

tree talks

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Rooted Histories

Gehan de Silva Wijeyeratne

- [00:05] In celebration of the Lunuganga gardens 75th anniversary, *Tree Talks* podcast explores the lives of flora and ecosystems within the gardens. Bought on the eve of independence in 1948, Lunuganga is Geoffrey Bawa's first and longest running architectural endeavour, join us as we unravel the intricacies of this living archive.
- [00:33] All transcripts, translations and supplementary guides for *Tree Talks* podcast episodes are available at the *To Lunuganga* and Geoffrey Bawa websites, links available in the show notes.
- [00:48] This episode explores the hidden histories and unexpected migrations of some of Sri Lanka's most beloved trees, with naturalist, photographer and author Gehan de Silva Wijeyeratne.

[01:07] Hello, I'm Gehan, Gehan de Silva Wijeyeratne. I grew up in Sri Lanka, I now live and work in London but I keep coming back very frequently to Sri Lanka and I maintain that connection partly because I love travelling in this country, and also because I'm always working on another book. So today I'm at Lunuganga and in my walk around Lunuganga you will find that in tropical countries and in tropical cities and tropical gardens it's almost an international history of, of the history of the of humankind, how humans have travelled from one place to another and with them taken especially plants, so it really shows how interconnected things are.

[01:56] Geoffrey Bawa brought in a number of European influences but adapted them into a style of tropical architecture which embrace the elements. So he recognised that wind, rain, dust and sun were all part of the tropical mix, and here I'm now in a slight tropical drizzle but enjoying it, and the architecture was made to embrace the elements rather than fight them. The idea was that there would be this inter-relationship between the architecture and the outside. Here in Lunuganga he has sculpted the outside as well to create a tropical paradise. It's something of a hybrid between a private nature reserve and a lush tropical garden. It's not just the sense of space and openness and looking out across water but even the auditory landscape is very tropical. Thrumming away softly in the distance is an endemic Small Barbet, and across the lake I could hear Grey-headed Fishing Eagle's calling. As I look around me, this is also a good place to sort of think about plants and their place in the world and how they relate to us and the different strategies they use for survival.

[03:35] So when you sit here where I am, so I'm by what's called the Lower Gallery or the Reading Room next to the Hen House, so you can sit on one of the ledges here and you look out into this man-made pond and there are Water Lilies. And in a sense, looking back four hundred, five hundred million years back because you're looking at an ancient plant. If you think of where we are in relation to plants, in a sense, we are actually animals that, in order to live, consume the waste product of plants. Because the planet was actually a very hostile place, going back half a billion to a billion [years]. There was no oxygen so what made that oxygen? All that oxygen is the waste product of plants photosynthesising. So they capture the light energy, they capture the carbon dioxide and they release oxygen. So it is plants that made it possible for mammalian life to evolve, because without the plants that we know oxygen and there won't be us.

[04:52] The nearest thing you can find to a living god is, is all this that I see around me. Because if it is not, god-like to take inanimate matter, to take particles, photons of light energy, to take lifeless gas like carbon dioxide and convert it to living tissue, and to build these organic cathedrals. Plants have a number of different strategies for success. So to live, you have to breathe and you have to eat. So what do the plants eat, they're actually sun eaters, they need to eat the sun, which means I need to raise up to the canopy and maximise the amount of sunlight they get because that is that sunlight they used to metabolise and to lay on tissues. So looking around me you can see at least three different strategies. So there's the, stratagen strategy or standard business model where the idea is you start from the ground, you start growing and hopefully your parent plants have given you a store of energy so the seedling takes off and it's a race to the top. You grow a strong trunk or bole and you go straight up and if you're in the rainforest, you try to go up about 100 feet because otherwise you're not going to get the sunlight because

you're going to be crowded out and shaded. So around me there are lots of trees which had that standard strategy, from the Betelnut Palm to this Jack trees and then the Bamboos which is actually a kind of grass. And you can see they're going straight up but not everybody wants to do that. So you can also see there are vines, which is another strategy, which is where instead of you investing in the infrastructure you just piggyback on somebody else who has invested in the infrastructure. So you climb along the trunks, which is another strategy but again, you need to get to the top. Now a third strategy which we can see are the epiphytes. Which translates into 'being on plants' epi-on and phytes-plants and what the epiphytes do is that they try to get a free ride to the top. Might sound familiar? No political references here but the epiphytes, hopefully their, seeds will be carried by pigeons and barbets and parakeets, and then when they defecate seeds come off, so they get a headstart somewhere in the mid level like the epiphytes a few feet away from me or if I look up, high up you can see more epiphytes. So they're where the sun is and then they will roost there and they are effectively living on the tree. So there's a plant supporting another plant and sometimes there are a lot more other plants like mosses and liverworts, bryophytes and so on. So each tree then becomes like an ecosystem in itself.

[08:14] Now one of the trees that I'm seeing around me is the Jackfruit. Which is a very important tree in Sri Lanka. The wood is really good, Jack wood is really prized for its hardness and colour but.. Just getting distracted because I hear a[n] endemic Sri Lanka Green Pigeon vocalising in the distance. But let me, and I've just seen a Stork-billed Kingfisher making a plunge into the pond. So this is a lovely thing here, you try to talk about trees and you get distracted by other things.

[08:55] We can see there are a couple of *Bilin* trees. Now I'm sure every Sri Lankan will swear that these are native trees but the reality is that these probably originated in the Indonesian Moluccas. Now, Sri Lankans will find this hard to believe, because I think a lot of Sri Lankans have fond memories of going to school and buying *Bilin* from the fruit seller and you eat it raw and with some chilli and it's like a spicy snack type of thing, very acidic. The tree itself is quite beautiful, you can see the pinnate leaves, very fern-like and very pleasing to look. It's quite a small stature tree.

[09:46] I'm being distracted by hearing a Stork-billed Kingfisher calling, It's the largest kingfisher found in Sri Lanka and Bawa has created this amazing wetland habitat with ponds and sort of paddy field like enclosures and then you have the actual marshland adjoining the lake. I can also hear a Green Barbet joining in on the chorus. So suddenly the bird life is sort of exploded into the audio spectrum but I'll come back to the *Billin* tree. So in Latin it's called *Averrhoa bilimbi* and Avarosa was actually an Arab philosopher. So we have a tree here that honours an Arab, comes from the Indonesian Moluccas and the Moluccas were of course very famous as the 'spice islands' and it has a very bitter and acrimonious history because the European seafaring powers fought over it. And fittingly we are sort of in an area which is close to Galle on the west coast, which again has this seafaring connection. Galle is where the Portuguese first arrived somewhat accidentally in the 1500s, and then the Dutch arrived later. However, these people were latecomers, because we had the Chinese Admiral Zheng He coming here because this is where the Chinese Admiralty would come and park their fleets. So, being where we are in a central part of a trade route that runs from east to west, it's not surprising that we've been a point of attention for both commercial traffic and military traffic.

- [11:48] We see a couple of nice Mahogany trees, I don't know how old these are I'm guessing they're maybe 20-30 years old. So Mahogany has been grown widely all over the world because it is a very good tropical hardwood. It actually originates in Central America and the West Indies. And the name *Swietenia mahogani* is interesting because there's a Dutch connection, Swietenia honours a Dutch botanist and Mahogany is a local name. And it's quite fitting that property like this has this sort of somewhat obtuse Dutch connection, because the Dutch were one of the European seafaring powers that colonised Sri Lanka and we have a lot of words in the Sinhala vocabulary which is derived from the Dutch and it's good that this sort of Dutch connection trees next to the banana tree, because we have a rice dish called lamprais, which comes from the Dutch and what do we wrap it up in, we wrap it up in the banana leaf, which is a nice, biodegradable, sustainable way of packaging your food.
- [13:07] So there are about 80 species worldwide in the genus *Musa*. Not all of them have edible fruit and they've obviously over generations, hundreds of years, been modified into the varieties we now know for fruit. It's [an] interesting plant because after it flowers, the stem dies but then new plants emerge from the underground rhizomes. So in a sense it's almost like a plant that doesn't know death because it just lives on through its rhizomes, which give rise to successive generations.
- [13:49] If I just look around at what else is around me, so there is this familiar and ubiquitous Mango tree *Mangifera indica*. Now this is actually in a very interesting family called Anacardiaceae and so does the Cashewnut. And the common characteristic there is that they all have this milky sap, which can be poisonous in the case of things like the temple trees. The mango tree you see here is probably, it would have derived from wild plant at some point but this is now [a] horticultural variety and there are several horticultural varieties. But Sri Lanka does have native mango trees as well. So *Mangifera zeylanica*, the wild mango is a tree of the rainforest. If you look at this you can see a bit of the rainforest heritage, as you can see, it's got a tall straight bole, it's trying to ride up into the sky and that's what rainforest trees do.
- [14:51] And next to it [Mango tree] you can see what's called a *Kaduru* tree. Now unlike the mango tree which is edible fruit, the *Kaduru* tree is bad news. If you eat the fruit, it's toxic and you'll be very ill.
- [15:08] Fringing the lake, I can also see a number of trees. So there's a plant, the *Cerbera* trees or *Cerbera odollam* and these are very characteristic, small stature trees which you find in marshy habitats surrounding water. Again, the fruit of these trees are poisonous but you find being a native tree, a lot of local animals and birds have adapted to using it. And the soundscape here is also quite interesting, I mean right now there's a Palm Squirrel which is vocalising. It has this small, this calls just sort of bird like there's a Loten's Sunbird flying over me. We've had Sri Lanka Hanging-Parrots, which are endemic bird species flying over us. We've had Sri Lanka Green Pigeons vocalising and we had a pair of Small Barbets dueting, another endemic bird. Because once you plant to place and there are a lot of trees, then you find the animals move in and especially the birds.

- [16:25] So now I'm walking towards the restaurant area and one of the iconic trees here is this Frangipani tree. Bawa, from what I gather fused two trees and shaped them so that we have this lovely sprawling low lying branches sort of curving out and then reaching up into the sky forming almost a sphere. Frangipani trees are not really native although they're a very common and standard feature in temples because the beautifully scented flowers are a very popular temple offering. The Frangipani tree really comes from the Central Americas and the latin name is *Plumeria*. So you can have *Plumeria Obtusa* or *Plumeria rubra*, the red flowers and *Plumeria* actually honours a French botanist so you can see how international these things are.
- [17:25] And when I just look, look down away from the restaurant across the lawn onto the water of the lake lining it are these *Dillenia* trees now the name *Dillenia* actually honours a professor of botany at Oxford. So you can see it's almost like international who's who, when you stand in a tropical garden whether it's in Sri Lanka, or in the Malaysian peninsula or in Central America. You know, the trees of course, have been there long before we came but they honour that fantastic period of exploration which began around the 15th century and continues to this day.
- [18:12] I can also see a tree, the *Mesua ferrea* this is widely planted. It's the national tree, the Na tree. It's got very good wood but it's got this beautiful white flowers and also the leaves turn a beautiful red. So it's quite nice to see something that is native but also works ornamentally for a lovely tropical garden like this.
- [18:48] So now heading towards the Hora tree in the Field of Jars but I've just stopped over to look at this palm tree, and I'm looking at a Fish-tail Palm here. And you can see why it's called a Fish-tail Palm, because its leaflets are divided into what look like the tails of a fish. Let's just talk about the palms first. So the family palm, Arecaceae, is a very important family. It's one of the most commercially important families in the world and the ubiquitous Coconut tree that we know so well is one of them. So you might think you know, because of the association with things like the coconut palm, you might think this is a tree of sort of sandy beaches and so on but the palms actually reach their maximum diversity in rainforests and fishtail palm is certainly one that you find has self seeded in the lowland rainforest. *Kithul* Palm has a commercial value because people make *Kithul* Jaggery out of that. And this particular palm is quite a lovely tree. It has a certain ornamental look to it and it's widely planted for horticultural reasons. So it's a lovely little tree, really gives that sense of that you're in the wet lowlands. It's got that sort of architectural quality to it with the leaf shape. Commercially useful and all round a super plant to have in your garden.
- [20:37] I just want to read something about the palm family from 'A Naturalist Guide to the Trees of Sri Lanka', so in the book I have written, 'the family, the palms, sets a few angiosperm i.e. flowering plant records the coco de mer's 30 kilogramme fruits are the largest angiosperm fruits, *Calamus manan* has the longest stems. Its climbing stems can reach 200 metres in length.' We don't have that plant in Sri Lanka but we certainly have *Calamus* plants when you go to places like Singharaja [Forest Reserve], you can see them. Reading on, '*Corypha umbraculifera* carries the largest inflorescence of any plant up to seven and half metres long and bearing about 10 million flowers.' Think about that, one floret inflorescence containing ten million flowers. So the palms truly are a wonderful family.

- [21:40] So, behind me there's a troop of Purple-faced Leaf Monkeys that are scampering across. This is quite a special monkey because it's an endemic, It's found nowhere else in the world other than Sri Lanka, and these guys look like the southern race. They have a very large pale patch on their back, it's as if they're wearing white trousers.
- [22:05] The Jack tree is so important as a source of food that the government of Sri Lanka passed a decree saying you can't cut the Jack trees for their valuable wood and why is that? It's because it's a poverty alleviation measure. A Jack tree can provide food for 30 to 40 years or more. People in Sri Lanka might think that this is a native tree because they're so used to it. The jackfruit is used in a number of ways, you can eat it raw as this yellow fleshy fruit. Jackfruit doesn't come from Sri Lanka, it probably originates somewhere in Southeast Asia certainly, the related species, the Breadfruit comes from Malaysia and then that part of the world. A clue to the fact that it's not a native tree is that although it has the look and feel of a rainforest tree, you will never find it in native forests unless there has been a human settlement there.
- [23:18] So this is again a tree that's been brought over its, naturalised and you know it's pretty much embraced as part of the local scene and certainly the endemic Purple-faced Leaf Monkey is very very happy that the Jackfruit has been brought here because it is very energy rich. In urban areas like Colombo, one of the reasons why, in the face of dwindling habitat, wild Leaf Monkeys are still present is because there are these old Jack trees. Unfortunately, there are a couple of issues with Leaf Monkeys and people, so one is, these Jack trees, they were also living boundary markers. So what do people do when they buy a plot of land? They want to put a wall and mark their boundary so they cut down the Jack trees that are forming the boundary line, if they get permission to cut the Jack tree down. They put this big fence and that means there's no food for the Leaf Monkey, and for many of the native birds and insects that depend on things like Jack trees.
- [24:31] Architects don't really design to minimise conflict with wild animals, architects need to embrace what we are and where we are and the environment and the animals around us and design in a way to mitigate conflict, not create conflict. So, Purple-faced Monkey is native, endemic and benefiting from a friendly foreign plant that's now not only part of the landscape but part of the culture, because certainly in a culinary sense, you know, for many Sri Lankans there could be nothing more Sri Lankan than a Jackfruit curry.
- [25:18] So now I have come to what's known as the Field of Jars. In the background, an endemic bird, the Sri Lanka Flameback is calling and there's this lovely crescent shaped pond bordered by a number of wet lowland trees. You have some Dillenias, some Cerbera trees, a Screw Pine, Fish-tail Palm, Betelnut Palm. And the grand finale, which I'm now looking up at, the Hora Tree a *Dipterocarpus zeylanicus*. So, these are the forest giants of the tropics. These are the forest giants that built Malaysia's economy in the 1970s before Petro chemicals were discovered. They're loved by foresters because they are hard and they reach up to the sky growing 100 feet or more without branching, so they have this tall straight boles, which are very easy to saw into long pieces of timber. Now, the Dipterocarps are a tree that every Sri Lankan should know about

but we don't, perhaps because we don't use its fruit or leaves for a curry or anything edible. They have all but disappeared other than in protected rainforest reserves but they are very special we have 52 species, 51 endemic and they're very interesting ancient and geological history.

[26:46] So, some time ago you had the southern landmass, Gondwana, it split up to Africa, Antarctica, Australasia and the South Indian plate. So, the Indian plate with India and Sri Lanka collided with the Himalayas and that collision created the Himalayas and it's an ongoing collision, Himalayas keep rising up a little bit every year because we [are] still crashing into Eurasia. Before that first collision, the South Asian plate skated against South East Asia, and during that minor skirmish, the Dipterocarps jumped off ship, got onto South East Asia and now Borneo has the highest dipterocarp diversity with about 500 species and thanks to that, they got mainland Asia and they are found in, Vietnam, Thailand, Malaysia, etc. Countries like Malaysia have made billions, literally billions of dollars from the wood. In Sri Lanka this is not a tree you can plant in your garden because it's so big there's always a danger that a falling tree could damage your house in your neighbours and your neighbour's neighbours.

[28:04] But it would be nice to see people who either own public spaces or have large gardens like at Lunuganga or some of the many other hotel properties, if they can start growing this Dipterocarps back and recreating a lost past. If you can regain our lost rainforest so that once again we have lowland dipterocarp forest stands, it'll be a nice thing and it was not long ago that we had them because in the 19th century Captain Legge in his *History of the Birds of Ceylon* talks of shooting Red-faced Malkohas in Kotte, which is now the political capital very close to the centre of Colombo. So that's a rainforest canopy bird, so it shows that we did have extensive lowland dipterocarp forests but they've been lost, either for clearing for agriculture or because they're commercially important people have just gone and, you know, taken down a tree at a time and we've lost them. So I hope properties like Lunuganga can continue to play a part in bringing the lost trees back.

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