The Western Australian Orchid Bulletin

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The next meeting of the Orchid Society of Western Australia (Inc.) will be held at the Manning Senior Citizens Activity Centre, Manning, on Friday 26th June, commencing at 7:30 pm.

This Month's Meeting

After Lockdown

Catch-Up and Discussion

July Meeting Dates

OSWA Committee:	7:30 pm Friday 3rd
General Meeting:	7:30 pm Friday 24th

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Notice about General Meetings

Dear Orchid enthusiasts,

We are excited to announce that in line with phase 3 pandemic restrictions, we will be resuming general meetings! The next general meeting will be held at the Manning Activity Centre on Friday June 26 at 7:30 pm.

As we transition back into general meetings, there are some changes that we have implemented in order to keep our members safe. These include:

(1) **Please do not attend if you are unwell, or have had respiratory symptoms** (including coughing, sneezing, or fever) in the 2 weeks prior to the meeting.

(2) **Please observe physical distancing restrictions**. The centre has space to have 70 people attend the meeting, so we should be able to accommodate everyone! Seating will be arranged to comply with physical distancing restrictions.

(3) **Tea and coffee will not be provided until further notice** — please feel free to bring your own snacks, but do not share with people outside your household.

(4) **There will be no sales table** and orders for bark, pots etc. will not be accepted at the meeting — but we are working on an order form so that members can still access our competitively priced growing accessories.

(5) **Hand sanitizer will available at the entry — please use it before entering the meeting**.

(6) You do not need to physically sign the attendance register but **please ensure you have your attendance recorded on entry**.

(7) **Please bring exact change for the $1 entry** (yes, we are still required to collect it for the venue's insurance purposes) and **also bring exact change if you would like to buy raffle tickets**. We will not be handling cash to provide change.

We would still love members to bring their plants to display for the monthly plant competition, but please do not crowd around tables.

In place of our usual presentation, at this meeting we thought we'd have a general catch up and discussion about how our members want us to manage the society's activities as we navigate the pandemic together.

Please also note that the OSWA Winter Show has been cancelled, but we hope to attend some smaller community based markets and events instead, to give our members opportunities to display and sell plants. Please have a think about this — suggestions are welcome at the meeting!

Stay safe,

Harry

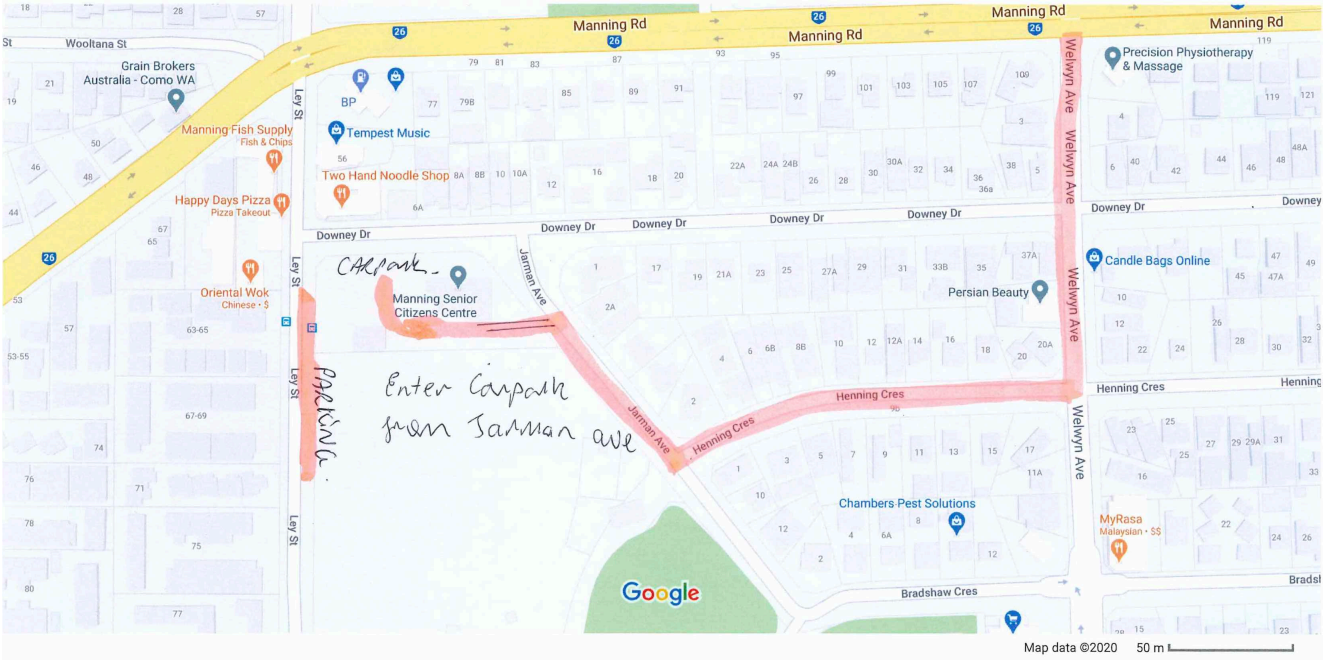
Birthdays

June: 2nd Tom Seaman, 10th Val Dobrowolski, 17th Maggie Longmore
July: 1st Kevin Butler, 9th Stephanie Williamson, 15th Dana Mitchell

Best wishes to anyone else celebrating Birthdays or Anniversaries. To any member on the sick list we wish you a speedy recovery & may you soon be well.

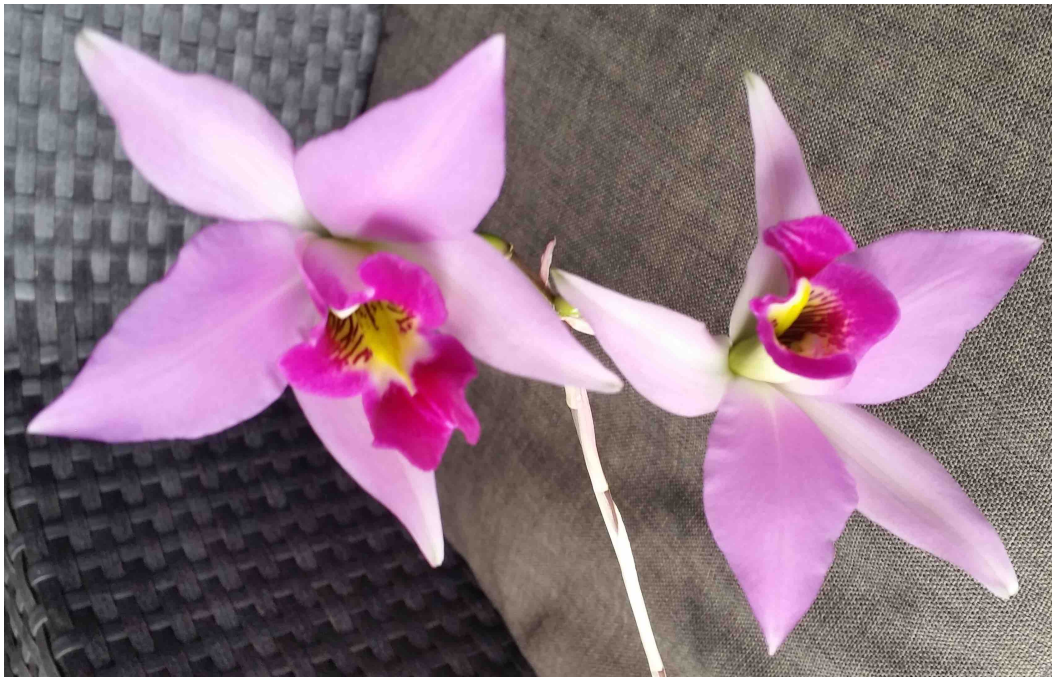
Roadworks near Manning Senior Citizens Activity Centre

The Manning Senior Citizens Activity Centre has advised that roadworks on Downey Drive were due to start on 3 June. The City of South Perth website indicates that the roadworks on Downey Drive between Ley Street and Welwyn Avenue will take about 4 weeks to complete. Take care as you drive to the General Meeting. If the Centre's carpark is not accessible via the Downey Drive entrance, you may be able to enter the carpark via the the carpark's exit onto Jarman Avenue, or park on Ley Street adjacent to the Manning Men's Shed (see map).



Monthly "Virtual" Plant Competition

Now that the COVID-19 restrictions are being relaxed and meetings will be recommencing, the virtual plant competition has been suspended. Thank you to all those who sent photos for the competition over the last few months, and to Kay and Jim Baylis and Nataliya Kulchytska who were quick off the mark to send photos this month.



Laelia anceps, grown by Jim and Kaye Baylis. This species is native to Mexico, and typically carries two or three flowers up to 12 cm across, on at the end of a raceme up to a metre long.

Dendrobium unknown, grown by Nataliya Kulchytska. There are a many dendrobium hybrids that have deep magenta flowers, but this specimen it a particularly attractive one that has been flowered well under our currently chilly conditions.

Winners of the May Virtual Plant Competition

Novice: *Rhyncholaeliocattleya* Bryce Canyon 'Splendiferous', grown by Valerie Cooper.

Rhyncholaeliocattleya Bryce Canyon was formerly known as *Brassolaeliocattleya* Bryce Canyon, but was re-classified as part of the recent work by orchid taxonomists to reorganise the Cattleya alliance.

This orchid has a long history. It was first registered in 1971, as a hybrid of two other hybrids that were themselves registered in the very early 1960s. The clone 'Splendiferous' is particularly prized even today, almost 50 years after the crossing was first registered. This orchid is endowed with an exquisite fragrance as well as large, attractive flowers, and was awarded an AM by the American Orchid Society.

Open: *Psychopsis papilio*, grown by Murray and Arni Baker.

This species is native to the West Indies and the northern countries of South America from Peru to Brazil. The species name *papilio* comes from the Latin for 'butterfly', and this orchid is one of several species that are sometimes known as butterfly orchids.

At the first OSWA meeting that Murray and Arni attended, in the early 2000s, Henry Eaton had an impressive specimen of *Psychopsis papilio* in the monthly plant competition. Henry emphasised that after the flower is spent, it is important not to remove the flower spike, even if it looks dried and ratty. As the flower dies, the spike typically starts a new growth at its tip that produces a new flower, and continues to produce flowers one at a time over many months, in some cases over several years. (That OSWA meeting was also very memorable because during the discussion, Henry and another very accomplished grower, Tom Dixon, had a robust exchange about the use of fungicides.)

CYMBIDIUM CULTURAL NOTES (JUNE/JULY 2020) based on notes from Roy Brown

This month, more of the early flowering Cymbidiums will be in flower. Others will have flower buds showing through the protective sheath on the stem. Once they reach the stage where the flower buds are visible, it's time to move the plants out of the shade house and into a flowering area, where more protection can be given to them. Heavy rain or hail can chip the soft buds and so leave a permanent mark. Also strong winds can cause the leaves to rub on the flowers, and this too will cause a blemish.

Cymbidiums like to grow in a position where there is plenty of free air movement, so don't completely enclose the flowering area like a glass house, as this could cause bud drop. Give them protection from the heavy winds and also close off the sides that face the strongest winds. Don't over crowd your plants; if possible give them plenty of room between each pot.

During July we can expect cold, wet wintry weather. Fertilising with a liquid fertiliser such as Strike Back for Orchids Liquid can be tapered off to once a fortnight, or if you use Strike Back for Orchids pellets, reduce the rate of application by about half from last month. Watering will also depend on the weather, but don't allow the pots to become dry, particularly those in spike and under cover. Keep the flowering house and shade houses well baited with slug and snail pellets, particularly now that the flower buds are showing.

CATTLEYA CULTURAL NOTES (JUNE/JULY 2020) based on notes from Henry Eaton

With the onset of cold wintry weather, the foremost consideration is adjusting cultural practice to the cold. Orchid growth slows with the cold so the need for watering decreases and the use of fertilisers becomes a minor concern. The exception here is if your plants are being grown in a heated greenhouse — in this situation, you could fertilise with Strike Back for Orchids liquid at about a quarter of the rate you use in summer, or consider an application of Seamungus liquid or Gogo Juice.

If your plants are grown in an open but covered area to protect them from the rain, all shading, if not removed already, should be removed now. This helps to warm the plants to some degree on sunny days, and helps flowers opening to do so with true colours. Heavily shaded plants appear to open flowers with less brightness in them.

Due to the cold and dampness in the air, flowers are more likely to get infected with botrytis spores, resulting in the appearance of black spots on the petals. This can be averted to some degree by keeping the air moving gently over the plants with the use of a fan, and avoiding crowding plants too close together. If the structure in which you grow your plants permits using hangers, pots hung up give plants better air movement and more space for flowers to open without obstruction.

Cattleya Caludebec (aka *Cattleya* Penny Koroda (Claudebec Gp), grown by Henry Eaton. Photo taken by Henry Eaton around 2011. This orchid is striking for its spotted flowers, but it is highly fragrant as well.

Flowering plants should also be closely observed for caterpillars and thrips that will damage them if left untreated. Also make sure you have baits spread around to neutralize the snails and slugs that appear with the rain. When watering, choose a day forecasted to be sunny. A sunny day will allow the plants to dry out by nightfall and ensure no water remains in the leaf axils, which could induce rot. Be diligent in removing spent flowers and sheaths, because water can collect in the dead sheaths and cause rot. It is wise to wait until the sun is shining into your garden before watering, as by then the water in the pipes may have warmed up to some degree. Avoid all potting activities, unless not doing so might kill the plant.

PAPHIOPEDILUM CULTURAL NOTES (JUNE/JULY 2020) by Trevor Burnett

With the cooler months upon us, take care with watering, to keep the plants moist but never leave them wet. Always water in the morning to ensure the plants are dry by nightfall. Personally, I reduce my watering back further to once every 14 days, but may give additional watering if the weather is fine and sunny for 6-8 days in a row. Hopefully, a good proportion of our plants will be showing flower spikes. Continue staking plants using wire, meat skewers or small thin bamboo stakes.

This time of the year you start to enjoy the fruits of your previous 12 months work, with some of the early flowers now being fully developed and in full bloom. If you are missing out on a great display starting to appear, now is the time to review your culture over the last 12 months and make any necessary changes to ensure a great show next year. The smaller, un-flowered plants will still require a fertilizer on a fortnightly or monthly basis — quarter-strength to half-strength Strike Back for Orchids Liquid may be a fertiliser that could be used to keep the growth moving forward.

If you intend to get the plants ready for the various shows, this is the time to spend cleaning up the plants by removing any dead leaves and cleaning any dust from the leaves. Growers use different methods to make their plant's leaves look fresh and glistening. Some growers use of white oil, but I personally believe a little common milk with water wiped over the leaves does a wonderful job without leaving that oily look.

At this time of the year, most growers do not water plants overhead due to the possibility of marking the flowers. It is sound practice to carefully hand-water, if time permits. I do water overhead, but after watering I ensure the pouch is emptied of water and excess water is not left on the remainder of the plant. This can easily be achieved by gently tapping the flower.

Cattleya Aerial Roots and Australian Agriculture

Associate Professor David Collings, School of Environmental and Life Sciences, The University of Newcastle, and School of Molecular Sciences, The University of Western Australia.

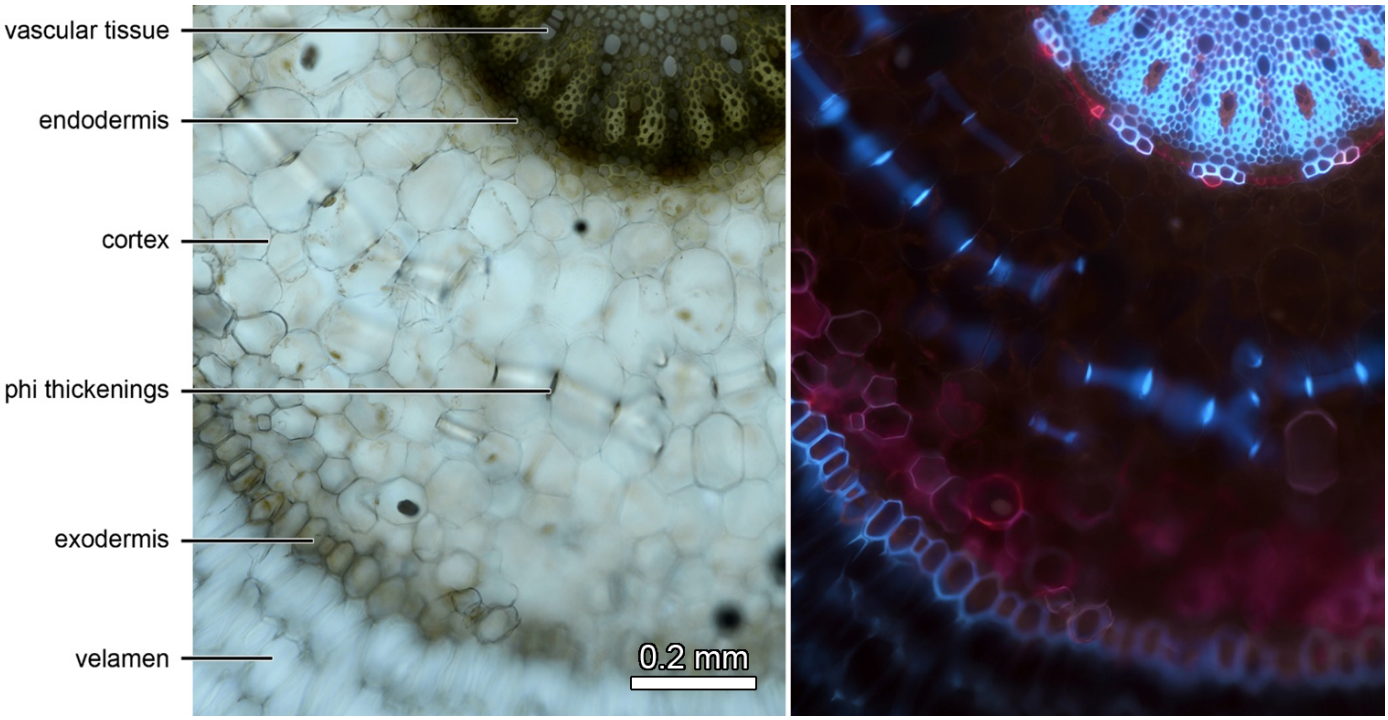
As a biologist, I am interested in the growth of plant roots, and how they respond to problems such as salinity and lack of moisture, two common problems for Australian agriculture. So why should I study orchid roots? And why can their biology tell us about crop species?

Rhyncholaelia digbyana (also known as *Laelia digbyana, Cattleya digbyana, and Brassavola digbyana*) is a Central American epiphyte from the *Cattleya* grouping that is, according to Wikipedia, the national flower of Honduras. While this orchid is normally grown for its stunning flowers (picture lower left), I am interested in the plant because of its remarkable aerial roots (picture lower right) that are thought to help harvest moisture from the air, as well as to anchor the plant to the host tree.

My specific interest relates to the microscopic cell walls that the plant forms around each of the cells within the root, structures that can only be seen and understood by microscopy. I made thin slices of a *digbyana* root with a razor blade, and viewed them by 'transmitted light' (the conventional way a microscope works).

In the image on the left, the dark circular feature at the top is the conducting tissue (in scientific terms, the xylem and the phloem) in the centre of the orchid root. The conducting tissue is surrounded by several layers of cells that make up structures known as the endodermis, the cortex, and the exodermis, while the outer material at the edge of the root is a structure called the velamen. The velamen is the whitish layer that covers many orchid roots, and is a layer of dead cells that are thought to act like a sponge, catching and retaining moisture.

The image on the right shows the same slice when examined using a fluorescence microscope. The colours are the fluorescence generated by shining ultraviolet light (also known as a UV light or black light) onto the sample. This fluorescence is the same effect that happens with a cotton T-shirt that glows white under a black light in a nightclub, an old-fashioned black light signature, or the way in which the security devices in some foreign banknotes will glow under a black light. The blue fluorescence from the cell walls in the orchid root comes mostly from a material called lignin, which acts to strengthen the cell wall in specific locations within the root.



It is the circular band of cell walls in the middle of the root that contain the blue-fluorescent lignin that I research. These structures are known as phi thickenings because in some species of plant, the structures are said to look similar to the Greek letter phi - ϕ. Because only these phi thickening cell walls contain lignin, they are more rigid than other cell walls, and as the phi thickenings are aligned between adjacent cells, they combine to form a rigid frame around this ring of cells. Phi thickenings occur in the roots of many different plant species, from orchids such as *Rynchola*elia to apples, and from broccoli to pine trees. Phi thickenings have even been found in the fossils of 300 million year old roots of plants related to cycads.

So what do the phi thickenings do within the root? Despite phi thickenings having been first discovered more than 150 years ago, and despite thickenings being found in a range of agriculturally important plants such as canola where they form in response to water and salt stress, no one knows what function the phi thickenings may play within the root. As scientists, we believe that the thickenings mechanically stiffen the root, but this has never been proved.

This is where the *digbyana* roots are important: because the roots are large, and because they contain such large phi thickenings, I hope that mechanical engineering techniques might be used to model how the phi thickenings modify the strength of the root. However, to do this I need to know the organisation of the thickenings in three dimensions, something that is difficult to determine with even the most of advanced microscopes in Australia. Therefore, I shipped samples of *digbyana* roots to collaborating researchers in the USA who will apply the latest microscopy imaging techniques to build a 3D model of the thickenings within the root.

As the eventual aim of this research is to understand how the phi thickenings work in crops species, understanding orchids and their growth is important!

This research work concerning orchid roots has been funded by a grant from the Australian Orchid Foundation (316.17).