members of the Society and others interested in rhododendrons. At the Society meeting of October 18, 1980 he delivered the second Baron von Mueller Memorial Lecture on the subject "Beauty and Knowledge". At the 2nd International Rhododendron Conference in Edinburgh, Scotland in 1982, he delivered two lectures, the first on "Barriers to Sexual Compatibility in Rhododendron" on behalf of co-authors E.G. Williams, R.B. Knox and himself, and the second on "The Propagation of Rhododendron Section Vireya from Seed". At the 4th International Rhododendron Conference in Wollongong in 1988, Dr. Rouse as co-author with E.G. Williams lectured on "Style Length and Hybridisation in Rhododendron". On numbers of other occasions he lectured at Society meetings on a range of subjects related to vireya rhododendrons.

Over the years he wrote approximately 25 articles which were published in *The Rhododendron*.

For a number of years, Dr Rouse carried out a research program in association with members of the Botany Department at the University of Melbourne and botanists overseas on subjects relating to the genus *Rhododendron*, with financial support from the National Council of the Australian Rhododendron Society, the Victorian Branch of the Society and the American Rhododendron Society. His research work resulted in the publication of numerous articles in scientific journals around the world. Copies of all were supplied by Dr Rouse to the Library of the Australian Rhododendron Society.

Throughout his career, Dr Rouse showed that he was a plant photographer of outstanding ability, his photographs being used to illustrate his articles and lectures.

He was a grower of outstanding blooms of both vireya and non-vireya rhododendrons and was a successful exhibitor at Society Shows. His blooms were much admired by members and by the public.

In recognition of his services to the Society and outstanding research work on the genus *Rhododendron*, on the nomination of the Victorian Branch

the Australian Rhododendron Society awarded the Australian Rhododendron Society Medal, the highest award of the Society, to Dr Rouse in 1992.

In January 1995 he was awarded the Medal of The Order of Australia (OAM) in the Australia Day Honours List for service to Horticulture specialising in Rhododendrons, particularly the cultivation and propagation of vireya rhododendrons.

A service of thanksgiving for the life of John Layton Rouse was held in Saint John's Church, Toorak on Wednesday 20th March 2002, and following the service friends joined his wife Clare, and children, Antony, Sushmita, Andrew and Diana for refreshments on the lawn at the family home at Stonehaven Court, Toorak. It was a peak time for the flowering of vireya rhododendrons in John's garden and I have never seen them put on a better display. John would have been very pleased.

To John's wife Clare, his children his relatives and friends, the members of the Australian Rhododendron Society extend their deepest sympathy.

*R.M. Withers, OAM, Melbourne, Victoria*

Graham Snell, a long-time friend of John Rouse, wrote a personal tribute which was published in *Vireya Venture*. It is reprinted here with permission:

## *John Rouse, my friend*

To me, John Rouse was a friend, a good friend and a valued friend. He was so easy to meet, to talk to, and listen to, that his Doctor title never came into mind, and one could feel almost as an equal with him. I stress almost because whenever we met, I felt that I was sitting at the feet of the master. Sitting comfortably, I might add, but I was always learning something new.

I first met John, some 26 years ago, at a Rhododendron Society monthly meeting in Melbourne. A non-event I might add, as a power blackout forced the meeting's cancellation, but not before a number of members had turned up, and I was introduced to John, Bob Withers, and the late Allan Raper. The three were discussing vireyas.

A new word to me, but thanks to John and Bob, in particular, the word vireya soon became common place. My friendship with John was originally based on vireyas, an important connection for me, but I realise that for John, just one of many facets of his roving and enquiring mind. Just the same, he always had time for me, and to talk to him was so easy. His infinite patience in explaining details of his many experiments and research was boundless. For instance, the seed raising cabinet, that he developed, the 'Rouse Cabinet', was a fascinating combination of ideas to facilitate seed germination and expedite vireya seedling growth. I have found no one who could match John's success

in vireya seed raising and seedling growth. His glass-house, with the carefully devised temperature and humidity control, was an absolute treasure trove of interesting vireya species and hybrids. His thoughts behind his hybridising, never oriented towards commercialisation, were often mind boggling when he tested the bounds of what was physically and genetically compatible. John's research, using an electron microscope, into these barriers to pollination, I found fascinating, and this provided me with useful hints as to what to cross and what not to try, in my own work. John's patience and technique in hybrid using the very small vireya species, I much admired, because I found such work very tricky, and so often I missed harvesting the seed as the very small pods opened and shed their seed so rapidly and unobtrusively, whereas John was obviously far more observant and systematic. John would wonder how tall a vireya would grow, and try to find out by tying one supporting stake on to another to steady a single stemmed 'Wattlebird' up to a great height. I never saw the results of that experiment written up! John also grafted many of the harder to grow and very small growing vireyas, both hybrids and species, and researched what is the most suitable root stock with surprising results.

The Rouse garden was a wonderful place to wander in. Vireyas in every shape and size, most in pots, but some planted out, including on the nature strip. Only the tennis court was sacrosanct. I think the large *R. konori* that was growing in a raised bed just outside the back door must have been the envy of every vireya enthusiast who saw it. I wonder if it is still there? The garage never had a car in it that I saw. It was John's research lab, full of filing cabinets, microscopes, work benches, photographic equipment and the like. John was a keen and talented photographer, as his well illustrated lectures and slide shows bore witness. His garage was also a potting shed, and since there was never a car in the garage, why leave the driveway clear? No reason, so the driveway was filled with potted vireyas too! Only a narrow walking space down the length to facilitate watering.

John's more recent prolonged battle with ill health slowed him down somewhat, but his interest in plants and the garden, was there right to the end.

When Wendy and I moved to Queensland 14 years ago, contact was not as easy, but John was always ready for a chat on the telephone. However, we both missed his delightful sense of humour and the warmth of the welcome, which was always part of our visits to John and Clare's. Any visit to their home usually ended up in the den with a sherry! To us, John will always remain one of this world's true gentlemen, in every sense of the word.

To my mind, an important aspect of friendship is sharing, and that is what John did. He shared his time, his knowledge, his Vireya seed, seedlings and cutting material, also his garden. There always seemed to be time. John's lectures for the Rhododendron Society were always full of interest, very well structured,

humorous and inspiring. In fact, inspiring or encouraging could sum up what John's friendship has meant for me. After every contact with John I left feeling inspired, never discouraged. How I envied his university students!

I feel I am very fortunate to have had John as a friend. I am sure there are many, many others who must feel the same.

*Graham Snell, Maleny, Queensland*

## *The Species Collection at the National Rhododendron Gardens*

BARRY STAGOLL

In most parts of the world, Mount Dandenong in Victoria (home of the founding Branch of the Australian Rhododendron Society) would be regarded as little more than a hill, its summit being only 633 metres (around 2,075 feet) above sea level. Although situated in a temperate climatic zone, southern Victoria is regularly subjected to periods of rather "intemperate" summer heat, and this is only partly moderated on Mount Dandenong by its elevation.

But it is the site of a most successful rhododendron garden – the National Rhododendron Gardens – first established in the early 1960s by the work of Society members.

The extensive collection includes rhododendron plants from all branches of the genus, from the big-leaved rhododendrons through to dwarfs, and from the most cold-hardy to those intolerant of colder conditions, including vireyas. It is believed to be one of the few rhododendron gardens in the world which has the capability to grow virtually all species outdoors at a single site.

The recent conclusion of a four-year long project – carried out by volunteers from the Society's Victorian Branch – to re-survey the species collection growing in the Gardens, and establish an upgraded database, provides a new and authoritative listing of the species represented.

There are roughly 400 Asiatic species (close to 60% of the total number listed as known to be in cultivation in the 1998 *RHS Rhododendron Handbook*). They include 14 of the 19 rhododendron species classified in the International Union for the Protection of Nature "Red list" (1997 edition) as "endangered" or "vulnerable." Around 50 other species have been propagated and will be planted out in due course. The propagation of unrepresented species, for eventual placement in the Gardens, is an ongoing activity carried out by Society volunteers. ❀

Based on information provided by Ken Cathie, Victorian Branch Vice-President,  
who has been instrumental in the conduct of the work described.

# *The Whibley hybrids* *... a tale of the past*

ALLAN KERR GRANT

Volume 41 of *The Rhododendron* contained an article by Bill Voight entitled 'Two Historic Gardens of the Adelaide Hills'. In this article mention was made of the garden of St Vigeans and its gardener David Whibley, who worked for the owner Sir Edward Stirling. With the successful registration, in mid-year 2002, of the "so-called" Whibley hybrid rhododendrons it is appropriate to complete this success by completing the story of Sir Edward Stirling and his Whibley hybrids after more than fifty years. The delay resulted from ongoing uncertainty by members of the South Australian Branch of the Australian Rhododendron Society as to which of the 40 or more plants were desirable for registration, as well as a possible degree of inertia over the years. A final decision on three of the more outstanding plants for registration was finally achieved by Bill Voight, the SA Branch librarian, Roderick Wadham and the writer.

To complete the story it is necessary to provide some background about Sir Edward Stirling, his garden of St Vigeans and the gardener David Whibley. Historical information can clothe apparently dull matters in a coat of interest. The writer does not agree with Henry Ford's statement that "History is bunk". Francis Bacon's words "Histories make men wise; poets witty" is much more acceptable.

Edward Charles Stirling was born in Strathalbyn, a South Australian country town, in 1848. After successful secondary schooling he travelled to England and enrolled in a Cambridge college to study medicine. There was no medical school at the University of Adelaide in the mid to late 1800s. Stirling obtained his medical degree in 1872 and a Fellowship of the Royal College of Surgeons in 1874, followed by an MD (Doctor of Medicine) in 1880. On his return to Adelaide in 1881 he practised as a consulting surgeon until he was made a Professor of Physiology at the University of Adelaide, having played a significant role in the initiation of a Medical School in 1884. He was a person of great energy and wide interests. He served for several years in parliament and he was largely responsible for the introduction of a Bill for female suffrage – the first such Bill by South Australia, in Australia.

Thus, the story of the Whibley hybrids embraces the energies and excellence of a remarkable person with wide interests, enthusiasm and dedication which resulted in a knighthood. It is not surprising that his gardener, David Whibley, was influenced by such a vibrant person.

It was in 1881 that Edward Charles Stirling acquired the land on which StVigeans and its garden was built. The garden was started first by Stirling and his family, and a gardener for a while, Douglas Searle. The recently completed railway line from Adelaide to Aidgate at this time provided a comfortable, pleasant and restful trip to and from StVigeans, which was very near the Mount Lofty station. His prolonged sojourn in England gave Stirling the opportunity to appreciate the beauty of rhododendrons, and it is not surprising that he developed a great interest in them, and in his garden at Stirling. It was planted with many hardy rhododendrons from Waterers Nursery in England. Like his master David Whibley became bewitched by these plants, and he became quite proficient in hybridising from the parent plants. The soil and climate in this area of the Mount Lofty Ranges also persuaded the plants themselves to indulge in propagation! This produced hardy and late flowering rhododendrons which were cultured by Whibley. Many were pink flowering, but there were a number with different coloured flowers – Whibley became very proud of his children. He studied their characteristics carefully and named them. One could regard this as a rough type of registration, but this was far as it went. Names were chosen by using the names of the children of the Stirlings and the Whibleys as well as their friends, their relatives and even domestic animals. The plants at St Vigeans were identified by a number on a metal stake. This applied to the rhododendrons from overseas as well as the Whibley hybrids. The numbers referred to a name on a sheet of paper which was designed as a “reference table” of rhododendrons. The table was organised by Bruce Grivell, who was an expert gardener and married to Alva, a daughter of David Whibley. The table also included registered rhododendrons purchased from overseas.

There are approximately 45 Whibley hybrids listed on this table. About 30 or more of the Whibley hybrids have been planted in a special area in the Mount Lofty Botanic Gardens where they have grown and flowered well. They are mainly hardy and tend to flower in the later months of the year.

The decision to register some of the Whibley hybrids by the South Australian Branch of the Australian Rhododendron Society has finally been accomplished successfully. Decision was based on different flowering plants in colour and general growth etc. It has been difficult to discover their parents in many instances, but in general ponticum was eminent, and Mrs W.J. Agnew and Lady Decies played a role.

The three chosen hybrids are ‘Anna Booth’ (deep pink), ‘Mr Rosenthal’ (deep purple) and ‘Widge’ (cream). ‘Widge’ was named after the Whibley family cat! A piece of history in the beautiful Adelaide Hills has been put to rest. ❀

<sup>1</sup>The Rhododendron, Vol. 41, 2001; p. 9





*Rhododendron* 'Mrs Rosenthal'

*Whibley hybrids* · page 39



*Rhododendron* 'Anna Booth'



*Rhododendron* 'Widge'



*Rhododendron* 'Chayya'

*Vireya species regenerated* · page 22



*Rhododendron* 'Matilda'



*Rhododendron* 'Kiandra'

*Vireya species regenerated* · page 22



*Rhododendron* 'Young Blood'





*Rhododendron* 'Freckles Pink'

*More on Australian hybrids · page 15*



*Rhododendron* 'Denise'

# Some musings about lilies

MICHAEL HAMMER

Victorian member Mike Hammer has contributed to each of the last three volumes of *The Rhododendron*, this time on the subject of liliiums. Aside from liliiums being worthy and popular companion plants for rhododendrons, his discussion of various aspects of the science of plant reproduction and hybridization will make this article a most interesting one for many of our readers.

Mike holds bachelors and masters degrees in electrical engineering from the University of Melbourne, and is a research engineer and manager with a high technology manufacturer and exporter of scientific instruments.

## *What is a Lilium?*

The conventional answer is that a liliium is a true bulb forming perennial. It is a monocotyledon (meaning it has one seed leaf), grows between 0.5 and about 2.5 metres tall. Dormant in winter and flowering somewhere between late spring and late summer depending on the species/variety.

That is a good starting point, but from my observations, I would like to suggest a further attribute. I believe a liliium is a very primitive plant. By primitive, I mean a plant that has evolved very little from its early ancestors. Evolution is the process by which a species better adapts to its environment and implies progressive changes towards more complex, sophisticated and integrated structural attributes. Indeed we call a movement towards simpler less integrated structures devolution or regression, not evolution. So let's examine the evidence for liliiums being primitive in an evolutionary sense.

Firstly a liliium forms a true bulb. What do I mean by that? Well, there are four types of storage organs used by perennial plants.

**Bulb** – most of the storage mass consists of modified leaf stalks (scales) with a small piece of connective tissue (the basal plate) through which concerted action arises.

**Corm** – somewhat similar to a bulb except that now the shared connective tissue makes up most of the storage mass. Only vestigial leaf scales are still visible e.g. *Gladiolus*.

**Rhizome** – the storage organ is modified stem tissue e.g. *Iris*.

**Tuber** – the storage organ is modified root tissue, e.g. a potato.

When we look at a liliium bulb we can clearly see each modified leaf as a separate scale. The scales have changed relatively little from leaf stalks and indeed are still vaguely recognisable as distorted leaf stalks. Look how loosely the scales pack together. They rely on the water inside each scale swelling the scale so that they press together to seal between one scale and the next. Slight

dehydration and the scales shrink, opening up big gaps all over the bulb for entry of water and pathogens. Even in a turgid healthy bulb there are indentations all over, where water and pathogens can collect and possibly slowly enter into the core of the bulb. Note also that there is no protective covering, skin or tunic around the outside of the bulb to seal it, preventing water loss and again entry of pathogens. Small wonder that a liliium bulb is sensitive both to drying out and to fungal rot in excessively wet conditions.



Bulbs of (left to right) Asiatic lily, Oriental lily and onion.

Compare that with another true bulb – an onion or a daffodil or a tulip. Look how the scales have been extensively modified through evolution so that they wrap around each other forming a tightly sealed structure. Look also at the resultant external shape which is smooth and does not provide indentations where pathogens can easily collect. Note also the presence of an outer tunic or skin, sealing the bulb and further isolating it from the external environment.

One would have to say the structure of the lily bulb is much less advanced (i.e. more primitive) than bulbs such as the daffodil.

Evolution occurs as a result of environmental stress. Lilies grow in soil and this can be very dry or very wet depending on weather conditions. It also contains many potential pathogens. Why haven't lilies evolved an outer tunic to protect themselves from these conditions? Given that they haven't, how do they survive these perils? There is another way of protecting oneself –and that is to move to a more benign environment.

We all know that the surface layer of soil can be very dry or very wet depending on the weather. Similarly, the abundance of soil life is immediately apparent when a soil sample is studied. However, once you get down a few inches below the surface, the situation becomes very different. The subsoil is surprisingly dry and uniform in moisture content summer or winter and the amount of microscopic animal life becomes far less. This is a much more benign environment for a bulb without outer tunic. Lilies normally grow with the bulb 20 cm or more below the surface. Of course there has to be some way in

which the bulb can get down to that level, and there is. Lilies have developed contractile roots growing down from the basal plate of the bulb – roots which grow and anchor themselves in the ground and then later in the season shrink, pulling the bulb down.

There is a second problem with such a strategy. Most of the soil fertility is in the top few cm of soil. Growing with the bulb and roots 20 cm and more below the surface would mean a very impoverished nutrient source. Lilies overcome that by growing an extensive network of roots from the portion of stem between the bulb and the soil surface – commonly called stem roots.

There are various theories as to why lilies grow with the bulb so far underground. I suspect the above may be a significant factor. If so, it is an interesting strategy for coping with environmental hazards. It is also a very important issue if trying to grow lilies. It suggests that deep cultivation and fertilisation of the soil prior to planting lilies is a bad idea and may be a cause of bulb rotting. A better strategy could be to minimally disturb the soil into which the bulbs are placed (indeed keep it tightly compacted around the bulb) and only loosen and fertilise to the soil area above the bulb. Possibly an interesting experiment to try.

## *Development of liliiums from seed*

It is also interesting to look at how liliiums grow from seed. When we start to grow a liliium from seed the first thing emerging is the single seed leaf or cotyledon.



Lilium seedling showing cotyledon and seed capsule



After that a cluster of true leaves develop. The first time I saw this I thought I had inadvertently planted several seeds very close together. On digging up the cluster of leaves, however, I found not many plants close together but rather one small bulb with a leaf coming out of the tip of each scale.

The plant was not acting like a single integrated organism, but rather like a loosely grouped cluster of separate plants. This behavior can continue for two or more years, until suddenly there is an abrupt switch. The separate leaf from each scale disappears, and instead a single integrated structure in the form of a stem grows from the basal plate. It almost seems to suggest that the single integrated growth pattern is still recent enough to not be



Lilium bulblet showing leaf from each scale

fully established. *Lilium candidum* in fact seems to have some difficulty in making up its mind, because each autumn it produces a rosette of separate leaves from the bulb and only sometimes in the spring does it produce the integrated stem form of growth. *Cardiocrinum* – although no longer considered a true lilium – takes this even further. Each year it produces a rosette of leaves directly from the scales of the developing bulb, and only once in its life after about 5–7 years does it produce integrated growth in the form of a stem.

Why is integrated growth in the form of a stem more advanced? Firstly because it allows all parts of the organism to contribute to the production of flowers and seeds, and secondly because it allows the plant to produce its flowers and seeds much higher above the surface of the ground, so that the flower is clear of other vegetation and the seed can be distributed more widely by the wind.

While we are on the subject of flowers, let's look at the lilium flower in some more detail. Flower petals and sepals are formed from modified leaves. In many plants, however, the modifications, adaptations and fusions between petals are so extensive that it is hard to see any connection between the leaf shape and petal shape. Look however at the lilium petal.

There is no fusion between petals and the shape is very little changed from the leaf shape. The other lilium flower parts are similarly simple, with almost no



Lilium petals and leaves.

modifications to aid insect pollination or specialise toward pollination by a specific group of insects.

Compare this, for example, with the complex stamen and ovary structure of a humble daisy. Instead of developmental complexity, the lily relies on large showy flowers and in some cases strong perfume to attract insects, a classic strategy used by early angiosperms before the development

of more specialised adaptations. Again suggesting a lilium is a primitive plant in evolutionary terms.

Many lilium books state that the lilium bulb only lasts one season. They make a point of stating that each year the old bulb is consumed and a totally new bulb is produced. This comment always confused me because I have dug up liliums at various times during their growth cycle and I have never found the plant growing without the bulb in evidence. For example, refer to the photograph of a lilium in active growth.



Growing lilium showing bulb, stem roots, basal roots.

The bulb from which the growth initiated is clearly still in evidence. Not only is the old bulb still clearly present but there is no new replacement bulb being visibly formed. Compare this with the growth pattern of a *Montbretia* corm.



Sectioned montbretia corm showing new and old bulb.

I am sure if I had left the liliium to complete its growth cycle and planted the old bulb, new growth would have resulted next spring. So what is all this talk about the bulb only lasting one year? What do the books mean?

The scales of a lily bulb represent food reserves for next year's growth. Each year the outermost scales of the bulb are used up and shed by the plant, while new scales are formed at the centre of the bulb. The scales formed in the middle of the bulb each year,



Sectioned lily bulb showing new growing point.

move slowly outwards from the centre year by year until they end up on the outside of the bulb and are shed. At the same time the basal plate is similarly being regenerated from the centre and eroding from the outside. Thus the bulb is continuously regenerating its food storage organs. Also each year, a new growing point is formed in the middle of the new scales produced during that year's growth. It is the growing point that only lasts one year and requires yearly replacement. If the bulb is growing very vigorously, it is possible for more than one new growing point to be produced and each will be surrounded by a sheath of new scales. As these expand year over year they result in a single bulb turning into a cluster of bulbs linked through the basal plate. If a liliium bulb is cut in half, the new growing point and its surrounding scales indeed looks like a small new bulb as can be seen from the next photograph.

## *Lilium DNA issues*

When we start to look at the DNA of liliiums we find further interesting issues. Primitive plants were essentially all diploids. This means they had two copies of each chromosome and gene (one inherited from each parent). These two strands join together to collectively make up a single, double helix strand of DNA. This is the simplest arrangement and the minimum required for a living organism. In plants however, polyploidy is greatly favoured by evolution. Polyploidy means more than two copies of each gene – triploid means three copies, tetraploid means four copies of each gene, and so on. By the way, an odd number of genes means the organism is not able to reproduce sexually, so triploids and pentaploids are sterile.

There is a good reason for evolution favouring polyploidy. In a living organism, genes form the templates for production of specific proteins. Proteins are the molecules of life. Proteins do not just form the physical structure of the

organism; all the enzymes and hormones that control the life processes within the organism are also proteins. Evolution comes about through changes to the DNA which changes either the nature of the proteins produced and/or the relative degree to which they are produced. If each cell of the organism only carries one piece of double stranded DNA, any change to a gene means not only that a new protein is produced but also that the old protein can no longer be produced. Unless another protein can take over the function of the old protein, the effect on the organism is likely to be seriously damaging. On the other hand, if the plant is, say, a tetraploid it has two double helix strands of DNA in each cell; a change to one of these allows production of a new protein, while the other unchanged strand allows continued production of the old protein. Thus a polyploid organism has the freedom to experiment with mutations without disrupting its ongoing existing life processes.

By now most plant genera include many polyploid species. Overall more than half of all angiosperms are polyploid, and among the monocotyledons more than 70% of species are polyploids.

There are around 64 species of lilies according to the reference I read, although new ones are still being discovered. Of these all but one are diploid. There is only one polyploid – *Lilium tigrinum* which is a triploid and hence sterile. Again the implication is that there has been very little evolution among the *lilium* family.

By the way, it is possible to convert a *lilium* from diploid to tetraploid by use of substances which interfere with the division of DNA during cell division. The most commonly used material is Colchicine (derived from the bulb of the perennial plant *Colchicum*). In general, a tetra lily has broader, larger leaves, larger flowers and stronger stems. In short it displays greater vigor. Compare the diploid form of *Lilium* ‘Black Beauty’ and the tetraploid form.



Tetra and diploid ‘Black Beauty’ leaves and flowers compared.

Some asides: you may be tempted to think that there should be a correlation between the amount of DNA in each cell of an organism and the overall complexity of that organism. It is after all a very logical inference. For example, humans are much more complex organisms than liliiums, and so one would expect them to have correspondingly more DNA. Unfortunately it is not true. In fact, the liliium genome contains about 30 times as much DNA as the human genome. Indeed, the liliium genome is one of the largest of all known living things. Why this should be is not known, but is an area of great debate within the scientific community.

A further aside: while polyploidy is very common within the plant kingdom it is almost unknown in the animal kingdom. There could be several reasons for this but one important issue is that of reproduction. In sexual reproduction it is essential that the number of chromosomes from each parent are the same, otherwise the chromosomes could not pair up to form double stranded DNA in the offspring – a mandatory requirement for a viable embryo. This is not a major problem for plants because most plants can pollinate themselves, one flower on a plant can pollinate another flower on the same plant. Failing that, they can reproduce asexually through bulb division, bulblet formation etc. In the case of animals however, separate male and female organisms are required to form a fertile offspring. Thus any polyploid animal that was created by chance would find it had no breeding partner, and thus would not be able to pass on its genetic makeup to the next generation.

## *Lilium* classifications

Of course, there must have been some liliium evolution, otherwise we would not have all the different species of liliiums. These species have been classified into seven divisions as follows.





As you can see from the illustration, all liliium species come from the northern hemisphere – roughly from latitude 20 to latitude 55 north: the temperate zone.

Look, however, at the geographical spread of the seven groups. There is some overlap between divisions in West China, the Himalayas, Japan and Taiwan, but in general the divisions are relatively well separated geographically. Such geographical separation favours divergent evolution and that is exactly what we see between the different groups.

## *Main characteristics of each Liliium group*

### **MARTAGON**

These lilies are not cultivated commercially to any degree in Australia, and are thus extremely difficult to source as bulbs. It is often necessary to grow them from seed and even seed is difficult to obtain other than from club sponsored seed exchange programs.

In these lilies the leaves are broad and emerge from the stem in rings, with a significant length of unbroken stem between one ring of leaves and the next (called whorled). Plant height is typically around 600 mm and the flowers are usually small with strongly reflexed petals, almost forming a ball shape. There is normally a considerable length of stem between the last ring of leaves and the flower head – typically at least 150–200 mm. Flower colour is normally white, pink or purple. Perfume is normally slight and may be unpleasant. Flowering time is late spring to early summer.

These lilies are slow to develop from seed, taking up to seven years to reach flowering size. The germination is delayed hypogeal. They are, however, among the longest lived lilies and can grow undisturbed for decades. The bulbs like to be deep underground and they are stem rooting.

### **AMERICAN**

Just as for martagons, these lilies are not cultivated commercially to any degree in Australia and are thus extremely difficult to source as bulbs.

They are probably the closest in overall appearance to the martagon group. They also have whorled leaves but the individual leaves are often narrow rather than broad as for the martagons. Like the martagon, the flower form is also a heavily reflexed “turk’s cap” but the flower size is often (but not always) bigger, and the typical colouring is different. The base colour usually ranges between red, orange and yellow and there is often brown spotting. There is no perfume.

Some other differences to the martagons are that the plant does not form stem roots and the bulbs consequently like to be closer to the surface of the ground. The plants also grow considerably higher – up to 2.4 metres high.

Their growth habit is also frequently stoloniferous, forming underground running roots with bulbs at intervals. Alternatively they form a mat or underground carpet of bulbs. They prefer wetter conditions than other lilies, frequently growing near streams and bogs although with the bulb itself clear of the water table. Germination is usually delayed hypogeal.

### **CANDIDUM**

Again, this group is not cultivated commercially in Australia and is thus difficult to source as bulbs.

These lilies are quite different from other groups in that they prefer alkaline conditions. Also stem roots are not produced and the bulbs normally grow with the top of the bulb just below the surface. It is also unusual in that the dormancy period is extremely short. The flowering stem dies off in the late summer. Then after a very short dormancy, the bulb puts out a rosette of leaves directly from the tips of the scales of the bulb during the autumn. These die down in late winter and a flowering stem is produced again in the spring.

Leaves are alternate but wider than the leaves of trumpet lilies. The plant grows about 1 metre high. The flower is trumpet shaped, around 6–10 cm across the mouth and very strongly perfumed – indeed the flowers have been used in perfumery. This group represents some of the oldest flowers in cultivation and can be traced back almost 3,500 years.

### **ORIENTAL**

After asiatics, this is probably the second most common group of lilies grown both in gardens and for cut flowers. Popular hybrids are usually reasonably easy to buy from nurseries and bulb suppliers.

Leaves are typically very broad (typically 3–4 cm wide at the widest point) with pointed ends, and emerge from the stem in pairs. In the case of *Lilium speciosum* and its hybrids, the leaves all emerge in one plane. In the case of *Lilium auratum* and its hybrids, however, alternating pairs of leaves are staggered at 90 degrees to each other, giving the plant a more three dimensional appearance.

The flowers are typically very large (up to 25 cm or more in diameter) with several flowers per head. As a result the flower heads are typically huge and very imposing. The flowers are strongly and sweetly perfumed. Flower form is from flat to strongly reflexed (in the case of *speciosum*) but most hybrids are mildly reflexed. Most prominent flower colours are graduations between white and red, although there are hybrids displaying some yellow colouration. There is normally a prominent nectary furrow in the middle of each petal (typically greenish) and papilli (raised tufts) in the throat.

Flowering time is late summer, one of the latest *lilium* divisions to flower.



Plant height is up to 2.5 or even 3 metres. The group requires acid soil, and especially a cool climate, which significantly limits the regions where they can be grown well. The bulbs like to live deep underground and stem roots are formed. Germination is delayed hypogeal, and plant development is slow taking up to five years to flower from seed.

### **ASIAN**

Without doubt, this is the most flexible and widely grown group of liliiums both in gardens and for the cut flower trade. Popular hybrids are readily obtained from nurseries and bulb suppliers. The plants also like acid soil, but are far more tolerant of heat substantially widening the regions in which they can be successfully cultivated. The leaf form is much narrower than the oriental (typically only 1cm wide or even less), similarly pointed, and leaves emerge from the stem in alternating pairs. Plant height is significantly less than for the oriental, typically 0.9 to 1.2 metres high.

Flower size is also much smaller than for orientals, typically 10–12 cm in diameter. Flowers are usually in the form of flat stars with several flowers per head and there is no perfume. A wide range of colours have been produced through hybridisation, and now cover almost all colours except for blue and green. Flowering time is usually early summer, significantly earlier than the orientals.

The plants multiply very rapidly and mature relatively quickly from seed (2–3 years to flowering). Germination is immediate epigeal. Stem roots are formed and the bulb likes to be well underground.

### **TRUMPET**

In the past, these lilies were difficult to source in nurseries (other than *Lilium longiflorum* – the Christmas lily). However, these lilies are becoming more popular as cut flowers and the range available in nurseries is correspondingly increasing. The leaves of this group are typically narrow to very narrow, and emerge in alternating pairs. The plants are up to 2.5 metres tall. They require acid soil like asiatics and orientals but prefer warmer conditions than orientals, I suspect even more than asiatics.

The flower form is usually a large trumpet, often around 150mm long and 150mm or more across the mouth, with many flowers per head. The overall inflorescence can be very spectacular. They produce very strong, very sweet perfume. So strong in fact that some people find the smell overpowering indoors. Typical flower colours are white, yellow and pink and the flowering time is mid summer.

The plants are easy to grow from seed and develop very quickly. Germination is immediate epigeal and there are several reports of plants

flowering within one year of sowing seed although, in my experience, two or even three years is more common. The plants form stem roots.

When hybridized with *Lilium henryii* the offspring are termed Aurelians. Many hybrid trumpet lilies are in fact Aurelians and this can be determined for a specific plant by looking at the topmost leaves. If *L. henryii* parentage is present the top leaves will have brown or purplish edges, and there will be small, almost round leaves emerging around the flower pedicles. Aurelians frequently have flatter flowers and they can even be reflexed, partway towards a “turk’s cap” flower form. The leaves are often wider than for a pure trumpet.

## *Creating hybrid lilies*

As with any other plant genus, horticulturalists started crossing the various species in the hope of creating hybrids with new and interesting attributes. When the parents were both from within the same group this was readily successful and a very wide variety of beautiful hybrids have been created. The two groups given the most attention have been the asiatics and the orientals and any lily nursery catalogue lists many such hybrids from these two divisions. Originally, the hybrids were focussed on creating more beautiful or more robust garden plants, but more recently economics has redirected most lily hybridizing effort into creating plants for the cut flower trade. The attributes required for cut flowers are upwards facing flowers with tight heads, flowers all opening within a short time period, and not too strong perfume. While such lilies are undoubtedly attractive, much of the charm of lilies with demurely downwards facing, nodding flowers, and broad pyramidal inflorescences is being lost. It is a great pity that lilies are being forced into a conformist mediocre mould.

### **INTERDIVISIONAL HYBRIDS**

When horticulturalists tried crossing lilies from different divisions (for example, an oriental with an asiatic or a trumpet) they found that with a few rare exceptions no fertile seed was produced. On the rare occasions when fertile seed was produced the offspring were found to be sterile and thus could not be used for further breeding. Why does this happen and what techniques have hybridisers used to overcome the problems? To understand this, we need to delve a little into the science of genetics.

## *Barriers to reproduction*

As most readers will already know, a living organism is defined by its DNA. This DNA exists in the nucleus of each and every cell of the organism and is in the form of two complementary strands, like the positive and negative

halves of a mould. The two strands are bound together by weak chemical bonds, and twist around each other forming the often referred to “double helix.” It is an essential requirement for life that the DNA can form into a double helix configuration within the living cell.

During reproduction, sex cells are produced – biologists call these gametes. These cells only have half the amount of DNA of a normal cell – in fact each sex cell has only half the number of strands of DNA that normal cells have. Thus the sex cell is not capable of dividing and growing on its own. However when male and female sex cells come together they merge. Each sex cell provides one strand of DNA. The two strands come together, bond to each other reforming the double stranded DNA, and thus create a viable embryo. There is however an important requirement for this to occur successfully, and that is that the two half pieces of DNA are sufficiently similar to bond to each other.

Genetic differences between one plant and another show up as differences in the DNA. Remember that the two strands of DNA are like the male and female portions of a mould. Well, any genetic differences between the two parents mean that the two strands of DNA in the embryo are in fact not identical. The male and female portions of the mould do not exactly match. If the differences are not too great the two strands will still bond to each other. On the other hand, if the differences become too great, the two strands will not be able to bond successfully. Bring them together and they simply fall part again. Imagine if the male and female portions of the mould are significantly different. You will not be able to put them together. When this happens the double stranded DNA does not form, and further growth becomes impossible – the embryo is not fertile. How different do they have to be for them not to bond successfully? The answer is surprisingly little. The genetic differences between two lily species from the same division is likely to be far less than 0.1% of the genetic material. As an indication, the genetic difference between a man and monkey is about 5%.

As I am sure you have already guessed, the genetic differences between lilies from different divisions is simply too great. The two strands of DNA are unable to bond and the embryo cannot grow. Is there a solution to this? The answer is – to some degree, yes.

Imagine we start off not with conventional diploid parents, but instead with tetraploid parents. Each cell of a tetraploid has for strands of DNA in the form of two double helix strands. The sex cells or gametes of these parents have half that amount of DNA or two strands each. When the male and female sex cells come together there are again four strands of DNA, but now instead of each strand from one parent having to bond with the strand from the other

parent, it is possible for double stranded DNA to form by the two strands from each parent bonding to each other. The result is a cell with two complete and different genomes within the nucleus. If the differences between the two are too great they will conflict to the point where again the embryo cannot develop (that is why we cannot use tetraploid parents to cross say a tomato with a lily) but at least we have overcome the barrier of needing to form double stranded DNA, and if the differences are not too great the embryo may be able to further develop. In short, by starting with tetraploid parents we can accommodate greater genetic differences and still form a viable hybrid.

The problem of conflict which can arise between the two sets of DNA within the embryo shows up in a second problem faced by hybridizers. The embryo needs a food source to sustain it during the very early stages of development. For example, in a chicken egg the food source is the yolk and white portions of the egg. In the case of a seed the food source is called the endosperm. The makeup of the endosperm of a seed is very specific to the DNA of the embryo. In the early stages of growth, the embryo is very sensitive and if the makeup of the endosperm is not compatible with the embryo it will not nourish the embryo – instead it will kill it (in effect it acts like a foreign protein in our bodies). In interdivisional crosses it is quite common for this to occur. The solution used by hybridizers is to separate the embryo from the endosperm (done with a scalpel under a microscope) and to place the embryo on a suitable culture medium. This is termed embryo rescue and is time critical. It must be done after the embryo has developed but before the incompatibility between embryo and endosperm has developed to the point where the embryo is killed.

A third problem faced by hybridizers is to ensure that the male and female gametes can come together. In normal hybridizing this occurs by the pollen grain growing a tube down the style of the female and into the ovary. If the style and ovary of the female is too different from the pollen grain parentage then this process may not occur successfully. The solution hybridizers have used is to cut off the style of the female and place the pollen on the cut end thus reducing the distance the pollen tube has to grow to reach the ovary.

A fourth problem is to maintain fertility in the hybrid offspring. In order for the hybrid to be fertile, it is essential that the DNA can successfully divide to form the gamete or sex cells. This process appears to be even more sensitive with respect to DNA mismatching than is the formation of the double helix discussed above. Thus even though the DNA in the male and female sex cells may successfully link up to form double stranded DNA, the hybrid plant may not be able to divide up its composite DNA so as to form a fertile sex cell. In this case also, polyploidy can help considerably. The presence of two separate, well matched double strands of DNA greatly facilitates the subsequent division

of the DNA to form the sex cell. A good example of this is one of the very earliest interdivisional crosses – ‘Black Beauty.’ This is a cross between an diploid oriental (*Lilium speciosum*) and diploid *Lilium henryii*. The cross was successfully accomplished by conventional pollination and the seed formed proved fertile. The hybrid, while vigorous in growth, did not set fertile seed. Fertility was restored by converting the plant to a tetraploid. This can be done by treating a young plant with colchicine. Colchicine is extracted from *Colchicum* (Autumn crocus) and acts by interfering with DNA replication which occurs as cells divide.

Past hybridizing focussed on creating new hybrids from crosses within divisions. This field is, however, becoming fully explored and attention is increasingly turning to the potential of crosses between divisions. The first examples were crosses between *L. longiflorum* and asiatics commonly referred to as “LA”s. These have asiatic-like flowers without perfume, but the flower is larger than a conventional asiatic and the plant is considerably more vigorous.

The second area of focus has been on crosses between orientals and trumpets called orienpets. In addition to the goal of producing new flower types, there is also a drive to produce plants with oriental style flowers but greater heat tolerance. The field is still relatively new and some of the hybrid flowers are not so spectacular – looking essentially like a differently coloured *henryii* flower. On the other hand some hybrids like ‘Silk Road’ or ‘Northern Carillion’ do have very beautiful and different flowers. In the future we can expect many new and beautiful lilies to be produced from these efforts. It is also reasonable to expect that crosses involving other divisions of lilies will be explored – reports of asiapet crosses are already emerging and no doubt others will follow. ❀

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### ***Australian Quarantine bans rhododendron imports***

Australian Rhododendron Registrar Ken Gillanders has reported that, as from 13th September 2002, the Australian Quarantine Inspection Service (AQIS) has prohibited entry into Australia from UK, Europe and USA all rhododendron plants or parts (cuttings). It appears that rhododendrons and several other genera can carry a newly identified *Phytophthora ramorum*, the cause of “Sudden Oak Death”, which could be a threat to some Australian native species. Seed is still permitted entry.

Those contemplating importing plants or cuttings from other countries, for instance New Zealand, should contact AQIS as certain conditions still apply to material coming from them. ❀

# *Woodbank Nursery, we thank you*

BARRY DAVIDSON

Look around your garden. What are the most interesting and different plants that you can find? What name springs to mind immediately as the major source of these rare gems? Most of us would say Woodbank Nursery in Tasmania, and those who do not, then you really have missed out, because now it is too late.

Ken, Lesley and Colin Gillanders are calling it a day and are going to pursue more of life's goals. Woodbank is closing. I can only be thankful that I was around during those wonderful years of opening from 1976 to 2002 and that our garden is much the richer for the Gillanders' plants, knowledge, experience, generosity and friendship. This really has been the nursery with the most comprehensive array of rare gems in temperate Australia.

My biggest regret is that I did not have the knowledge to appreciate all that was on offer. Every time I visited, I found something interesting and of horticultural merit. Each time I learnt more and I wonder just how many plants were available that I passed by, because I did not have the capacity to appreciate them? The catalogue was only a small part of the reasonably priced material available. Nothing went into the catalogue that could not be supplied in some quantity. It provided an abbreviated list of the plants to be found, not a long list to tempt us with what might be there.

What special skills set the Gillanders apart from others? Firstly, Ken and Lesley are plant hunters with very keen eyes for outstanding and different forms and species. They made many trips to the wild in lands afar, bringing back seeds and propagation material. On visits to more conventional places they spotted the best varieties, imported them and made them available to other plant lovers. As propagators they are very proficient with seeds, cuttings and grafting. It is an interesting exercise to count the plants in the catalogue, realise that this is only about one third of all that Woodbank does and, when you come to the total, divide it by the number of days in the year, remembering that plants are not propagated everyday. The next step is growing on and generally looking after the plantlets, until we can get at them. Think of the organisational and business skills required to name precisely, keep stock, fill orders correctly and have all of the company records straight. Lesley is the coordinator of this area. There is more. The display beds had to be built and this was done with a keen eye for landscaping. The rockery is made from homegrown rocks that were large and were moved with a front-end loader. Dams for water features and water use were constructed and later on a bore was sunk. All of the time maintenance goes on.

Ken and Lesley met at Castlemaine in Victoria and were married in 1952. A quick calculation will reveal that this year they celebrated their fiftieth wedding anniversary. This has been a true caring and sharing relationship in every way. When giving talks, it is always as a pair. At meetings, and when plant hunting, they are never far apart. They have always been a team when undertaking tasks while having an appropriate degree of division of labour to match the skills of each. Colin, one of their five children, four boys and one girl, has worked with Lesley and Ken for twenty three years and his ability to spot a good garden plant has been inherited.

Ken worked as a miner at Castlemaine in Victoria before Lesley and he moved to The Basin, where Ken worked at Chandlers Nursery for many years. It was in September of 1975 that the fortunate move to Tasmania was made. The site at Longley was chosen and the land was purchased from Essie Huxley, the well-known plantswoman who still resides across the road. In the autumn of 1976 the first plant list was produced. In Lesley's words, "it was a short list".

Things have changed with time. By 1979, the quarantine service recommended that they open their own quarantine station. A strong relationship (has) developed and the local quarantine service has always provided excellent support. One of the interesting things at that time was that the potting mix was done by hand on the concrete floor of the potting shed. It was then shovelled onto the potting bench and used. This was the process for 12 years. The potting mix is now done mechanically and contains the latest materials to maximise plant health.

Disaster struck in November of 1982. Bushfires took all of the outside stock and some that was in the glasshouse. The nursery closed, but vision, resilience, strength and determination were always a part of the Woodbank team and the gates opened again after just three months. From that point on the nursery continued to go from strength to strength. The first catalogue in book form came out in 1991 and colour commenced in 1995. Regular purchasers will note that each new catalogue is not simply a rerun of last year's, but contains many new items and some requested deletions reappear in future editions.

The Gillanders have an association with The Australian Rhododendron Society that goes back a long way. Lesley and Ken were members of the Ferny Creek Horticultural Society in Victoria, which spawned the rhododendron group. After coming to Tasmania, both were active in setting up the local Southern Tasmanian Branch of the ARS. Bob Malone came down from the North West Tasmania Branch, now the Emu Valley Branch. Ken has been our president for two stints, both of which were for two years. Our rhododendron shows, which have continued to grow over their twelve year history, were masterminded by Ken as the show chairperson and Lesley as the chief steward. Ken has been



the Technical Officer of the National Council for years and has been, and now is again, the Registrar. Ken was awarded Life Membership of the ARS in 1993 for service to the Society and fostering the growing of rhododendrons by supplying material, advice, talking to clubs and providing a fine example of how to do it. The couple have spoken to many societies including Probus, various senior citizens groups, regional garden clubs and specialist societies such as the Camellia Society of Tasmania. Ken is an outstanding photographer and many will remember his slides at the conference in Melbourne in 2000. We regularly have Lesley and Ken speak at our branch on plant hunting, great gardens, exceptional plants, Gondwana trips, and companion plants. We always have a large attendance when the Gillanders speak.

Both Ken and Lesley belong to respected international plant societies, ranging from alpine to dendrological groups. Ken has been a contributor of material to their sophisticated journals and he regularly has articles in the *The Rhododendron*, the Journal of the Australian Rhododendron Society. If you search the right bookshops, you may even come up with a copy of *Know Your Rock Garden Plants and Dwarf Bulbs* by K.D. Gillanders, G.M. Patterson and E.R. Rotherham, published by A.H. and A.W. Reed in 1973. It states on the dust cover: "Kenneth Gillanders, who lives in Victoria, Australia, has been engaged in horticulture professionally for some 18 years and has had wide experience in propagation. He has, over many years, visited the alpine areas of mainland Australia and Tasmania, studying alpine flora and collecting seed. A member of many international rock garden societies, he has contributed articles on Australian flora." Ken was clearly a knowledgeable plantsman with an international reputation by 1973, two years before he and Lesley came to Tasmania.

Let us reflect on the contributions of Woodbank Nursery to rhododendrons in Australia. Many tried and proven performers were available at very reasonable prices. Along with them were the stunners that are just not available elsewhere. Think of 'Janet' with her enormous trusses of white flowers in late winter, 'Loderi Julie' with pale yellow flowers, Naomis in various forms, nine different Loderis, and 'Leo' and 'Kilimanjaro' – both fine and different reds. What do all these have in common apart from being most superior rhododendrons? They are all difficult to propagate and have to be grafted. Woodbank Nursery has always carried many of these gems for us to choose from.

New plants were continually offered. Do you know of another nursery that offers five varieties of *Rhododendron campylogynum* including, Myrtilloides, Charopoeum and big leaf form? They now have the white form and 'Bodnant Red' also. Woodbank introductions from overseas include most of the Cox bird series. Brought in were 'Wren', 'Curlw', 'Grouse', 'Snipe' 'Phalarope'

and ‘Egret’, along with many others. All are excellent and most worthy of a place in any garden. Most nurseries will simply not bother with the alpine and rockery rhododendrons because they take too long to form a saleable plant. Not so at Woodbank, if you wanted them, some were always available. ‘Yaku Fairy’, another of their introductions, is a tiny plant by any measure, but the true plantsmen gardeners are out there, as the nursery has had no difficulty in selling all that it could produce. Of the larger, more obviously spectacular garden plants, ‘Horizon Monarch’ and ‘Nancy Evans’ were first let loose onto the gardening public from Woodbank. For those with a discerning taste for species, *R. gratum* (syn. *R. rex* ssp. *gratum*) seed was brought back from Yunnan, and it was certainly the first release of this species to us. This is, of course, the tip of the iceberg, but it serves to illustrate the quality of the thousands of introductions that they have offered to us over the years.

Plant hunting has been a favourite pastime. While braving the elements and vagaries of the forest, alpine meadow or doubtful political situation overseas, many fascinating plants of significant merit have been collected. Lesley and Ken have a fascination with Gondwana, the plants in it and the relationships between the plants. Ken has been heard to say, when noting that a Tasmanian species of *Eucryphia* crossed with one from South America, that they have been separated for 60 million years – long enough for all of the eucalypts to evolve. They have been to Chile three times and each time have made the trek up to the alpine regions as well as going right down to Tierra del Fuego. Among their favourites are alpine species. Of the plants from Chile, I particularly like *Philesia magellanica*, a shrubby plant with a flower like a lapageria, and both cutting material and seeds were brought home. Chile has surrendered some fine bulbs also. New Zealand has been visited five times, with a trip right down to Campbell Isand. Both collecting and buying of plants has been done in that neighbouring country. Many *Nothofagus* spp., including *N. fusca*, have been brought to us from both New Zealand and South America. The nurseries have been well and truly searched for our benefit.

Apart from Antarctica and collecting in Australia, Africa completes the Gondwana set. Plant-hunting trips have gone to South Africa, including Lesotho, as well as Kenya, where they climbed Mount Kilimanjaro and part of Mount Kenya. The latter mountain gave us the magnificent *Lobelia keniensis*. Going back to South America, they have been to Ecuador, particularly the alpine regions, twice. There they noted that the growth habit of some of the native plants were similar to lobelias in Kenya. Both were doing the same thing in the same type of equatorial alpine environment, but were half a world apart.

China has been botanised three times. The first trip was to Yunnan, followed by a trip to Hunan where Lesley was quite ill, but recovered quickly,

and the third trip was a return excursion to Yunnan, which is not surprising as George Forrest spent many years plant hunting there. On the first visit to Yunnan there was plenty of seed to bring back including *R. gratum*. On the next trip, seed of the interesting plant *Sinojackia*, somewhat like *Styrax*, was introduced. The second trip to Yunnan, with some of our other Southern Tasmanian Branch members, was excellent for botanising, but there was hardly any seed to be had at the particular time of the year.

Other forays included a trip to Japan in 1983 which produced a fine prostrate form of *R. aureum* (syn. *R. chrysanthum*) that has been crossed with 'Little Glendoe'. The results of the cross are being assessed currently and some plants look very promising. Attendance at conferences has taken them to the United States of America and the United Kingdom. Let us not leave out the politically sensitive areas. That does not stop the intrepid plant hunter! Trips have been made to Kyrgyzstan and Iran, where bulbs and other fine alpine gems were found.

Plant collecting does not have to be overseas. Some very fine forms of our native Tasmanian flora have been offered to us through Woodbank Nursery. The larger growing native leatherwood used for honey is *Eucryphia lucida*. Some years ago, Forestry Tasmania helped the Gillanders introduce a pink form of the normally white flowering tree from the northwest of the state. While on another trip in a similar area, Colin and Ken spotted another stunning pink form, which has been named 'Ballerina'. Ken has been heard to describe this as "a beautiful thing" and regards it as one the very best introductions by the nursery. The flowering season is long, the tree is neat and handsome, there is fragrance and you can enjoy the honey. It does not stop there. Do you like variegated leaved plants? You can have our native leatherwood with a white edge in two forms, one of which is 'Spring Glow', which has a pink shading to the white variegation and does glow in that season, or you can have it with a golden edge called 'Gilt Edge', all spotted in the wild. Where else is there such an array of forms?

Some of the other exciting introductions include *Nothofagus fusca* 'Rainbow', one of Lesley's favourites. This is one of the native New Zealand southern beeches. Colin spotted the variegated seedling growing in a batch. Those of us who have it, and grow it in the shade, know what a different and garden-worthy plant this is with its crimson, purple and creamy-yellow leaves. The New Zealanders have taken it home and placed a patent on the name. Another small growing form of *N. fusca* is called 'Kiwi' and this has also been taken back to its homeland and sold widely. There were twelve different leatherwoods listed in the 2002 catalogue. The nursery's most successful commercial introduction is *Salvia corrugata* with its blue flowers.

This has been propagated by other nurseries throughout Australia and has been a very good seller. If you look closely at the coloured label, you will see that the introducers have been acknowledged. Ken and Lesley like this salvia very much.

If I may add some of the plants that I think stand out. *Nothofagus antarctica* 'Chillan' has a pale yellow variegation in the leaf which combines well with the green of the leaf and the black of the stems. The autumn foliage is a good yellow and the stems stand out as winter bark. *Acer* 'Esk Flamingo' from New Zealand has green and pink-flecked leaves, which are most attractive, but wait until winter when the leaves have fallen and then you have the most eye-catching red and white snake bark effect. Like 'Chillan' above, they give all year round. *Magnolia* is one of my preferred genera and the Gillanders have imported many fine forms, including varieties from the Felix, Mark and Abbie Jury, Os Blumhardt and Peter Cave in New Zealand. The superior form of *Magnolia campbellii* 'Charles Raffill', resulting from the cross of the western subspecies *campbellii* and chinese subspecies *mollicomata* was imported some years ago from England. One gentleman from the United Kingdom took one back from Woodbank Nursery because he had difficulty obtaining the true form at home.

It is clear that following in the footsteps of Ken and Lesley would be a very difficult, if not an impossible, act to follow. The nursery is a part of their home block. All of the wonderful plants are there in place and they are the result of their lifetimes' work. It is now time to enjoy the plants unfettered with production and selling schedules. If you know Lesley and Ken, then you know that this does not mean relax. Far from it, the new garden beds are planned and on the way and the older beds will experience changes. Plant hunting and the travel bug is a disease that never abates. They can always go somewhere new, or when going back to an old stamping ground the keen eye will spot a new treasure. Seasons change and so do the offerings.

The final word must be that the finest alpine, rhodendron and temperate plant source, Woodbank Nursery, was the result of teamwork. A team that has enjoyed fifty years of happy married life working together. To the Gillanders, we thank you and wish you a long and happy future. ❀

# *Tolerant and tough vireyas*

ALLAN KERR GRANT & JOHN SCHUTZ

**T**he delicacy of vireya flowers, and the fact that these plants come from tropical areas, seems to have produced beliefs in some gardeners that they are difficult to grow. Not so!

The writers of this short item decided to plant vireyas in a stretch of their house, recently bought, in Stirling, South Australia. This area of garden had been allowed to degenerate by previous owners to a state of vigorous weed growth and terrible ground cover, as well as blackberry and other invaders. A tree fern was the only plant left. The area was cleared and automatic watering was installed. The garden bed was then covered by about eight centimetres of compost and acid soil on top of thick yellow clay which made up the bed.

This area of garden had a considerable slope which was held back by a retaining wall, constructed of single bricks, of about one metre in height. The wall raised concerns about the security of its retention, but it was decided to risk the chance of a collapse. Apart from this, the bed was regarded as being satisfactory in avoiding hot dry winds, burning sun and frost. The area was



(1) Vireyas in garden bed



(2) Open side of bed: compost layer



considered to be reasonable to grow vireyas in the open. About 40 vireyas were planted carefully over a period of about two years, and only to about the depth of the compost and acid soil. With suitable watering and cultivation, as well as proper feeding, the vireyas grew well and indicated their satisfaction by producing strong new growth and flowers (1).

All seemed to be well in this garden area until about six months ago. Unusual sounds were heard one night. The sounds were considered of little importance, but on arising the next morning the whole of the retaining wall was seen to have collapsed carrying with it a strip of garden bed holding a number of vireya plants. A greater part of the remaining bed was intact. The edge of this showed clearly the depth of the top layer of compost and acid soil with the yellow clay below (2) (3).



(3) Open side of bed: bed of yellow clay

The object of this story demonstrates quite clearly that vireyas can survive and grow in shallow, appropriate soil, providing that they receive the necessary care. ❁

# *Rhododendron wentianum*

## ... from low altitude to high flyer

LYN CRAVEN

One of the more enigmatic plants that the late Lou Searle discovered in the highlands of Papua New Guinea and introduced to horticulture is the so-called “low altitude christi”. From memory, my first plant of this came from Bob Withers. For many years my plant grew quite well but never showed the slightest sign of producing flowers. Bob flowered it and discussed it within an article on *R. christi* (Withers 1986). In his article, Bob records the plant as having been found by Lou at an altitude of c. 2,150 m “in a tribal area known as Sina Sina” and sent to Melbourne in 1974. The flower and leaf form is quite well shown in the photograph on the front cover of *The Rhododendron* 25(3) but the colour reproduction either was not good or the dyes have faded. Bob noted some of the differences between the low altitude plant and *R. christi* and ended his article questioning as to whether the former was a variety of *R. christi*, a natural hybrid of *R. christi*, or a new species.

Subsequently my own plant flowered and I wrote to Lou Searle to ask for additional information about it. In his reply in May 1992, Lou quoted from the notes under his collecting number 89 “found on native land, in forest litter on No. 2 Dom. Similar to *christi* but lacks the red-flushed new growth”. The plant was not in flower when Lou found it and to the best of my knowledge he never saw it flowering in cultivation.

Graham Snell grew some seedlings of the plant and gave me a few of them to grow onto flowering as I was interested in seeing if they came true from seed. If so, this would be an additional point in favour of the plant being a species and not a hybrid. The seedlings flowered some years ago and were sufficiently uniform vegetatively and florally to indicate that there was no segregation and therefore I concluded the plant was not a hybrid.

Clearly the plant has very little relationship with *R. christi*, differing greatly, inter alia, in the corolla shape, lack of hairs on the corolla, corolla colour and stamen disposition. Using the keys in Sleumer (1966) I had not been able to identify the low altitude plant with a known species and I had put the matter aside until I had more time to dig deeper. Around two years ago, when curating some vireya specimens in the Australian National Herbarium, Canberra, I had occasion to look at specimens of *R. wentianum* and realised that I had found the identity of Lou’s plant. We had specimens of *R. wentianum* from two localities: 1,500 m, Mt Antares, Star Mountains, Papua (formerly Irian Jaya), Indonesia, common small epiphytic shrub; and 1,300 m, Erave, Southern Highlands Province, Papua New Guinea, solitary terrestrial shrub on limestone ridge. It



became apparent that the herbarium material I had collected from my glasshouse could not be identified using Sleumer's keys because it has broader leaves than are recorded by Sleumer for *R. wentianum*.

*R. wentianum* was described by the Dutch botanist S.H. Koorders in 1909 (Koorders 1909) based upon material collected in Papua (then called Dutch New Guinea) by a Dutch physician, G.M. Versteeg, who participated as physician-botanist in the 1907 leg of the Dutch New Guinea Expedition led by H.A. Lorentz (Steenis-Kruseman 1950). Koorders named the new species for F.A.F.C. Went, who had spent several years working in Java (as Director of a sugar cane experiment station) and later became Professor of Botany at Utrecht University (Steenis-Kruseman 1950). Sleumer (1966) records the species as occurring in the Main Range of Papua from Mt Carstensz to the Star Mountains, and in the upper Sepik River region of Papua New Guinea. The Southern Highlands Province record mentioned above extends the range of the species in PNG further south than was previously known and Lou's collection extends its range further east. A more full locality for Lou's collection is: Eastern Highlands Province, Kundiawa subdistrict, No. 2 Dom, Sina Sina.

The species is well worth growing. Not only does it have very attractive foliage and a pleasing spreading habit but it has extremely beautiful flowers (Figs 1 and 2). In my view the species is one of the few vireyas to which the word 'exotic' can be applied; many other species are more showy but this does not equate to their being exotic per se. The orange-red to coral corollas, aptly described by one collector as 'tangerine', with the bright yellow patch basally on each of the lobes are eye catching. The flower form also contributes to the appeal as the corolla is short-tubed and relatively broad across the limb, presenting quite a strong effect. The foliage is a good foil for the flowers as well, being smooth and glossy. The spreading habit is pleasing too. Definitely, this is a high flyer among the vireya species.

I do not know if *R. wentianum* is available commercially in Australia but should any Australian reader like to add this species to their collection I will be pleased to send cuttings or propagate tubestock for them. ❀

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# *Rhododendrons on a tropical mountain*

M.S.VIRARAGHAVAN

First, a few words on India's geography and climate. India covers 1.3 million square miles (3.28 million square kilometres) from 8°N to 40°N of the Equator, a length of over 1,600 miles. Climatically there are two moderating factors – firstly the monsoon, which is a wind system which brings rain from June for four to five months, the rest of the year being dry; and secondly the Himalayas – the greatest of the world's mountain chains, which stretches for over 1,600 miles from western ice deserts in Ladakh to astonishingly moist regions in the east in Assam. In fact one area here has over 500 inches of rainfall – the world's highest figure. The Himalayas, being well over 20,000 ft over most of the range, effectively prevent the Indiadward movement of cold air from the frozen highlands of Central Asia and Siberia.

So India's climates are quite different from other places in the same latitudes. Such a great diversity of climates supports a great variety of plant life, ranging from alpiners in the heights of the Himalayas to the tropical flora of South India.

As can be imagined, it is only the mountain regions which have climates capable of supporting rhododendron species. Thus, you find rhododendrons in the wild only in the Himalayas and to a limited extent in the Western Ghats, the great mountain range of South India, in which Kodaikanal, where I live, is situated. With the Himalayan climate varying quite drastically from west to east we find that the composition and number of rhododendron species is equally variable.

According to the Botanical Survey of India there are about 65 species, 12 subspecies and five varieties known from India, with *Rhododendron arboreum* ssp. *nilagaricum* being the only one outside the Himalayas region. The maximum number of rhododendrons in the Himalayas is found in the state of Arunachal Pradesh, which has a boundary with China (Tibet), and the point where the great River Brahmaputra enters India. Arunachal has 52 species, five subspecies and five varieties and it is no wonder that my good friend Ken Cox has led many expeditions in the last few years to the Tibetan portion of the Brahmaputra Valley. One other fertile area for rhododendrons is the State of Sikkim with 37 species, and two varieties, now happily a Chapter of the American Rhododendron Society. This link will surely facilitate contact with the outside world so badly needed in India.

In the Western Ghats we have one species, *R. arboreum* ssp. *nilagaricum*, distributed in the mountains above 500 ft to the highest points which reach to nearly 10,000 ft. The areas with the largest numbers are the Palni Hills, where I do my gardening, and the Nilgiri Mountains, slightly to the north.

The existence of only one species is in line with the famous generalization of the well-known plant explorer, Kingdon-Ward that where conditions are marginal for the existence of rhododendrons, the number of species will be very limited, and they will be distributed over a wide area.

A few words on the climate of the Palni and the Nilgiri Hills. These areas enjoy what is called a tropical mountain climate, sometimes mistakenly called temperate, but actually quite distinct. As a combined result of being only 8° north of the Equator, within a short distance from the Arabian Sea, and with heavy rainfall restricted to the monsoon period the climate is extraordinarily moderate - what has been called an eternal spring. Summer temperatures in Kodaikanal have never exceeded 25°C (77°F) and winter minimums are around 4°C (40°F). This peculiarly equable climate makes it possible to grow a vast range of plants - one of the few places where apples grow happily next to bananas.

The typical vegetation of the hills consists of evergreen forests in the valleys, with grasslands in the more exposed regions. The flora is a curious mixture of temperate and tropical species, hinting at much colder conditions in prehistoric times. Our rhododendron is a typical inhabitant of the border areas between evergreen forests and grasslands, especially on the edge of steep slopes where the leaching effect of heavy rainfall has made for acid conditions and where the drainage is good. In such locations there are many thousands of these plants, some growing to quite large trees up to 30 ft in height though the average bush is generally much shorter.

An interesting feature is the very thick bark which renders it highly fire resistant - forest fires leave these as the only survivors. Growing on high exposed ridges the trees assume exaggerated windblown forms.



*R. arboreum* ssp. *nilagaricum*.

Some of the shapes can be very picturesque. Typically, *R. arboreum* has flowers of a pure red held in compact trusses. There is some variation in colour – with darker red, light red and pink flowers. Additional variation is produced by the presence or absence of nectar pouches and with spotting. Flowering commences with the onset of winter in early December and continues sporadically until June. Unlike the flowering in a temperate climate, the tendency for most plants in Kodaikanal is to produce some flowers over an extended period and the rhododendron is no exception. But there is a distinct peak which may vary from tree to tree, from December to January.

An interesting sidelight – the very closely related subspecies *delavayi*, which is found in north eastern India, though separated by well over 1,000 miles, is almost identical. Again the Sri Lankan *R. zeylanicum* is very similar – the main difference being the presence of glands. This hints at a different geographic alignment of the Indian landmass at a distant prehistoric period.

I now come to something of great interest – the discovery of a pure white form of *arboreum*. Unlike the forms of *arboreum* in the Himalayas where white variations are not uncommon, especially in the higher altitudes, there has hitherto been no report of a white form of our species. In fact the first hint that such a form existed came from an unexpected source, the Toda tribals of the Nilgiri Mountains.

The Todas are an ancient pastoral people of the Nilgiris, with a population of just over 1,000. They are the authentic, original inhabitants of the area and their way of life, though considerably altered by “modern civilization”, still has a strong flavour of the traditional. It is appropriate to give a little detail on this tribe, particularly as the rhododendron plays an important role in their rituals. In Toda language it is called “pershk” and many Toda hamlets boast of ancient, sacred rhododendron trees in their vicinity, and the priests in their temples have specific prayer names for individual trees. Quite often, the doors of a temple are fashioned out of rhododendron wood. It is also used in Toda rituals most notably in pregnancy ceremonies where one important ritual consists of the feeding of rhododendron sticks stuck into the ground with the food for the feast as a prayer offering first. Some Toda villages have the name “pershk” (rhododendron) prefixed to the village name. Also some Toda men’s names will have “pershk” prefixed. Rhododendrons are mentioned frequently in Toda songs, both ancient and more recent. Honey from the rhododendron is considered to be exceptional in flavour and it is the honey gatherers and other older folk who, as I mentioned earlier, gave us the first clue about the existence of the white form.

You may well ask “How did this white form remain unnoticed?” Especially as these hills have been pretty well explored, starting from colonial times. The

answer lies in the fact that the Todas, who were aware of this variant, were probably never actively involved in earlier planthunting, as they were in ours.

So, in November 1998, along with Dr Tarun Chhabra, a well-wisher of the Toda culture who made the original discovery, we went on an expedition to Kudiakadu Peak, over 8,000 ft high, in the Nilgiri Mountains. A trek through tropical mixed jungle liberally strewn with elephant dung – fortunately we did not meet one – brought us to the spot where stood a solitary plant with clear white flowers and quite a few seedpods. It was an exciting moment. The white form of *R. arboreum* is pure white without any trace of pink, the white set off by the greenish shade at the base of the flower. The tree we found had the typical growth habit of arboreum, but the leaves were a brighter and lighter green, as were the seed pods. This specimen had clearly been caught in a forest fire, the main trunk had evidently borne the brunt of the blaze, but fortunately the tree was sprouting again strongly.

Specimens of the flowers and leaves were sent to the Royal Botanic Gardens, Edinburgh, where the rhododendron specialist, Dr Chamberlain, is currently examining them. The find has been registered as *R. arboreum* ssp. *nilagaricum* ‘Tarun’. As of now it looks as though this is a colour variant of *arboreum* rather than a new species but a final conclusion can be reached only after Dr Chamberlain completes his analysis.

Lest it be thought we found only one isolated tree, enquiries among the Todas clearly indicates that there are a fair number of such trees in the wild in different locations. This white flowering form has an unusual characteristic – it flowers considerably earlier, from late October onwards. I can speculate that this is because the pollinators are different for this form.

A fascinating prospect – the Todas who proved right about the white form also talk of a pale blue form. Perhaps in the future I’ll have something to report on this form – I hope so.

The seed collected in November 1998 was sown and several seedlings have germinated. Only time will tell whether they have bred true.

My interest in rhododendrons started in 1980, after we moved to Kodaikanal. Having been a rose breeder for a long time before, my thoughts naturally turned to breeding different rhododendrons with the local species as parent. Thanks to the pollen bank of the American Rhododendron Society a large number of crosses with various standard hybrids as well as many species were made from 1987. The general problem in breeding rhododendrons for Kodaikanal is not summer heat as is the common problem in many marginal rhododendron areas but the absence of winter cold. In an article in the ARS Journal a grower from Hawaii had lamented on the sparse flowering of standard hybrids in his climate. A similar problem exists in our hills. Though winter

night temperatures are low, day temperatures can rise to 70°F even in winter, and this fluctuation makes induction of dormancy very uncertain. Clearly, *R. arboreum* had managed to overcome this problem, and this was the rationale in using it as a seed parent. A rather unconventional method of doing the actual cross pollination had to be followed.

When I started hybridising, the specimens of *arboreum* in my garden were very small, so I was forced to use the plants in the wild as seed parents. The actual work of crossing was easy as I located accessible trees, but remembering locations of pollinated flowers was very difficult indeed, especially as it takes nearly eight months for the seed-pods to mature. As many as 70 combinations with hybrids/species were made and the first results are beginning to flower now after about 12 years.

Many crosses with diverse pollen parents such as *pseudochrysanthum*, *macabeianum*, ‘Percy Wiseman’, ‘Trude Webster’, etc. have been made. One cross in particular, with pollen from ARS member, Mary Oleri – Pollen No. 88-179: [‘Hawke’ × (‘Idealist’ × ‘Wheatley’)] has produced a rather nice pink which I have registered as ‘Palni Princess’.

Apart from trying to create different varieties of *arboreum*, a systematic effort was made to identify rhododendron species which would do well. Since there are no rhododendron nurseries in India, and our regulations make it difficult to import plants, seed from ARS and from some Himalayan expeditions were the main source. The results, though illuminating as failures often are, show that very few species can adapt to our tropical mountain. Out of the over 70 species raised from seed and grown for several years, only four appear well adapted – *R. griersonianum*, *R. griffithianum*, and the lepidotes, *R. formosum* and *R. johnstonianum*.

Even the rhododendrons of the Grande series, which could be expected to fare well, are curiously lacking in vigour, as are most members of the Maddenii series. Though *R. nuttallii*, with its typical puckered leaves, is growing well. I have raised a number of seedlings from the various ARS Seed Bank offers – of these I have a rather nice dwarf from the cross [(*R. arboreum* × *yakushmanum compactum*) × *arboreum*] × ‘Red Majesty’ cross 714/1984 of Mr. Leonard Chavet, which flowers profusely. Several seedlings of the cross (*R. griersonianum* × *R. elliotii*) have also flowered and appear well adapted.

Quite early on and thanks to the generosity of a friend, I got a collection of over 20 vireya species and hybrids from William Moynier of Vireya Specialties Nursery in Los Angeles. These have performed outstandingly, which by hindsight is not surprising as Kodaikanal at elevation 7,000 feet and 8° N of the Equator is almost a counterpart of the Papua New Guinea mountains from where vireyas originate. Apart from the original lot, several seedlings have also flowered. One of the factors which led to the success arose accidentally – my

garden, being full of trees with invasive roots, it was necessary to cut trenches along the rhododendron beds to keep the tree roots out. This has meant perfect drainage so essential for growing vireyas. My conservative approach to feeding using mainly neem oilcake rather than fertilizer has also helped. ❀

Viru Viraraghavan holds a Masters Degree in Chemistry. After 20 years in senior capacities in the central Indian state of Andhra Pradesh, he retired in 1980 to settle in the hillstation of Kodaikanal in southern India, where he grows rhododendrons.

He is breeding with *R. arboreum* ssp. *nigalaraicum*, endemic to this area, and also hybridises vireyas. He is a long-time member of the American Rhododendron Society, contributing to its Pollen and Seed banks, and presented at the ARS Annual Convention at Burlington, Mass., in May 2000.

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# New registrations 2001–2002

KEN GILLANDERS

The following is a listing of registrations submitted by the Australian Rhododendron Society Plant registrar, and approved by the Royal Horticultural Society during the year 2001/2002.

Colour numbers refer to the R.H.S. Colour Chart. Accompanying colour names are taken from “A Contribution Towards Standardization of Color Names in Horticulture”, R.D. Huse and K.L. Kelly, edited D.H. Voss (ARS 1984).

Parents of plants are reported in the conventional order – seed parent × pollen parent.

## Abbreviations used

H	hybridized by
G	grown to first flower
S	selected by
N	named by
I	introduced by
R	registered by

‘Anna Booth’ Elepidote Hybrid of ‘Joseph Whitworth’ H (1920’s) David Whibley. G (1920s) David Whibley. N (1920s) David Whibley. R (2002) Australian Rhododendron Society S.A. Branch. Truss: open dome with 25 frilly lobed flowers 25mm x 55mm. Buds: (59D) Flowers: (59D) light spotting on upper lobe. Leaves: lanceolate 150mm x 35mm, no indumentation. Size in 10 years 2m x 2m. Flowers in October–November in South Australia.

‘Bob Malone’ Elepidote hybrid of *aberconwayi* × ‘Coronation Day’ H (1990) H.R. Malone. R (2002) Harry Ronken. Truss: round with 18–20 flowers 60 mm x 90 mm. Lobes: 6–7 with wavy edges. Buds: (65A) flowers at base (49D) to (65B) on edges, a small red ray on the base of each lobe. Leaves: elliptic 135mm x 47mm. Height in 8 years 1.0m x 1.0m, flowering time October in Tasmania.

‘Bobbie Wilson’ Elepidote hybrid of ‘Cupday’ × ‘Lockington Pride’ H (1992) G (1998), N (2000) Don Dosser. R (2002) Don Dosser. Dome-shaped truss of 16 funnel-shaped flowers 63mm x 85mm with wavy edges to the corollas. Colour: Buds pale yellow(11C) inside corolla (11C) with moderate purplish pink (62B) patches at lobe edges. Truss: deepening when fully opened to vivid purplish red (57D). Leaves: elliptic 170mm x 40mm mat surface with decurved edges, base obtuse, apex acuminate no indumentum. Size in 10 years 1.5m x 1.0m. Flowers in November in Tasmania.

‘Creamery Road’ Elepidote hybrid of ‘Joan Bye’ × *macabeanum*. H Bob Malone date unknown. R (2002) Harry Ronken. Truss: Ball shaped with 15 funnel campanulate flowers 70m x 60mm. Lobes: 5 with wavy edges, colour of buds and flowers (155A) Leaves: elliptic 120mm x 55mm, no indumentation. Height of plant in 20 years 2.0m x 1.5m. Flowering time in Tasmania: September–October.

‘Crestan’ Elepidote hybrid of ‘Marion’ (Cheals) × ‘Mrs Henry Shilson’ H (1972) G (1975) Stan Begg. R (2002) Laurie Begg. Truss: dome shaped consisting of 15 campanulate flowers 70mm × 55mm with frilly edges. Inside corolla white with deep purplish pink (67A) on lobe edges, outside corolla deep purple-pink (67A) at the edges and white at the base. Leaves: Narrow ovate 127–140 mm × 40–50mm mat surface with slightly decurved edges, base obtuse, apex acute, no indumentation. Size in 18 years 3.0m × 2.0m. Flowers June–July in Victoria.

‘Crestan Betty’ Elepidote hybrid of ‘Marion’ (Cheals) × ‘Mrs Henry Shilson’ H (1972) Stan Begg. G (1975) Laurie Begg. R (2002) Laurie Begg. Truss: compact dome with 21–27 flowers 80 mm × 50 mm with frilly edges. Buds: deep purplish red (63A) Flowers: deep purplish pink (67C) on lobes white in throat, spotting on upper lobes. Leaves: narrow ovate 150–180 mm × 43–50 mm margins wavy & twisted, surface matt no indumentum. Size in 18 years 2.0m × 2.0m. Flowers in June–July in Victoria.

‘Lapoinya Moon’ Elepidote hybrid of (‘Fawn’ × *griffithianum*) × (‘Idealist’ × ‘Hawk Crest’) H (1979) Dr Carl Phetteplace. G (1979) R.H.Malone. N & R (2002) Harry Ronkin. Truss: ball-shaped with 10 broadly funnel-shaped flowers 70mm × 130mm with wavy edges. Flowers: Yellow group 4B at base fading to 4C, 4D on margins. Lobes: 7. Leaves: elliptic 110mm × 65mm, surface glossy. Height of plant in 6 years 1.8m × 1.8m

‘Lockington Alina’ Elepidote hybrid of ‘Lockington Sandy’ × ‘Hawk Crest’ H (1994) Don J. Dosser. R (2002) Don J Dosser. Truss: ball shaped consisting of 20 funnel shaped flowers, corolla 90mm × 50mm. Lobes: 7 wavy. Buds: purple-red (54A) Flower pale yellow (11D) spots on dorsal lobes reddish orange. Leaves: oblanceolate 164mm × 41mm. Height of plant in 6 years 0.75m × 0.6m

‘Lockington Daisy Belle’ Elepidote hybrid of ‘Delemere’ × unnamed seedling. H (1980) Don J Dosser. R (2002) Don J Dosser. Truss: ball shaped with 20 funnel shaped flowers 90mm × 50mm. Lobes: 7 wavy. Buds: purplish red (54A) Flowers: pale yellow (11D) spotted reddish orange on 3 dorsal lobes. Leaves: oblanceolate 164mm × 41mm, margins decurved, matt surface. Plant height in 6 years 0.75m × 0.60m

‘Malone’s Seven Up’ Elepidote hybrid of unknown × unknown. H (1982?) H.R.Malone. N ? H.R. Malone. R (2002) Harry Ronken. Truss: Dome shaped with 13 broad-funnel shaped flowers 50mm × 65mm. Buds: (62B) fading to (62D) Flowers: (62D) at base (62B) on edges, heavy spotting (72A) on upper lobes. Leaves: elliptic 140 × 45mm, matt surface. Plant height in 20 years 2.0m × 1.8m.

‘Marie Day’ Elepidote hybrid of ‘Marquis of Lockington’ × ‘Australian Sunset’ H (1995) Don J Dosser. R (2002) Don J Dosser. Truss: ball shaped comprised of 19 funnel shaped flowers with wavy margins, 50mm × 100mm. Lobes: 7. Buds: (67A) Flowers: (67C) edged (67D) slight blotch (60D) Plant in 6 years 30cm × 30cm. Flowering period in Tasmania: November.

‘Miner’s Gold’ Elepidote hybrid of ‘Hotei’ × (‘Autumn Gold’ × *wardii*) H (1978) Mrs F B Lawson, USA. G & N- H R Malone. R (2002) Harry Ronken. Truss: lax with 11 funnel-campanulate flowers with wavy edges, 60mm × 70mm. Lobes: 5. Buds: (31B) to (47B) at tip. Flowers: (13C) in throat (15D) on edges. Leaves: elliptic 105mm × 45mm, matt surface. Plant height in 24 years 1.5m × 1.5m. Flowering period in Tasmania: November.

‘Mr Rosenthal’ Elepidote hybrid of ‘Schiller’ × unknown. H & N (1920s) David Whibley. R (2002) Australian Rhododendron Society S.A. Branch. Truss: slightly open dome shaped with 22 broadly funnel shaped flowers. Lobes: 5. Buds: (84A.) Flowers: (83A) heavy black blotch on upper petal. Leaves: elliptic 120mm × 40mm. Height of plant in 10 years 2.5m × 2m. Flowering time in South Australia: November.

‘Peggy Charlotte’ Elepidote hybrid of ‘Coronation Day’ × ‘Cornubia’ H (1990) R (2002) Don J Dosser. Truss: Dome shaped with 15 funnel shaped flowers with a frilly edge, 75mm × 125mm. Lobes: 7. Buds: (58C) Flowers: (58C) spotting on top 3 lobes. Plant height after 10 years 1.5m × 1.5m. Flowering period in Tasmania: October–November.

‘Tassie Gold’ Elepidote hybrid of ‘Hawk Crest’ × (*yakushmanum* × *lacteum*) H (1976) Cecil Smith, USA. G (1975) H R Malone. R (2002) Harry Ronken. Truss: lax comprising of 15 funnel campanulate flowers 65mm × 85mm. Lobes: 5. Buds: yellow-green (154D) Flowers: (2C) light basal spotting (150B) Leaves: elliptic 130mm × 60mm. Height of plant in 25 years 2m × 2m.

‘Widge’ Elepidote hybrid. Parentage unknown. H (1920s) David Whibley. N (1920s) David Whibley. R (2002) Australian Rhododendron Society S.A. Branch. Truss: Compact dome shaped comprised of 20 funnel shaped flowers. Lobes: 5 slightly frilly. Buds: (62C) Flowers: (62C) greenish yellow blotch on upper petal. Leaves: lanceolate 130mm × 40mm. Plant height in 8 years 1m × 1m. Flowering period in South Australia: November.

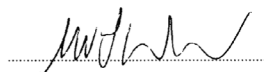
‘Winter Pink’ Elepidote hybrid of ‘Marion’(Cheals) × *grande*. H Victor Boulter. R (2002) Frank Boulter. Truss: tight dome comprising of 14 campanulate flowers, 50mm × 60mm. Lobes: 7, frilly. Buds: light reddish purple (74C) Flowers: pale purple (69A) dark red blotch in throat with spotting on all lobes (187A) Leaves: elliptic 185mm–210mm × 48mm–50mm. Leaf indumentum – greyish olive (195A) Flowering period in Victoria: July–August.

The Australian Rhododendron Society Plant Registrar should be contacted, in the first instance, by persons seeking to register. Mr Ken Gillanders, 2040 Huon Road, Longley, Tasmania 7150 Telephone (03) 6239 6452 or e-mail [gillwoo@optusnet.com.au](mailto:gillwoo@optusnet.com.au)

THE AUSTRALIAN RHODODENDRON SOCIETY INC.

## *Report by the Treasurer*

I, Neil Gordon Webster, the Treasurer of the Australian Rhododendron Society Incorporated, do hereby state on behalf of the Society, that the accompanying financial statements present fairly the position of the Australian Rhododendron Society Incorporated as at 30th June 2002 and the results of its operations for the year ended 30th June 2002.



Neil Gordon Webster

### *Statement of Cash Flows as at 30 June 2002*

	2000-2001	2001-2002
<b>Cash Flows from Operating Activities</b>		
Membership Subscriptions - Note 8	5670.00	5890.00
Advertising	448.00	460.00
Book Sales	0.00	0.00
Bank Interest	529.25	350.06
Other	0.00	48.00
	<u>6647.25</u>	<u>6748.06</u>
<b>Payments</b>		
National Journal <i>The Rhododendron</i>	4136.00	4939.00
Travel Subsidies	471.07	1060.73
Bank Charges	10.15	9.37
Secretary Expenses	322.07	111.02
Advertising	0.00	0.00
Telephone Conference	270.20	405.03
Library	0.00	0.00
Book Sales	0.00	0.00
Audit Fee	275.00	325.00
Membership Card Printing	336.00	0.00
	<u>5820.49</u>	<u>6850.75</u>
<b>Net Cash Inflow from Operating Activities</b>	826.76	-102.69
<b>Cash at the Beginning of the Financial Year</b>	<u>16462.87</u>	<u>17289.63</u>
<b>Cash at the end of the Financial Year</b>	<u>17289.63</u>	<u>17186.94</u>
<b>Represented by:</b>		
Current Account (ANZ Bank)	7235.76	6784.30
Less Unpresented Cheques	0.00	0.00
Macquarie Investment (On-call)	6784.30	6784.30
Secretary Advance	200.00	200.00
Treasurer Advance	0.00	0.00
<b>Total</b>	<u>17289.63</u>	<u>17186.94</u>

## Balance Sheet as at 30 June 2002

	2000-2001	2001-2002
	\$	\$
<b>Current Assets</b>		
Cash		
ANZ (Current A/C)	7235.76	6784.30
Macquarie Bank (on-call Invest)	9853.87	10202.64
Secretary's Advance	200.00	200.00
	17289.63	17186.94
Book Stock (at valuation)	1452.00	1452.00
<b>Total Current Assets</b>	<u>18741.63</u>	<u>18683.94</u>
<b>Non-Current Assets</b>		
Library - Note 7	2000.00	2000.00
<b>Total Non-Current Assets</b>	2000.00	2000.00
<b>TOTAL ASSETS</b>	<u>20741.63</u>	<u>20638.94</u>
<b>Current Liabilities</b>		
Accrued Expenses		
Teleconference	405.13	323.51
Prepaid subscriptions	0.00	210.00
Secretary expenses	111.02	311.03
Audit Fees	300.00	300.00
<b>Total Current Liabilities</b>	<u>816.15</u>	<u>1144.54</u>
<b>NET ASSETS</b>	<u>19925.48</u>	<u>19494.40</u>
<b>ACCUMULATED FUNDS</b>		
Balance at the beginning of the financial year	19344.67	19925.48
Increase in net Assets resulting from operations	580.81	-431.08
<b>Balance as at the end of Financial Year</b>	<u>19925.48</u>	<u>19494.40</u>

## Statement of Income &amp; Expenditure as at 30 June 2002

	2000-2001	2001-2002
<b>INCOME</b>		
Membership Subscriptions Note 8	5670.00	5680.00
Advertising	448.00	460.00
Book Sales	0.00	0.00
Bank Interest	529.25	350.06
Other	0.00	48.00
<b>Total Income</b>	<u>6647.25</u>	<u>6538.06</u>
<b>EXPENDITURE</b>		
National Journal <i>The Rhododendron</i>	4136.00	4939.60
Travel Subsidies	471.07	1060.73
Bank Charges	10.15	9.37
Secretary Expenses	433.09	311.03
Telephone Conference	405.13	323.51
Book Sales	0.00	0.00
Audit Fee	275.00	275.00
Adjustment Chq 1052	0.00	-0.10
Miscellaneous (Audit Certificates)	0.00	50.00
<b>Total Expenditure</b>	<u>6066.44</u>	<u>6969.14</u>
<b>Surplus for the year</b>	<u>580.81</u>	<u>-431.08</u>

## Notes to and forming part of the Financial Statements

for the year ending 30th June 2002

Note 1. Summary of significant accounting policies.

Basis of Accounting.

This general purpose financial report has been drawn up in accordance with the requirements of the Associations Incorporation Act 1985 (South Australia) and the Rules of the Society.

The financial report has been prepared in accordance with applicable Australian Accounting Standards and other mandatory professional reporting requirements (Urgent Issues Group Consensus Views).

It has been prepared on the accrual basis under the convention of historical cost accounting, with the exception of certain non current assets which are at valuations determined by the society's National Council.

Additionally, interest is accounted for when received.

Note 2. Increment/Decrement in General Funds.

The increment/decrement for the year is arrived at after bringing into account all revenue and expenditure, but excludes all capital expenditure on fixed assets. The balance of membership funds is invested in either interest bearing deposits with Macquarie Bank or with the ANZ Bank.

Note 3. Comparative figures.

Where necessary, amounts shown for the previous year are in accordance with the same classifications as used for the current year.

Note 6. General.

There are no contingent liabilities.

There were no commitments for capital spending or lease payments as at 30 June 2002.

No such commitments exist at the date of this report.

Note 7. The library.

Total value as at 30 June 2002 \$2000.00. The book stock is held as part of the library located at Olinda Victoria and is managed by ARS Victorian Branch Inc.

Note 8. Membership Subscriptions.

The rate per head for subscription levy is as follows:

Year 2001-2002, \$1900 per head. For the year 2002-2003, the rate will be \$15.00 per head.

Note 9. Related Parties

Officers and Delegates of the National Council of the Australian Rhododendron Society Incorporated, are not entitled to receive any benefit or remuneration for their services as Officers or Delegates, apart from reimbursement of a portion of travel expenses properly incurred, in accordance with the Act under which the ARS Inc is incorporated.

Note 11. Reconciliation of decrease in Net Assets Resulting from Operations to Net Cash Inflow from Operating Activities.

Decrease in Net Assets from Operations. -431.08

Change in operating assets and liabilities.

Increase in Accrued Expenses 328.39

Net Cash Outflow from Operating Activities 102.69

Note 12. Financial Instruments as at 30 June 2002.

a) Terms, Conditions and Accounting Policies

The Society's accounting policies including the terms and conditions of each class of financial asset and liability at balance date are as follows

Recognised Financial Instruments	Accounting Policies	Terms and Conditions
(i) Financial Assets.		
Cash	Cash deposits are stated at net realisable value. Interest is recognised in the Statement of Income and Expenditure when received.	Cash is available on call and the interest rates at 30 June 2002 were: ANZ - 0.00 to 0.02% Macquarie Bank 3.60%.

(ii) Financial Liabilities.

Accrued Expenses/Accrued Expenses are stated at nominal amount. Accrued Expenses are unsecured and not subject to interest charges.



## b) Interest Rate Risk

The Society's exposure to interest rate risks and the effective interest rates of assets and financial liabilities are as follows:

Financial Instrument	Floating interest Rate	Non Interest Bearing	Carrying Amount	Weighted Average Interest Rate
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## (i) Financial Assets

ANZ Current Account	\$6784.30		\$6784.30	0%
Cash Macquarie	\$10,202.64		\$10,202.64	3.6%
Secretary's Advance		\$200.00	\$200.00	

## (ii) Financial Liabilities

Accrued Expenses	\$1144.54		\$1144.54	
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## (c) Net Fair Value

The net fair value of a financial asset or a financial liability is the amount at which the asset could be exchanged or liability settled in a current transaction between willing parties. The aggregate net fair values of financial assets and liabilities as at balance date are as follows:

Financial Instrument	Carrying Amount	Net Fair Value
----------------------	-----------------	----------------

## (i) Financial Assets.

Cash	\$17186.94	\$17186.94
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## (ii) Financial Liabilities.

Accrued Expenses	\$1144.54	\$1144.54
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For Cash and Accrued Expenses – the carrying amount approximates fair value because of the short term to maturity.

Comparative information relating to 2000–2001 is available from the Annual Report as at 30 June 2001, published in The Rhododendron Volume 41.

## AUDIT REPORT TO THE MEMBERS OF THE AUSTRALIAN RHODODENDRON SOCIETY INC.

## Scope

I have audited the financial statements of the Australian Rhododendron Society Inc., for the year ended 30th June 2002 comprising Statement of Income and Expenditure, Balance Sheet, Statement of Cash Flows, and notes to and forming part of the financial statements. The National Council is responsible for the preparation and presentation of the financial statements and the information contained therein. I have conducted an independent audit of the financial statements in order to express an opinion on them to the members of the Australian Rhododendron Society Inc.

My audit has been conducted in accordance with Australian Auditing Standards to provide reasonable assurance as to whether the financial statements are free of material misstatement. My procedures included examination, on a test basis, of evidence supporting the amounts and other disclosures in the financial statements, and the evaluation of accounting policies and significant accounting estimates. These procedures have been undertaken to form an opinion as to whether, in all material respects, the financial statements are presented fairly in accordance with Australian Accounting Standards and other mandatory professional reporting requirements (Urgent Issues Group Consensus Views) so as to present a view which is consistent with my understanding of the Society's financial position, the results of its operations and its cash flows.

As an audit procedure, it is not practicable to extend my examination of income beyond the accounting for amounts received and recorded in the books and records of the Australian Rhododendron Society Inc., and representations have also been received from National Council in relation to the carrying values of the book stocks and library. The financial statement audit opinion expressed in this report has been formed on the above basis.

## Audit Opinion

In my opinion, subject to the above, the financial statements present fairly in accordance with applicable Accounting Standards and other mandatory professional reporting requirements, the Associations Incorporation Act 1985 (South Australia), and the Rules of the Society, the financial position of the Australian Rhododendron Society Inc as at 30th June 2002, and the results of its operations and its cash flows for the year ended 30th June 2002.

# *The Australian Rhododendron Society Inc.*

President	Dr Allan Kerr Grant
Vice-President	Mrs Lesley Eaton
Secretary and Editorial Committee Chair	Mr Barry Stagoll, PO Box 21, Olinda, Victoria 3788 <a href="mailto:mirra@austarmetro.com.au">mirra@austarmetro.com.au</a>
Treasurer/Membership Secretary	Mr Neil Webster, 15 Rookwood Street, North Balwyn, Victoria 3104
Librarian	Mrs Valerie Marshall
Immediate Past President	Mr Neil Jordan
Plant Registrar	Mr Ken Gillanders, 2040 Huon Road, Longley, Tasmania 7150 <a href="mailto:gillwoo@optusnet.com.au">gillwoo@optusnet.com.au</a>
Editor	Mr Richard Francis, 165 Amiets Road, Wyelangta, Victoria 3237 <a href="mailto:wildog@bigpond.com">wildog@bigpond.com</a>
Webpage	<a href="http://www.austarmetro.net.au/~mirra">www.austarmetro.net.au/~mirra</a>
Correspondence	National correspondence to The Secretary, Mr B. Stagoll. Branch correspondence to the Branch Secretaries.

## *Branch Information*

### NEW SOUTH WALES BRANCH

President	Mr Eric Jordan
Secretary	Mr Michael Lopez, 29 Coronet Place, Dapto Heights, New South Wales 2530 <a href="mailto:aceridge@bigpond.net.au">aceridge@bigpond.net.au</a>

### SOUTH AUSTRALIA

President	Mr John Schutz
Secretary	Mr Rod Capon, 70 Sheoak Road, Crafers, South Australia 5152 <a href="mailto:rcapon@bigpond.net.au">rcapon@bigpond.net.au</a>

### TASMANIAN BRANCHES

#### Emu Valley Rhododendron Society

President	Mr Sam Biggins
Secretary	Mrs Pam Kupsch, c/o PO Box 39, Burnie, Tasmania 7320

#### Southern Branch

President	Ms Barry Davidson
Secretary	Mr Brian Links, PO Box 80, Battery Point, Tasmania 7004 <a href="mailto:blinks@tassie.net.au">blinks@tassie.net.au</a>

### VICTORIAN BRANCH

President	Mr W. (Bill) Taylor
Secretary	Mrs Carole Quinn, PO Box 524, Emerald, Victoria 3782 <a href="mailto:caroleq@bigpond.com.au">caroleq@bigpond.com.au</a>



**Above** A large shadehouse installed this year at the National Rhododendron Gardens, Olinda, by the Victorian Branch Volunteer Group. The structure was relocated from the Tindale Memorial Gardens in Sherbrooke. See page 38.

**Below** *R. fortunei*





M.S. VIRARAGHAVAN

*Rhododendron* 'Palni Princess' · see page 66



L.N. CRAWEN

*Rhododendron wentianum* · see page 64





Australian hybrids *Rhododendron* 'Colehurst', above and *R.* 'Bronze Wing', below.

