

# Indralaya talk 2 - Fire

Sunday, May 1, 2022

8:36 AM

Good morning,

I suspect that today feels a little less challenging than yesterday for most of us. If it feels more challenging to you, please hang in there and if you need any extra support please come see us. But on the main I bet it feels a bit more do-able today. Maybe you slept a little better after a restless first night. The morning is a bit brighter, dryer and a warmer than yesterday. We're getting it so down with the fire - thank you to Janelle and Ellen and everyone who are dusting off your fire tending skills for us.

And we've gone through a full day's routine here. Sitting the schedule. Doing our chores (thank you for that). Figuring out when we can get a shower in and how to be reasonably comfortable. Maybe there's a reassuring feeling of familiarity that's emerging. We do seem to be in the habit of needing a sense of familiarity. With the familiar we feel at home. Do you feel a bit more at home here now?

Maybe "I'm not sure I can do this" has shifted to "yeah...there are definitely going to be tough moments, but I can do this" - so interesting the way we're constantly revising the narrative isn't it? And it feels so true to us each time.

And yet it's just a narrative: a prediction and a feeling. A disoriented feeling is just a feeling, an at-home feeling is just a feeling. Powerful thoughts and feelings though!

I said a little bit on the first evening about how retreat can be interesting and healing around the relationship we each have with time.

Are you starting to get a sense of that? Perhaps it shows up when you do have a challenged moment, yesterday morning feeling so very cold say, perhaps you notice that powerful facility of prediction: "this is going to be utterly miserable for what? 4 more days?!" - making time a kind of enemy, a kind of multiplier of suffering. I'm suffering now and time will make me suffer so much more. Not to mention the layers of judgment that we can pile on next, "we should have this retreat in the summer; they should winterize this building; Tim should have known this wouldn't work in early May" and on and on.

And then in the afternoon we accomplished what seemed impossible in the morning: we not only got it warm in here but we got it too hot in here! I hope you had a moment of celebration before you started complaining: "darn it, now it's too hot."

Don't you find that those predictions of suffering so often are just not true. Those worries for the future so rarely pan out. Not to say there aren't troubles coming - of course there are - but they probably aren't the ones you're worried about. Makes you wonder about the whole enterprise of predicting and worrying doesn't it?

And at the root these ideas we find time hanging around somewhere. These many ways of relating to time.

Like the powerful idea that we aren't using our time very well. I'm not disciplined enough. Not focused enough. Not organized enough and then I waste time. I fritter. I get distracted. I jump around. I don't get

enough done. I'm not productive enough. What harsh masters we can be and time is like the switch of our self-flagellating. I know that's a disturbing image. And probably it's important to be a bit disturbed by how we treat ourselves sometimes, no? Not to let that be too ordinary.

So isn't it interesting to spend the week deliberately not getting things done and not paying much attention to the time. If you are clock watching in some way maybe you'll get tired of that sooner or later and give it up.

When we relax into the timelessness of this non-doing time doesn't seem to be in such short supply anymore. And maybe time doesn't move in such rigid lock step anymore. The sitting meditation periods are all roughly a half-hour long for instance (except the first one in the early morning is a little longer). Some may seem shorter and some may seem longer. We're still a bit hooked on the idea of minutes and seconds so we do say it "seemed" shorter. But isn't what we experience actually what we experience? Time moving slower, time moving faster, our movement through time speeding up and slowing down. Maybe this happens a little on every breath: in the inhale a little tiny advance in time, the exhale a pause. Can time even run backwards? Does it actually make sense to think of time moving in a direction?

I noticed yesterday during my little reverie with the water drops that what my watch said was twenty minutes felt much longer than twenty minutes in the morning usually feels like. It felt like I had all the time in the world. I have a watch on so I can keep time for you. I hope you can relax even more fully into the timelessness of retreat. A balance I know as the dining room bell only carries so far. We so appreciate everyone's efforts to get down here on time and follow the schedule. And at the same time we also hope everyone can relax around being so good and doing it all so right and that's also something we do within time.

At least once you're in here you can be more of a time drop out and see how that feels.

To me it feels deeply healing. That for the most part we have dysfunctional relationships to time, but like all relationships things can get better. We can heal.

I really appreciated what Teresa was sharing this morning about silence and sound.

That's really true isn't it that most of the universe - or the person she was quoting was a little more far out: universes plural - that mostly what's happening everywhere is silence.

I keep being pulled towards science in exploring the extraordinary in the ordinary so let's consider our mostly silence universe for a moment.

You need to be in an atmosphere for there to be sound and you need the right equipment to know that sounds are happening. Planets with atmospheres are rare. Planets with atmosphere with living beings on them with ears are even more rare. Mostly the universe is space. No air there to vibrate and make sound waves for us to hear.

And the atmosphere is just this very thin kind of skin on those super rare planets. Our atmosphere on Earth turns out to be on the thin side compared to other planets too: just about 60 miles of atmosphere spread across a planet 8000 miles in diameter. Less than 1% of the whole is atmosphere. And we can

only live in the bottom couples of miles, an even smaller percentage. The top of Mt Everest is 5.5 miles up, you can breathe there without supplemental oxygen but better to have it.

So we're lucky that we can hear sounds and produce sounds. And like most things humans can, do we tend to overdo.

Not that sounds stop happening just because we are not talking. Maybe you've noticed this. We get more sensitive to the sounds that are here. The buzzing of bees, the hum of hummingbirds, the distant sounds of people partying across the water somewhere, and of course our bird neighbors here at Indralaya: crows, ravens, song sparrows, juncos, robins, gulls. Birds vocalizing to organize procreation, to keep in touch with each other, to signal danger, probably just for fun too, at least those are our presumptions from the outside as non-birds.

As we get quiet we make more room for everyone else.

Anyway back to water. I was thinking also about how it was that rain was possible yesterday.

What is this water calling out of the atmosphere business? Of course we know the facts here: 3rd grade science about the water cycle. But we learn these things and file them away and they become rote and we take it all for granted.

Heating with wood here reminded me of the lovely poetic fact that we get rain from fire.

The fire of burning wood is one thing. The science of this it turns out isn't fully understood which surprised me, but the basic mechanism is clear. Wood is mostly molecules that are chains of carbon and hydrogen atoms bonded together. Hydrocarbons. When it gets hot enough those atoms start vibrating and the bonds between them get stretched. And then if our friends from yesterday the oxygen atoms come into it. As Teresa's poem yesterday reminded us we need space between the logs. In that space we have air. In that air we have oxygen molecules - two oxygen atoms hooked together - O<sub>2</sub> we call it. O<sub>2</sub> is stable but not too stable. As usual the balance is just right for everything to work as it does.

The energized hot carbon atoms break their bonds with their neighbors, pop out of the wood, hook up to the oxygen in the air and we get carbon dioxide. The energized hydrogen in the wood pops out too and then we have our friend water again. It's strange to contemplate that a hot fire is also giving off water vapor but it does. Smoke is steam with lots of particulates in it and other gases, mostly steam but still really bad to breathe.

And, sadly, we are contributing a bit to climate change here too aren't we? Adding more CO<sub>2</sub> to the atmosphere. Probably all of the fires that have ever burned at Indralaya are less than one wildfire or a couple of jumbo jet trips but we should own it when we do some damage I think.

But why is there heat? That has to do with the molecular bonds: they take energy to make and they release energy when they break apart. Wood is quietly humming with energy which just think it's inert. When a carbon or a hydrogen atom pops out, the atom falls into a lower energy bond with the oxygen. Oxygen easier to connect with. To use a crude relationships metaphor: the carbon and hydrogen pop out of their former intense relationship with a bit of a bang and fall into a rebound with oxygen I guess.

But how did the carbon and hydrogen get together in the first place? In the course of the tree's growth. And where did the tree get the energy it needed to bring them together into the wood that allows the tree to be a tree? Of course it's the sun. So the energy from the fire came from the sun, from a star, and is released later either very slowly as wood decomposes or very quickly as it burns. Our wood fire is making use of the world's oldest energy storage system.

Of all of the many ordinary things we take for granted, the sun has to be high on the list. The sun is a very different kind of fire. As you probably remember or guessed we're not talking about energy from the bonds between atoms that make molecules when we think about the sun, but energy from the inner workings of the atoms themselves. Nuclear power.

You might think or misremember, I did, that the sun is kind of parallel to the wood fire only it's getting it's energy when the pieces of atoms break apart. And that is how nuclear power plants work. They break up the big heavy atoms like uranium into smaller atoms and huge amounts of energy are given off from that. This is nuclear fission.

The sun does an even trippier thing. It does nuclear fusion. Here light little atoms are jammed together: hydrogen atoms are mashed together forming helium atoms. And this is such an awesome, difficult, and unlikely thing to ever happen - atoms really don't like being smooshed together like that - and when it does happen fireworks result.

There is a lot of space between atoms in a molecule and there's even more space, relatively, between the two main kinds of stuff in an atom. We have a tiny nucleus - the central bit - made of protons and neutrons. A whole lot of space and then floating around in some kind of crazy hip-hopping orbit we have super teeny tiny electrons. This combo we call an atom is mostly space but it does hang together and acts like an object. And as an object like thing is has properties and can be a building block like making the charged fields we talked about yesterday when hooked together to make molecules like water.

Gravity is part of our sun story too. A big collection of mass attracts other masses. I'm not sure if we understand why that happens. Another huge ordinary extraordinary thing: gravity. The earth holds us down on its surface because it's massive and we're a little bit of walking mass ourselves. Actually we attract each other it's just that the earth is tugging a lot harder on us than we are on it.

So the sun is an enormous cloud of hydrogen. Hydrogen is really light - it must be if our H<sub>2</sub>O water can evaporate and be mist right? But there is just so darn much of it in the huge hydrogen cloud we call a star - the sun - that gravity happens. A lot of gravity. So much gravity that the hydrogen in the center gets smooshed.

Smooshed so hard that the usual electron-nuclear energized happily independent little hydrogen atoms jam together. They jam together so hard that the tiny nuclei in the middle jam together. The electrons get stripped right off. And then the key thing is that when the two hydrogen nuclei fuse together (fusion is from this moment when they fuse) there's one too many neutrons in the new combined neutron-positron nucleus of the resulting helium atom. A neutron pops off but it doesn't appear to go anywhere it actually vanishes. The resulting helium atom weighs a tiny bit less than the two hydrogens that came together to form it. Some matter has vanished. Poof! Magic for real. My science is a little shaky on that part maybe it transforms into something else but the important fact is the resulting helium is a little bit lighter than the two hydrogens the created it.

And then we're into  $E=mc^2$  territory. Matter can't just vanish or appear. And it has a spooky relationship with energy that's hard for our materialistic brains to take in. When that tiny bit of mass vanishes in the middle of the sun a massive amount of energy pops out. So I guess to make matter truly vanish would require a massive amount of energy get rid of it. Tell me later, science geeks, if that happens anywhere in the universe. Black holes maybe?

So that's the deal from a scientific perspective: the energy that powers our planet is a giant fusion reactor in the sky. And this powers all of our natural systems including the energy that leads to moisture evaporating cycling up into the sky and recondensing again as rain. All from this spooky nuclear fusion reaction happening up there in the sky. A gazillion more hydrogen atoms just now smashed together into a half-gazillion more helium atoms releasing a ton of energy.

I couldn't resist looking this up - I hope you're enjoying these science geek-outs with me - would you care to guess how much hydrogen the sun is using up? The answer is in tons per second. [pause]. Turns out to be north of 600 million tons of hydrogen per second is burned up by the sun. 600 million tons.

Most of this energy just flies off into space if you think about it. We are just one little planet picking up our little round slice of this incredible emanation. Why do human societies need powerful raging gods in our cosmologies when we have the sun right there anyway?

One of the Buddha's great reminders to us is that everything is changing and impermanent. That's something we're studying so directly here. It's cold and we think the cold will kill us. Then that changes and it's warm. We're in a grouchy mood and then we're in a cheerful mood. Our minds change. Our bodies change. The things that we think are supposed to work, like ferry boats, break. Everything changes and when we somehow buy into the idea that they won't change or they shouldn't change, then we suffer. Because of course they do. Of course they will. Of course we do.

This is the same with the sun. There's a lot of hydrogen up there but for all our talk of sustainable energy the sun is not a sustainable power source. It'll run out. Not for a while even sucking down 600 million tons of hydrogen per second there is a lot there. We have about 5 billion years to go. What a relief eh? The solar system formed about 4.5 billions years ago so we're basically half way through our run.

So taking care of our planet is still a priority even though our sun is actually a temporary phenomena like everything else. It's be nice to keep life on Earth going for a lot more of second half of this long game of the existence of our solar system as a living system.

And I actually think this work we're doing this week helps. We aren't just taking a break, although that's a good thing to do. Everything humans ever do is run through our minds. And everything we do it informed by how who we think we are and what we think the world is: also run through our minds.

Here's another Zen story. Two characters in it with Chinese names which I'm probably mispronouncing : Dizang is a seasoned Zen teacher and a visit monk named Xiushan arrives at Dizang's monastery:

Dizang said to Xiushan, "Where do you come from?"

Xiushan said, "From the South."

Dizang said, "How is Buddhism in the south these days?"

Xiushan said, "There's extensive discussion."

Dizang said, "How can that compare to me here planting the fields and making rice to eat?"

Xiushan said, "How do you care for the world?"

Dizang said, "What do you call 'the world'?"

Xiushan here might stand for our doubts about simple practice. When Dizang says "How can that compare to me here planting the fields and making rice to eat?" he's also talking about his daily life at the monastery, sitting, walking, taking care of the buildings, and yes growing the food they need to eat. Taking care of themselves in a deep way.

And Xiushan expresses some doubt about this, "How do you care for the world?" What about the homeless? What about the war? And in addition to the horrible war in Ukraine which I know is directly affecting relatives of people right here in our group - may they be safe - but there are other wars too that aren't in the headlines. I have a bit of a connection to the horrible war that's happening in Ethiopia which has isolated and destroyed a region called the Tigray - within that region there are as many or more displaced as there are in Ukraine and the threat of famine and utter suffering is even bigger by the numbers anyway but how can you really measure suffering on these scales. How do we care for the world?

This is a wise question. This story really shouldn't have a winner and a loser. They are both right here.

But Dizang closes the story with an important question for us, "What do you call 'the world'?" Our minds take it all in - take in whatever it is we offer them and choose to pay attention to anyway - our minds take all of this in and we end up with an idea, a sense, a feeling of what the world is and what our place in it is.

And in that process so many assumptions. So many perceptions and mis-perceptions. So much we take for granted. So much we normalize.

So this theme of noticing the extraordinary in the ordinary may be part of a bigger process than just appreciating our lives and its gifts fully - as great as that is - but also freeing us up to serve and to serve with greater awareness and clarity and, we hope, a realistic and sustainable energy.

One of the people in our Mindfulness Teacher Training Program worked as a political activist on a very progressive campaign - such hope for change, such excitement, and of course then the crash when it didn't go as hoped for. A world that looked suddenly more optimistic and hopeful - what do you call the world - then careening into a world with less hope and fewer possibilities. A difficult journey for them, for us. And I was so pleased that she was able to bring a mindfulness training to her activist friends who went through that with her. They soaked it up she said. Really felt nurtured and helped. And I hope that nourishment of practice helps them when they go back into the fray.

Ok. There was a lot here I guess. Feeling more at home wherever you are. Healing our relationship with time a bit. The rare situation that we can hear sounds. Appreciating the miracles of the sun, fire and trees. And renewing our intention to serve this world but, we hope, with more wisdom and clarity than before. Our intense doing supported by our deep immersion in non-doing. I hope some of this was helpful.

In any case: let's just keep going. Steady on. Steady on. Steady on.