



THE MONTHLY BULLETIN OF THE KU-RING-GAI ORCHID SOCIETY INC.

(Established in 1947)
A.B.N. 92 531 295 125

15th July 2024 Volume 65 No. 7
Annual Membership : **\$15 single, \$18 family**

Patrons - Pauline and Trevor Onslow

President : Dennys Angove 043 88 77 689
Secretary : Jenny Richardson
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Editor (and stand in C. member) Jim Brydie
Society mail to - PO box 1501 Lane Cove, NSW, 1595
Next Meeting : Mon 15th July 2024

Committee Jessie Koh (Membership Secretary / Social Events)
Committee Herb Schoch (Community outreach, Sales Table)
Committee : **New committee members are required**
Committee : **Please put your hand up to help**
web site (active link) : <http://kuringaiorchidsociety.org.au>
Society email : kuringaiorchidsociety@gmail.com

Venue : *The West Lindfield Community Hall, corner of Bradfield Rd and Moore Avenue, West Lindfield.*

COVID remains in the community. **In consideration of others, PLEASE stay home if you are not feeling well.** We prefer all meeting attendees to be Covid vaccinated, masks are optional.

Please note : For insurance purposes, you now need to **SIGN** the **ATTENDANCE SHEETS** at the **front door on arrival**. Please sign against your name rather than just using a tick.

The hall is open from 6.30pm This is initially to set up the hall (please help). Benching can begin from 7 pm but please no benching until all the class dividers are in place. Give the set up team time to get everything organized.

Our Culture Class this month will be **Geoff LeMarne** speaking on **“Cymbidium Culture and Advice”**. Geoff is a fantastic grower of Cymbidiums and often wins Champion at our St Ives Fair. He has honed his skills with Cymbidiums over a long time and keeps up with all the latest and greatest in Cymbidium breeding and culture. If you wanted to know how to do it better, this is the man to hear.

The sales table will be open as usual but as announced previously, please respect the **“Sales Table Open / Sales Table Close”** sign. We are relaxing the set up timing for sellers, please follow the guidelines set out on page 3.

The Supper Break – The society supplies the tea, coffee, milk, sugar etc, **but members are asked to bring along a contribution for the supper table** - cake, slice, or biscuits, etc. **Please bring something to add.**

AND - please everyone, bring your own mug or cup for tea or coffee.

NOTE - Supper is not self-serve, PLEASE DON'T SERVE YOURSELF - helpers are used to minimise handling But once again we don't have any volunteers scheduled. If you could help, please see us at the hall.

After the tea break, our **Guest Speaker** will be another of our past Presidents, **Trevor Onslow** with a talk on **“The Oncidiums of SE Brazil”**. Technically these should be Gomesas nowadays but even I am still having a hard time calling them that. Trevor has always grown these gorgeous dancing ladies really well. A great talk, don't miss it.

Best of the Evening Species – Coelogyne rochussenii - grown by **Peter & Jane D'Olier**

What a beautiful orchid this is. It was BOE in 2022 as well and had perhaps just a couple more flowers then but was lovely both times.

My conscience won't let me do a duplicate write up so if you are looking for a little more, the June 2022 bulletin is still up on our website. The society weblink is in the banner info above.

In general, this one comes from Peninsular Thailand, Malaya, Indonesia, Borneo, Sulawesi, and the Philippine Islands. In most areas it is a common wet lowland orchid but in some areas can be found up to 1500 m elevation. It can be grown reasonably without heat in Sydney under just cover but I believe it will do better with at least a little heat and higher humidity. Queensland a bit further north suits it better.

Congratulations Peter and Jane. It's a great pleasure to see all the wonderful orchids you bring along to our meetings. Thank you.



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Society News (if anyone has a news item, please phone Jim on 9476 3383, or email at jimbrydie@aussiebroadband.com.au)

President Dennys' Desk – Thank you all **42** attendees for coming to our June meeting and benching **134** amazing plants. We had 3 full benches of cymbidiums, and the **judges** took some time in their deliberations. The hall temperature was comfortable and the supper enjoyable, but it was freezing outside. Thank you, **Janine** and **Julie**, for helping with the supper operations and thank you also to those members who brought in the tasty offerings for the supper table. **Jean's** culture class on **bulbophyllums** was very interesting to me and there were many questions answered for members, but I have to say, they are still a challenge for me. What was fascinating is that after **Jean's** talk was completed nearly all her example plants disappeared onto the benching tables – fantastic stuff. We had 10 raffles plants on offer for the evening which included donations from **Jim** and **Adrian** and 3 plants from the **Onslow** stable, thank you all. **Herb** indicated that he and **Pearl** had a quiet night at the sales table. I also thank **Janine** who had a busy night by also selling raffle tickets, as well as all those people who helped set up and pull down the audio system, tables and chairs.

Oxygen and plants - I enjoyed putting my talk together and presenting it, but the fun reaction to “*The orchid grower's oxygen cycle*” was so good, especially when the beetle dropped into the picture. Some members were also surprised to learn that plants also breathed in oxygen but certainly, in the main, they produce more oxygen by photosynthesis than they use. During the talk I also suggested members have a look at the program **EARTH**, which is available on **ABC iView**. It is worth watching since, as a person who loves plants, I found that *Episode 3* greatly improved my understanding of the role that plants played in giving us the atmosphere we have now. Of course, the other episodes are also of great value.

St. Ives Orchid Fair – Preparations for the fair are underway. We sent round a volunteer roster sheet last meeting. Another will be sent around at our July meeting. To help with operations, it really doesn't matter which of the 4 organising societies you belong to as long as you put your name down since the names are collected and roles assigned by the SIOF committee. Thursday morning setup in the Vendor's Hall is particularly important. Many hands make light work and for our society (KOS), the fair is our main source of funds. However, please remember that the sheets are for volunteers to help with the fair operations and **not the KOS display setup**. We will need people to help separately with the display. Our KOS, SIOF information pack will be sent to all KOS members and as a volunteer, please read carefully just to keep up to date.

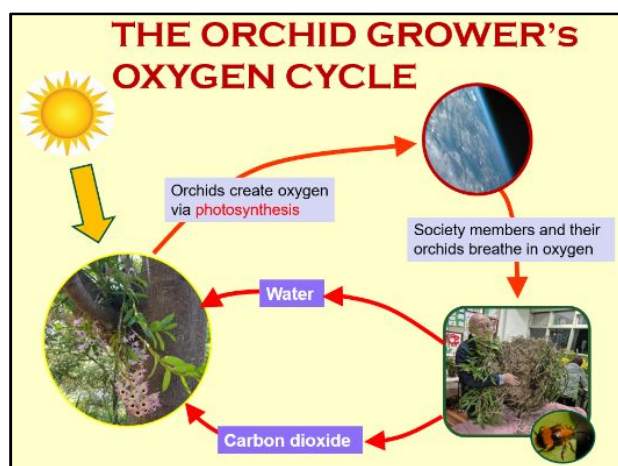
Supper and such – I thank **Julie** for volunteering on the night to help **Janine**, but we still need some volunteers to help for later meetings so please add your name to the list which will be located next to the sign-on sheets. And for supper participants, *Please*, remember to wait until the supper helpers are ready to serve and don't forget to bring your own mug/cup.

Benching Tip - In KOS, all flowering plants benched will receive a benching point, but if the judges conclude that the flower(s) is not up to a benching criteria standard then that plant will not be judged. The idea is to improve your skill by getting the best you can out of your benched plant. If the plant has a disease or pest infestation it will be removed from the bench. If you are unsure, ask and we will find someone to advise you.

Member's plants sales – Members who have plants for sale make sure they are in good order for sale and just bring them in and put them on the 3rd table with a yellow label with the price and your name. However, it should be remembered that sales cannot occur **until the sales table is OPEN**.

Attendance – Please remember that now we will require a signature on the attendance sheets. Just find your name and sign to help keep our insurance risk as low as possible.

Wearing masks – COVID is still around. So, please feel free to continue to wear a mask at our meetings and hand disinfectants will be available.



Other Society News

1. New Members/name badges – Welcome to a new member – Melissa Lahoud. I hope you enjoy our meetings and that we can help you on your orchid growing journey. Would all please note that we have signed up quite a few new members in recent times so I remind even our old hands that we want all members to wear their club name badges to meetings. It so much more civilised to be able to chat to someone, or make friends, when you have the other person's name right there in front of you. Please do us all the courtesy.

2. Mingara Orchid Show and Fair - I went up to Mingara show/fair on the Saturday. Cynthia wasn't with me because the Sydney Swans were playing so she and my daughter were out at the SCG. But I had a very pleasurable few hours as usual. Caught up with old friends, chatted to a number of the Vendors, and even broke my vow for no

more orchids. Several stalls had many of the latest and greatest Phally seedlings and mericlones and I couldn't resist the temptation. I might have to wait a while until they flower but I am excited to see what they do for me.

There are quite a few shows on around the suburbs at present, and you can check all the locations and schedules at the OSNSW website at <https://orchidsocietynsw.com.au/shows/>

The next biggie is the National Orchid Extravaganza at Yagoona – see the events list below. It certainly has an extravagant title if nothing else. And then there is our own affair – the St Ives Fair. Have you got your name down on the volunteer worker lists yet? We depend on St Ives for our funding each year. Support your club and get your name down.

3. Sales of Member's plants - I hope we didn't put sellers off with our attempts to manage the process. We want your spare plants on the table for sale, and so do the buyers. They always sell well, bring 'em in. Just be courteous and help the sales table staff manage the process sensibly.

And buyers, please wait for the Sales Table Open sign before storming the table.

Dates of Coming events

Thur 11- Sat 13 July, Eastwood OS, Eastwood Shopping Centre, 152-160 Rowe St Eastwood,

Fri 2- Sun 4 Aug, Manly Warr. OS, Belrose Super Centre, Level 1, 4-6 Niangala Close Belrose, shopping hours

Fri 9 – Sun 11 Aug – National Orchid Extravaganza & Paph Society of NSW, The Arena Sports Club, Yagoona

Fri 16 – Sun 18 Aug – St Ives Orchid fair (see advert)

Thur 22 – Sat 24 Aug – Berowra OS, level 3 Westfield Hornsby, Shopping Centre hours

Thur 12 – Sat 14 Sept, NSOS, St Ives shopping centre

Fri 20 – Sun 22 Sept, MWOS, Belrose shopping centre



St Ives Orchid Fair

'The Big One'

ST IVES SHOWGROUND, Mona Vale Road, St Ives

Friday 16th August 2024 9 am to 4 pm
Saturday 17th August 2024 9 am to 4 pm
Sunday 18th August 2024 9 am to 3 pm

ADMISSION \$8

Major Sponsors
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ORCHID VENDORS
Alice's Orchids, Barita Orchids, Dark Star Orchids, Ezi-Gro Orchids, Fong Ping Orchids, Hills District Orchids, Kings Orchid Nursery, Macquarie Native Orchids, Nicky's Slippers Orchid Care Services, Orchid Species Plus, Orchids of Distinction, Orchids on Newbold, Robertson Orchids, Rosella Orchids, The Orchid Mart / Serhan's Orchids, Tinonee Orchids, Woolf Orchidculture

For more Information: Show Marshal: Garrie Bromley Ph: 0425 336 049
<http://www.stivesorchidfair.com/>



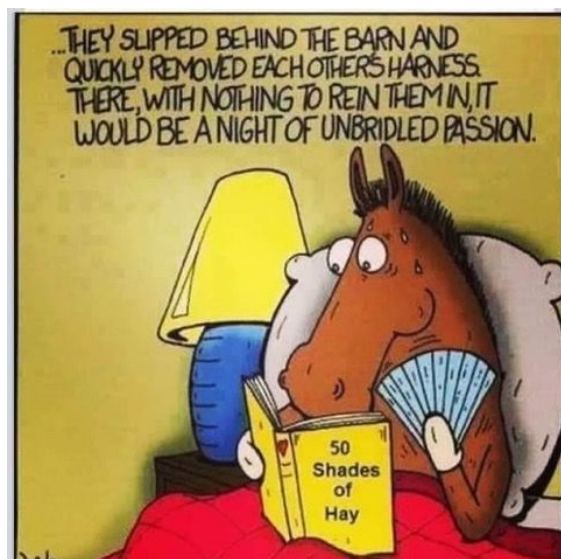
Ku-ring-gai Council
In partnership with Ku-ring-gai Council

Best of the Evening Hybrid – Dendrobium Pacific Pride 'Carlo' - grown by Fred Gorginian

Two months in a row. A good lasting flower. Congratulations again Fred and thank you also for bring in delightful orchids each month. Seeing what can be done is what helps us all learn to grow orchids better.

However, this one has been written up a few times before so I can't do it again. But please Fred, keep bringing those lovely things in.

Light Relief



An Exchange of text Messages

Husband : You are negative

Wife : and you are stubborn, arrogant, care about no one but yourself and your friends, all you are interested in is your own self. In all your life you have not fulfilled even one of your promises. It is me who is putting up with such a miser and insensitive man. You good for nothing, fat, ugly man. Even your hair transplant failed.

Husband (after a substantial pause) :I was just informing you your covid test was negative.

Wife : ---- Oh. Sorry.

Best of the Evening Novice – *Laelia anceps* x *rubescens* (= *L. Maronii*) - grown by Stuart Ruthven



I haven't seen this one before even though it has been around since being registered way back in 1904. It is quite lovely and it was a terrible shame that Stuart's orchid suffered an accident in transit to the hall and the spike was broken. Lucky for us Jane's wonderful photo shows you the delight of the flower head anyway.

The parent species most growers would most know best is *Laelia anceps*. A popular and hardy orchid that can be found growing in most backyards around Sydney. It has sort of squarish sided pseudobulbs and big flowers at the end of a metre tall arching spike.

L. anceps is native to Mexico and Honduras at elevations of 500-1800 meters. The lower end of that range might suggest that *L. anceps* might not be a genuine Sydney cold grower but

experience tells us otherwise. Its normal native habitat would be in oak and pine forests, but nowadays it also occurs as an epiphyte in coffee plantations.

It is a species of quite variable form in nature. A few varieties have shorter flowering stems but the most common have that artistic, long, arching inflorescence. Some find the length a distraction, but I think it looks rather elegant. Especially when the plant presents with 3 or 4 or more spikes.

Each inflorescence generally has just 2 or 3 flowers right at the end, but it can occasionally have up to 5. The length of the inflorescence is quite variable. There are cultivars available with spikes as short as 30-40cm and they are being developed by further breeding to consolidate that feature.

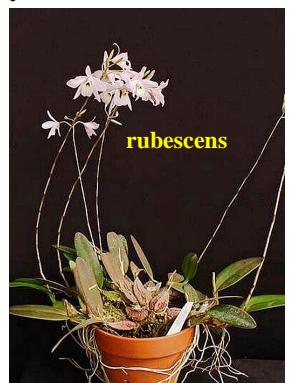
Flower form and colour is another factor that has been improved dramatically by mankind over the years. The pictures below show some examples. The most common petal and sepal colour is a solid pink, but there are many shades of pink & white and various colours in the lip. Blue flowers and lips are also being improved. - **varieties of *L. anceps***



The second parent, *Laelia rubescens*, also comes from Mexico but its habit is wider – southern Mexico, all down through Central America including Panama. It is more of a lowland orchid than *anceps*, being found at habitats from 100 m to 1700 m elevation but mostly from the lower end of that range. It is clearly a close cousin to *anceps* but sort of a smaller version. Slightly smaller pseudobulbs, shorter inflorescence (generally around 40 cm but can vary up or down). It also has smaller flowers at perhaps 6 or 7 cm but has more flowers. Some plants can carry a dozen flowers that open slightly sequentially. But a most significant and detracting feature is that each flower lasts only 3 days or so. Most unfortunate.



From what I recall from last month's meeting, Stuart's orchid had a very long whippy inflorescence that had snapped in transit, about 30 cm from the flowers. That suggests it has inherited the *anceps* spike length but is possibly not as strong a stem. The flowers however, are far more reminiscent of *rubescens*. They are smaller than *anceps*, more open, and with a narrower lip spathe. I admired Stuart's flower but I hope that flower life has taken more after *anceps*. We will have to ask Stuart next meeting.



Congratulations on a Best of the Evening Stuart. This is a really pretty flower and I imagine it would have looked very nice artistically arranged out on that elegant arching spike. You will have to design a more elaborate staking system for transport next year so you can show it to us again.

A Shorty

I lived in a houseboat for a while, and started seeing the girl next door.

--- But eventually we drifted apart.

A few very nice Orchids from last meeting



Cym. Prized '105 x Copper Wall
Loretta and Paul Au



Cym. Rochford 'Game Changer
Geoff LeMarne



Cym. unknown
Fred Gorginian



Phal. unknown – Lina Huang (I think it should be called Delicious)



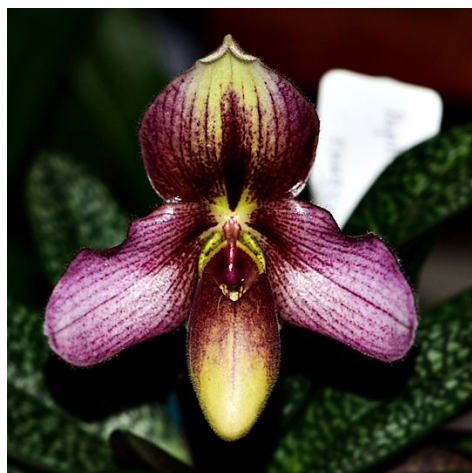
Catt. Sierra Doll 'Roxella' - Trevor Miller



Rhyncattleyanthe Dal's Good One 'Cynthia'
Garrie and Lesley Bromley



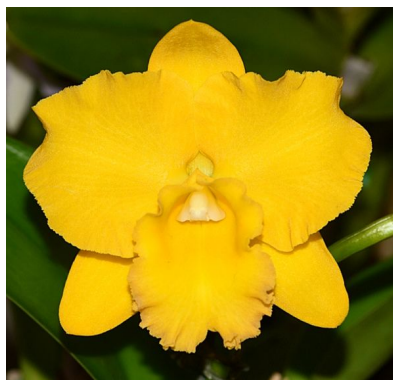
Masd. Hot Shot 'Lithgow'
Trevor Miller



Paph. Goya – Betty Ng



Phal. unknown – Jim & Cynthia



Rth Dal's Moon 'Cynthia' (Bromleys)



Onc. Twinkle 'Red Fantasy'- Dora Law

And that is just a few. We sure have some very good growers benching these days. Congratulations to all of you.

About Epiphytic Orchids

by Jim Brydie

Did you suspect when reading last month's article on soils that it might lead to a discussion on Epiphytes? What better way to explain epiphytes than to explain soil growers to provide a background against which they might be contrasted.

Does all this background help me learn to grow Epiphytes ?

I have to say yes, ultimately, but I want to change the way you think about learning to grow orchids and to do that I have decided to split the topic into a few segments.

My aim is to steer growers into how to assess each orchid in front of them, and to decide what kind of a grower it is and how they should treat it. What kind of potting medium you will choose from your bag of tricks, how much light to give the orchid and how often it might need water. I don't want you to copy some culture procedure given to you by someone else, like following a cake recipe. You should decide yourself, plant by plant, what you are going to do. And that is the same for Epiphytes or soil grown plants.

To do that you need to reach a better understanding of the why for each plant. Knowing the "WHY" is an integral part of deciding the "WHAT". I will get to the practical explanation of potting mixes in the end, but I hope you can have the patience to follow the process with me.

Evolution of Epiphytes - So what is it that is different about epiphytes? If it is more difficult to grow as they grow, why don't they grow in the soil as other plants do?

The answer is that all orchids were soil plants originally, and many still are today, but once plants began to dominate the Earth's land surfaces all sorts of other life forms evolved alongside to take advantage. Leaf eaters arise (insects and animals), new kinds of plants arise to compete with one another. Faced with the pressures of competition for space and prime positions to grow and thrive, evolution creates an increasing development of more and more competitive plants and animals to dominate prime places or to adapt to establish life in new places. Orchids weren't the only ones but plants developed the ability to grow as epiphytes.

So how long ago did plants develop this ability? And for that matter, when did plants start to occupy the land and create that competition that led to epiphytes.

Last month in his presentation on the Atmosphere, Dennys mentioned an excellent ABC television series called "Earth". It gives an excellent interpretation of the development of our planet and life on the planet. Not all scientists agree on every tiddly aspect of every publication but I have watched Earth and really enjoyed it. As Dennys mentions in his Desk section this month, episode 3 talks about the development of plants and their eventual colonisation of the land. I also recommend your taking the time to check it out.

But as a forerunner, I offer this fascinating but abbreviated Earth time chart from New Scientist to give a time sense of the major stages for the development of plants on the land, and orchids in the trees.

1. Earth forms about 4.5 billion years ago but soon afterwards it is struck by a Mars-sized body dubbed Theia, which vaporises Earth's surface and blasts it into space. This ejected material condenses to form the Moon.
2. Massive bodies continue to strike the Earth, at a declining rate, for the next 1.5 billion years, ending about 3 billion years ago. The impacts reshape the planet surface and may help drive the onset of plate tectonics.
3. Around 4.2 billion years ago the first large oceans may have formed. These primordial seas may have been much deeper than today, leaving little or no exposed land.
4. The oldest agreed fossils of single-celled organisms on Earth come from Pilbara in Western Australia, and date to 3.5 billion years ago. They may have lived in freshwater hot springs in a volcanic region on land. The ecosystem is complex and thriving, suggesting life is already well-established. (JB: even today you can go to see living stromatolites in the waters of Shark Bay in Western Australia – it is amazing to see them)
5. By 3.4 billion years ago, Some bacteria are performing photosynthesis: they take in sunlight and carbon dioxide, and obtain energy. However, this is not photosynthesis as we know it today because the bacteria do not release oxygen as a waste product. This anoxygenic photosynthesis remains common for a billion years.
6. By 3.2 billion years ago Fossil microorganisms preserved in rocks from South Africa offer undisputed evidence of life on land.
7. Around 2.5 to 2.2 billion years ago - ***The Great Oxidation Event***. Some cyanobacteria evolve a new form of photosynthesis that releases oxygen. This toxic waste starts to build up in the seas and atmosphere – though concentrations remain below modern levels for over another billion years.
 - a. Dissolved oxygen makes the iron in the oceans "rust" and sink to the seafloor, forming striking banded iron formations. Oxygenic photosynthesis may well have evolved earlier, but the resulting oxygen was initially confined to small "oases".
 - b. Once oxygen becomes widespread, it may have caused a mass extinction among microbes that are unable to cope with it. It also drives evolutionary innovations. Today almost all animals breathe it.

8. 2.3 billion years ago Earth freezes over in what may have been the first “snowball Earth”, possibly as a result of a lack of volcanic activity.
9. 2.1 billion years and simple multicellular organisms have evolved and are moving.
10. 890 million years ago the first recognisable simple ‘animals’ have evolved.
11. Perhaps 700 million years ago the Earth freezes over again
12. 539 million years ago we have the Cambrian explosion involving massive and rapid evolution and the first ‘animals’ with a true backbone have evolved.
13. 515 million years ago, plants begin to colonise the land. This is believed to have only occurred by a cooperative relationship with other micro-organisms. (Perhaps fungi. Micro fungi may have had the ability to harvest minerals from rock molecules.) *Remember – no plants, no animals = no soils – just mineral sediments.*
14. 410 million years ago plants with elaborate root systems evolve and a few million years later on, plants with woody stems evolve.
15. 125 million years ago flowering plants come into being. (This is the group from which the orchids evolve).

Back to JB again : Can you see how quickly the plant story accelerated once it found a way to colonise the land. AND, that momentous leap forward was only 515 million years ago. At least 3 Billion years after we know life existed.

Once they got going, land plants still took 100 million years to develop woody plants (ie trees and shrubs) and then another 285 million years before plants developed what we know today as the flowering plants (the Angiosperms). That is, bisexual flowers with anthers and stigmas. Before that we had grass like plants, and trees more like the ferns and the pines. Ferns propagating by spores that need water to combine, and in the case of pine trees by separate male and female flower bodies and where the dust like pollen is distributed by wind.

Orchids are a further evolution of flowering plants, with modification of the flower to combine male and female parts in one organ – the column. The actual beginning date for orchids is not quite agreed but it is perhaps 112 million years ago. At this stage however, the orchids are not what you might recognise today and are all terrestrial growers (soil). The evolution among orchids to lump pollen grains together in a sticky ball (pollinia) was even later and occurred about 65 million years ago. The orchids still didn’t take to the trees as epiphytes until about only 55 or 35 million years ago depending on who you ask. 35 or 55 million years sounds like a long time but it is about ten minutes in the scale of Earth’s history.

The beginnings for Epiphytes

In an article by researchers at Pen State University in the USA, they compared the DNA sequences of 1,450 genes from 610 orchid species, and showed that “epiphytism” — the ability of orchids to grow on other plants — evolved at least 14 separate times. So it took a while to take a strong hold as a growth style.

Curiously, there is still debate about whether epiphytism arose from competition for light, or from the changes that had already occurred to allow plants to survive in dryer environments. It seems to me that it may well have been the combination of both of those pressures.

So what exactly did plants change in able to live an epiphytic lifestyle?

I have discussed the specifics in previous bulletin articles, the most recent just last June (ie 6/23) in an article titled Orchid Epiphytes are Different, so in all conscience I can’t redo it all again here, but to summarise, being an epiphyte needed multiple key changes including :

1. Roots that will hold onto a surface, assist fast water take up, and insulate roots when in dry air.
2. A metabolism process that will work in a dryer environment (a form of photosynthesis called Crassulacean Acid Metabolism, or CAM) – Essentially, this splits the photosynthesis process so that the intake of carbon dioxide and exhale of oxygen occurs at night while the processing of the carbon dioxide occurs in the day via sunlight. To know more check out wikipedia at : https://en.wikipedia.org/wiki/Crassulacean_acid_metabolism
3. Changes to leaf structures, especially where the epiphyte was to grow in a dry airy environment. This includes changes to stomata (pores that open to allow intake of carbon dioxide and exhale of oxygen, but also can close to reduce moisture loss). But also changes to leaf structures such as the creation of fleshy, waxy covered leaves that reduce evaporation.

Many of those physical differences already existed when orchids took to the trees. Changes to leaves, stomata, and metabolism were already being used by soil growing plants adapting to growing in dry environments. Non orchids like succulents, bromeliads, cacti and many others had tough thick leaves and reduced transpiration mechanisms. CAM metabolism was also common in succulents.

In addition, the concept of Velamen, the layer of dead cells on the outside of orchid epiphyte roots, had evolved long before orchids became epiphytes. Most terrestrial orchid roots have velamen and so do many other non-epiphytic, non

orchid plant species. However, that characteristic is pretty much (but not fully) restricted to the Monocotyledon plant families.

The monocotyledons (abbreviated to 'Monocots'), covers about 70,000 species and are the non woody plants like grasses, lillies, and many others including the orchids. They represent about a quarter of all flowering plants. Monocots have a single embryonic seed leaf. The Dicotyledons (Dicots') have two seed leaves. As you probably already know, a seed comes with a store of nutrients to support the initial growth of the embryo in the seed when the seed begins to grow.

Now, getting back to the orchids, the evolution to create an epiphyte wasn't such a huge jump. The necessary genetic facilities in plants had already been pretty much invented. They just needed to be combined and deployed in a way that would work effectively and enable an advantage to a pioneer epiphyte. Curious genetic changes pop up all the time but unless the change provides some advantage, like enabling a plant to grow better or at least better than others around them, or to grow where others weren't able to survive, the change dies out and disappears.

All the orchids needed to do was improve on the velamen that already existed, probably at first by just having more layers of dead cells, and to create a simple mechanism allowing root cells to cling to a surface. Once that was practical, the epiphyte era was underway with further improvements and more specialist adaptations to follow.

I have decided to break the story at this point. The next episode is titled "Home Culture of Epiphytic Orchids - Part 1 Introduction and Principles".

----- **Home Culture of Epiphytic Orchids** by Jim Brydie

Part 1 - Introduction and Principles

When growers first start out, their most common questions is 'what do you pot your orchids in?'.

Of course orchid potting mediums are important, and I will eventually get on to talking about orchid mediums, but before I go there I want to tell you that the answer to that opening question is meaningless.

There are as many different epiphytic growing mixes and mix components as there are orchid growers. And just about every combination is successful in the hands of at least one grower, and maybe many, while it will at the same time be a hopelessly failure for another grower.

Now why would that be so? It seems there is much more to success than just the stuff you put in the pot.

First – the orchids are such a diverse family. There are many different kinds of orchids and different orchids that need different growing culture (including different mixes). Some need warm humid conditions, some come from mountain areas and can't stand hot summers. Some come from areas that are wet all year round, some come from areas that are much dryer, some from areas with very distinctly seasonal conditions. And, as you might expect, for each of those extremes there are hundreds of orchids occupying regions on a sliding scale of conditions between all the extremes.

Secondly - humans (especially orchid growers) are also amazingly individual and also inventive. Of course one individual will find a way to be successful with a variety of orchids in their own favoured mix. But successfully growing an orchid is a result of the hopelessly tangled blend of potting medium, environment, skill, and cultural practices. Those who get good at it seem to know instinctively what they need to do in each area.

Magic? Sometimes it may seem to be magic but I suspect that growers than can grow everything have just been around orchids long enough to have sufficient experience with dozens of different kinds to grow a wide range well.

And for any new types they don't know, their experience enables them to assess its likely needs by understanding where it comes from and what it looks like. They might not get the culture 'spot on' first go, but they will be close enough to start the orchid out on an acceptable path and to subsequently fine tune its culture as it grows. They get very good at assessing how a plant is growing and whether they think it is good/bad, or just ok.

So where does that leave a Less Experienced Grower? They can't yet do all that.

Unfortunately, there don't seem to be any short cuts to gaining years of experience and knowledge.

It is a little easier for a new grower if they decide to stick to a narrow subject range. For example to just growing Cymbidiums or just growing Australian native Dendrobiums, or some other clearly defined type. If you are only growing one type it is easier to learn how to do it by research and by working with others already growing that type. But sadly, orchid fever seems to afflict nearly everyone and makes us want one of every gorgeous new orchid we see.

So assuming you like lots of different orchids, let's start with some principles.

Rule 1 – Don't Expect To Grow All your Orchids exactly the same way

You know you are going to have to learn a lot. Restrain your desires. You won't be able to grow everything well at the beginning so choose your most favoured types and learn to grow them first.

AND, if are going to learn about something, don't do it superficially. Do it well and do it thoroughly.

Rule 2 – Have a Plan on becoming a good grower

I believe the best plan is to learn. And I don't mean learn to be a grower. I mean learn about orchids, and do it one type at a time. It is impossible to stand far enough back to see 'orchids' as a singular group.

Choose the orchid group you are going to study and start learning all you can about them. Understand the geographical region where that group come from, what that environment is like there, what the seasons are like, and what kind of situation the orchids grow in. Are they hot lowlands orchids or from the cooler forests on the sides of hills/mountains. Do they grow high up in trees where there is good light and good air movement – or do they grow low on mossy tree trunks in shadier conditions where the air is more humid and more still.

Having a confident understanding of what your target orchid grew up to expect as a premium will allow you to make adjustments when you believe these is something wrong. You don't need to perfectly match its gene imposed expectations. Orchids are generally much tougher and more flexible than that, but to know what you should be aiming for is at the heart of understanding orchid growing. Learn and be confident in what you know.

If you aren't confident in your knowledge and understanding, you will be forever second guessing what is happening.

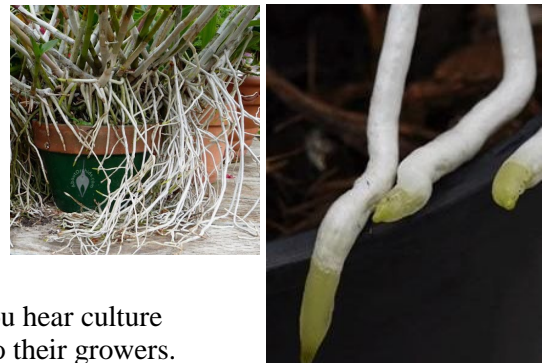
Places to Look - For species orchids the needed info is often available on the internet, even if sometimes you might have to spend a little time looking and reading. One good site is the free access ***Internet Orchid Species Photo Encyclopedia*** at <https://www.orchidspecies.com/> Having that site as a bookmark in your browser is a good idea.

Another excellent source is the set of books written by *Charles and Margaret Baker* called *Orchid Species Culture*. Each of the 4 books focusses on one section of the orchid family like 'Dendrobiums', 'Oncidium/ Odontoglossum alliance', etc. The Orchid database called Orchidwiz had a license arrangement with the Bakers to include their environment and climate data and culture info, which has been tremendously helpful but Orchidwiz will not be continuing. If you can still purchase a copy of the last version it is well worth it.

Of course for hybrids, there is no native environment or habitat, but behind every hybrid there is one or more species and the genes of the parent species provide every characteristic of the hybrid. Considering the parents habitats and environmental requirements does provide the likely requirements of the hybrid and in many cases you don't need to look at every possible parent gene. For example, in large flowered Cattleya hybrids, the general background of many of the parent species are very similar and that is all you need.

Hmmm. That sounds like a lot of learning, doesn't it.

You are probably thinking that you don't want to get in that deep, and don't really need all that, but your understanding of why an orchid looks the way it does - fat roots (far right), thinner roots (right), stiff thick leaves or grassy thin leaves, or big, wide, pleated leaves), and its natural environment, are all part of how it needs to be grown.



Rule 3 – Accept that you will discover 'Contradictory Truths'.

You read books, material on the internet. You go to society meetings you hear culture classes and guest speakers, you see fabulous orchids benched and talk to their growers.

Sometimes it will seem to you that the information you absorb is full of contradictions – and it is. One grower only uses Peat and Perlite, another swears by sphagnum moss, another pine bark. One will say this orchid needs a heated glasshouse, another says 'I grow it hanging under a tree in the garden'. How does the inexperienced grower come to terms with these contradictions?

A very small part of what you get told is just plain wrong. Not deliberately so - but people do make mistakes and sometimes we reach wrong conclusions. We are all learning all the time and sometimes our experiences make us think we have worked something out and we share our 'knowledge' only to learn later we were wrong.

But the biggest cause of contradictions is because every grower grows in an environment different to every other grower. Their experiences are very different. What is true (or works) for one grower doesn't make it true/work for every other.

Growers in Cairns in Qld experience very different conditions to growers in NSW. Even in a smaller habitat range within Sydney, growing conditions in the Manly area are very different to those that growers in Richmond experience at the foot of the Blue Mountains. You need to find your own truths. That is, those applicable to your local environment, your way of life, and the micro environment of your growing area.

When you are learning, take each growing advice as at least one way it can be done but don't read it as an incontrovertible law of the universe that must be followed. Apply it as part of your quest to understand how that species (or hybrid type) grows, what it needs, and what it can tolerate.

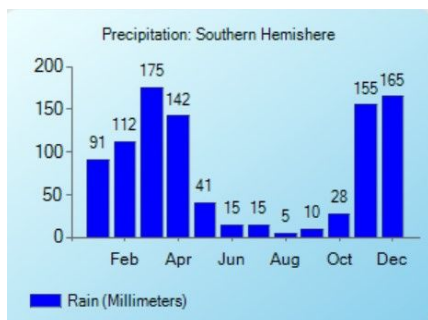
Rule 4 – Your Plan should be more than just absorbing data. Try to work out WHY things happen.

All things happen for a reason. The physical characteristics of every orchid came about through the pressures of

evolution. Physical characteristics have a reason.

If an orchid has thick stiff leaves and minimised pseudobulbs like the mule ear orchid *Trichocentrum splendidum* (pic below), it doesn't take a genius to figure out that it probably evolved to tolerate dry conditions.

The habitat description in Orchidwiz says "Honduras, Nicaragua, and probably Guatemala. In Nicaragua, plants grow on rocky hillsides about 10 miles (16 km) north of Esteli at 2700-2800 ft. (825-850 m). Large colonies are found growing on rocks in other semi-arid areas around Esteli. In Honduras, plants grow near Tegucigalpa, but habitat details were not available".



The annual rainfall chart provided by the Baker's for the Honduras area is shown at the left (but switched to relate to southern hemisphere seasons). It shows 6 months of only about 25 mm rain per month (that's one inch of rain) and even in the wet seasons the wettest month only rising to 175 mm (7 inches). That is pretty dry.

This orchid looks the way it does because of where it grows and what it experiences.



Naturally, appearances aren't always as cut and dried as that. Just about all *Trichocentrums* have thick stiff dry looking leaves but they don't all grow in the desert. Perhaps the first primitive *Trichocentrum* species went this way thousands of years ago and all species of the genus since are just variations off that original plan.

The more you learn and see of the amazing variations among the orchids you can't help but begin to correlate an increasing range of physical characteristics to climate and habitat.

Start to learn and do it thoroughly. Don't be satisfied with "Cattleyas grow in an open bark mix". Find out why.

Rule 5 – Changes in growing progress also only happen for a reason

When your orchid was growing ok but now seems to be on the decline, something is going wrong. Be the detective again. Question your own actions first – the cause is frequently there. Have you changed anything? Did you change your potting medium, watering rates, did you switch fertilisers? Did you calculate the dosage rates right? Is that new potting medium a problem? Has it been in the pot too long and the bark is going off?

Alternately, check to see if mealy bugs or aphids or scale have suddenly appeared among your orchids? Has it rained every day and kept them soaking for long periods - drowning them? Is it getting too cold or too hot for them?

And finally, if you do decide to change something in your growing practices, ***never make multiple changes all at the same time.*** Not only is it 10 times more difficult to work out which one in its own right be responsible, the problem is even more complex because of issues that might arise from some combination of your alterations.

Be methodical in your culture. Do things for a reason. If you are of a mind to change some basic component of your culture, ***make changes on test plants first*** and only broaden out once you are satisfied over a reasonable time that results were positive.

Oh my goodness, look at the time. All that stuff above needed to be said but now I have run out of time to actually talk about potting mediums and such. I will have to do all that next month in Part 2. Still, potting mediums are just a tool in the grower's armoury so I hope I have at least started your thinking down a path that will help you eventually use your orchid tools more effectively.

And to Finish

