

February: Australia (Melbourne region)

A Brief Introduction to Transpiration

After a month in New Zealand it's time to move on to my next assignment. Researching, writing, and working in the vineyard are all becoming routine, maybe not too routine, but because I had traveled there before I knew a little more about where to go, what to do, and what to write. I also traveled to Australia in 2005 and spent the majority of the time there on a boat on the Great Barrier Reef. That was, at least, the main event of my trip then - Queensland. Now I'm going to Melbourne, the capital of Victoria.

I'd be going back in time geologically but forward in time technologically, as Australia is a more modern country, but a complete fossil if you look at its geology. But first I want to introduce the continent with a picture of its trees. Again, from Walter's Vegetation, a book I'm hoping to understand by the end of going on this quest, there is not a single species of Eucalyptus or Acacia in New Zealand that evolved separately from Australia. As he writes,

Although both islands are relatively near to the Australian continent and were probably directly connected with it in the geological past, this connection must have been interrupted before the flora of the Australian realm was fully developed.¹

This is a tough book to get through, and I'm getting through it by paraphrasing some brilliant, if not more basic parts. So as I say goodbye to New Zealand and hello to the Eucalyptus, Acacias and other families of plants that grow closer to the equator

To give you a sense, California where there have been successive pushes to plant Eucalyptus, mostly around the turn of the 20th century, all have a planted aesthetic as they are a product of horticulture - although seeds run amok it turned out, as they've basically been naturalized in the golden state.²

Not like transpiration, but routine nonetheless. Speaking of which, here I should talk about what's going on in the plant now that summer is raging. It's Australia, it's hot out. So what happens is the irrigation (or rainwater) is drawn up through the roots via not osmosis, as could be considered, but by a conduit that stretches all the way to the leaves called the xylem.

Stomata - those pairs of cells called guard cells - that let out the transpiration, those are the end of the line, where root hairs are the beginning. That's all happening in real time, all day long to keep the plant cool and transport dissolved nutrients. Xylem are in a layer called the cambium that in woody (perennial) species grows each year outwardly, well the xylem grows inwardly as the plant grows outwardly, but it's the older stuff that moves inward and becomes both a passageway for water and nutrients and support for the plant..³

¹ Walter's Vegetation of the Earth, pg 306.

² Farmer, Jared. *Trees in Paradise: A California History*. W. W. Norton & Company, 2013.

³ Tiaz and Zeiger. *Plant Physiology*. Sixth Edition.

How does that water turn into wine? We shall see on the vineyard. I guess the plant physiology lecture is done for the moment. Let's discuss Australia further.

To be continued...I am not great at writing about plant physiology, but I still think I can do it. The concept is in this chapter to show water from the root to the grape (at this point in Australia it will be ripening).

Viticulture: Shiraz, Chardonnay, irrigation and climate, water relations from Taiz and Zeiger.

Enology: Modern techniques and scale

Cultural & Historical Context: Aboriginal land, British colonization, wine history

Personal Experience: WWOOFing experiences

Personal Excursion: The Great Ocean Road, local wildlife parks

Conclusion

Continuing on my journey, to get to Cape Town, I need to first fly to Singapore and then fly through Dubai International Airport. The pictures on Google look insane. How long would I want to stay

there? What would I do? I don't think I'm leaving the airport. Maybe a short layover in February or March in Dubai or Asia could work.