

One Song: Science and Oneness

©JD Stillwater, 2022

Ann and I are low-budget travelers. A few years back we wanted to take our kids to visit Carlsbad Caverns as part of a cross-country adventure. Well, the only accommodations near the park were out of our price range. We had heard that it is legal to camp anywhere on land owned by the Bureau of Land Management, and our AAA map showed this huge expanse of desert right nearby, marked “BLM”. Perfect! We drove out a rugged dirt track and pitched our tent on the dusty hardpan.

We made and ate supper, but before going to bed, I realized I would need to “use the restroom.” Number two. The closest restroom was over the horizon! Now, we are veteran campers, enough to know that in these eastern woodlands, it is proper to bury one’s bodily waste at least six inches deep, but in the high desert, proper disposal involves leaving it to dry in the sun. So, I strolled some distance away from our campsite before taking care of business, enjoying the incredibly beautiful star field above me.

At this point, you’re probably thinking this story involves a painful encounter with a cactus, but no; while there were plenty of prickly plants around, this story’s magic begins the next morning. As we packed up in the bright morning sun, we saw something you cannot see in Pennsylvania.

At different times, four large beetles came through our camping area, each pushing a dusty little marble along the ground, following perfectly straight trajectories. And those tracks exhibited a strange pattern; they seemed to radiate out from a single point. Guess what point!

Mystified, we followed their paths in reverse, encountering dozens of similar beetles, racing out in all directions from the now completely bare spot where I had squatted the night before. How did they find it? Where were they going? It was astounding and unnerving, and made a lasting impression on us and our kids. I now know that dung beetles *need* those precious brown marbles to feed and nurture their own children. Often they only get one shot at it, if they get even one.

This happened long before I started thinking in earnest about science and spirituality, but it was an intimate and visceral lesson in the ways I am connected to the world around me, especially the living world.

I hate to disappoint, but this is *not* a sermon about dung beetles. It *is* about the science of unity. You might expect science to be a big party-pooper when it comes to unity and oneness, the humbug know-it-all who ridicules all that kum-ba-yah stuff in favor of cold hard reality. Well, play along with me here, and let's see what science has to say about unity and reality.

Let's start at the beginning, the beginning of time! According to the best evidence science has to work with so far, the universe began as a singularity. What an

interesting name, given today's topic of oneness! There's a reason it's called that: The singularity at the beginning of time contained the entire universe but compacted infinitely dense, so that all of it had no volume, no size at all. Everything was One Thing, infinitely small and infinitely dense. The Rev. Carole Martignacco calls it the Everything Seed, the seed which grew into everything.

Nobody knows what happened *before* the beginning of time, but all the evidence we have now says that AT the beginning of time, that tiny speck rapidly expanded or "inflated", creating space and time as it did. Everything in the universe, from this morning's service, to interstellar dust in the most distant galaxies, is traceable back to that one single thing at the beginning of time. Everything that is an object, as well as all the things that are energies, or events, or that are still mysterious like dark matter, has a common origin, a shared genesis in the big bang singularity.

We know that in the first moments the universe existed, particles that would later form atoms of Hydrogen and Helium condensed out of nothing more substantial than very bright light, and that gravity later gathered those atoms into the first generation of stars. Some of those first stars went supernova, creating all the other elements we find in the universe today, and exploding them out into interstellar space as precious hot dust. Dust that gravity would slowly gather into solar systems with planets like the Earth.

I know, that was a *very* fast tour through nearly 14 billion years of history, but we have limited time here, and there's so much to cover! My point is that the seeds of

you and me were present at the dawn of time, and we are descended from stars just like those in the night sky. Stars are in our family. We are not only *connected* to events in the early universe, we *are* those events, still occurring, still unfolding.

We are still one thing. With all our diversity, with all the different galaxies, stars, planets, and living beings, there is only one event here. Okay. Got it. Common origins, common genesis. What about now? What can science say about oneness in our daily lives?

Think of someone who lived more than 100 years ago, could be anyone. Got someone in mind? Now take a deep breath with me.

You just breathed in over 13,680,000,000,000,000,000 (thirteen sextillion) air molecules. But here's the thing: over 700 million of those molecules were also, at some point, inside the lungs of the person you just thought of! The same is true of everyone who ever lived.

That breath included some air molecules from every animal that ever lived. Every plant that ever lived; they are all right here in the atmosphere of this room with us. Some of the oxygen molecules you breathed in a moment ago now *are* you, part of your body, alive by being part of you.

Air and water molecules are *so* small, and so numerous, and cycle around the earth so constantly, that every cup of beverage you swallow contains over 150 million

water molecules that passed through Jesus' body during his lifetime. Talk about holy water! The same cup contains even *more* water molecules that passed through Buddha's body, just because he lived longer.

It's true of everyone that ever lived more than a few decades ago. All water is holy water. Like oxygen, water comes alive when we drink it.

So, we are part of these interconnected natural cycles that kids study in science class, like the water cycle, the carbon cycle, and less-well-known ones like the nitrogen and phosphorus cycles, and so on, and we study them like they're "over there" somewhere, but they're also right here <point to self>! We are in them, and they are in us.

Every year, ninety-eight percent of the atoms in your body get exchanged for new ones. 98%. A human body is like a standing wave on a river; matter moves through us, then moves on to become something else. Our bodies are not things, but flows, or, more accurately, our bodies are complex *patterns* in the flow. And the flow is completely interconnected with the earth as a whole, because the atmosphere, hydrosphere and lithosphere are completely interconnected systems.

Rocks dissolve in water, become ocean, get incorporated into seashells, then bird-bones or rocks again. River becomes ocean, then cloud, then apple, then human, then air, all at once, up, down, across and around, with interconnections and shortcuts everywhere. Here on Earth, all boundaries and distinctions are either arbitrary or

temporary.

We are Earth. It's not like we were each deposited here by aliens, right? Some days I'm think I must've been, but no, I was born here, and my body is made from the water, air, and minerals of Earth. I am Earth; we are Earth. <pause; let them read>

And it's not just inanimate matter that cycles through us; *other living things* flow through us too, and become "us" temporarily as they do. Mostly I'm talking about bacteria here. On and inside our bodies, bacterial cells outnumber the human cells nine to one! Thousands of species, trillions of bacterial cells, all cooperating and competing with each other and with us all the time. They digest our food, protect our inner and outer linings, and recently micro-biologists have found that the species living on and in us influence when we're hungry and thirsty, our food preferences, our weight, and even our emotions. So is it *me* who loves cheesecake, or *we*?

The human cells in our bodies each contain dozens of mitochondria, the powerhouse of the cell, turning sugars into energy so we can do things. We now know that these mitochondria are actually the descendants of ancient bacteria, still operating cooperatively inside our much larger human cells. Mitochondria have their own DNA, separate from the human DNA in your chromosomes.

You got all your mitochondria from your mother, who got them from her mother, and so on, matrilineally. Paleo-geneticists have been able to use the well-established

mutation rate of mitochondrial DNA to determine that every human being alive today is the descendent of one woman who lived in eastern Africa about 200,000 years ago. This is Nat'l Geographic's map of how we migrated to every other continent since then.

Every human being live today, regardless of race, gender, or ethnicity, has the same great-great-great-grandmother you do. So look around at the people in this room; these are your cousins. There's only one family of people on this planet.

Similar genetic analyses, and lots of other evidence from many angles of inquiry, tells us that every living thing on the planet is a blood relative.<p> Even the ones with nothing like blood. They are our cousins, too. [dung beetle shirt] All living things are related; we are part of a single unbroken family tree stretching back 600 million years. Environmental researcher Dr. Daniel Wildcat says, "We live among *relatives*, not resources."

There are so many more examples of our connection and unity from science. The bottom line here is that we cannot separate ourselves from the earth. We *are* the earth. The earth is giving the sermon this morning, and the earth is sitting in those earthen chairs listening. We and It are Us. One thing. One life. One universe.

So there's only *one* story, 14 billion years long, and the characters in the story are completely inter-connected on every level of existence. But what about the setting? What about space and time?

A century ago, a great mystic and spiritual teacher, Albert Einstein, showed us that space and time are actually unitive. They appear different to us, but they are actually a single expression of reality: spacetime. Now, a century later, one of the hot concepts in particle physics is “non-locality.” *We think* of spacetime as having a framework; even if it bends and curves, there’s a predictability to it. Things can be located. And two different locations are different, there’s space between them, and that space is real, the separation is real, we think.

Quantum entanglement calls all of that into question, and evidence is piling up that space-time is non-local, meaning that maybe location HAS no meaning. I won’t try to explain quantum entanglement this morning, except to say that two particles that are entangled seem to communicate with one another over long distances instantaneously, faster than light. Another way to think of it is that entangled particles become a single object that can be in two places at the same time.

There was a paper published a few years ago in Physical Review Letters, with the title “How spacetime is built by quantum entanglement.” Entanglement *giving rise* to spacetime, rather than happening *IN* spacetime. Science writer George Musser was quoted in Scientific American, saying, quote, “Multiple branches of physics now suggest that, at a deeper level, there may be no such thing as place and no such thing as distance.” Non-locality suggests that there’s only one place here, one location, even after billions of years of cosmic expansion. As though we are still in a singularity, but somehow diversified.

What science says about unity and oneness is that your life story and my life story, and those of dung beetles, and germs and worms, and rocks, and flocks of geese, and the moon's and the Pleiades, and distant galaxies' life stories are all the same story. Because there is only one story, and there's only one character in the story. We. Us. The universe. I say this not as a prophet or mystic, but as a hard-core, show-me-the-evidence, mainstream science educator.

750 years ago, the mystic and poet Rumi wrote, "You are not a drop in the ocean; you are the entire ocean in a drop."

So what do we do with this knowledge? If you think of natural reality as a kind of scripture, how should we interpret this deep interconnectedness? What does it mean for our lives?

When I look around at the state of the world today, it seems to me that we are right at the cliff's edge of several existential crises, any one of which could lead to civilizational collapse: the climate emergency; the resurgence of authoritarian regimes; ecosystem collapse; pandemics and other invasive species; and global inequity.

All of these crises are by-products of a culture based on separation, independence, and treating cousins as commodities. If we're going to save civilization, both individually and collectively, we're gonna have to shift our cultural norms and values

to respect the interdependent web of existence in which we are deeply, inextricably embedded.

Have you ever noticed that our seventh UU principle is the only one that isn't a religious or moral value? We can argue all day about inherent worth, justice, acceptance, truth and meaning, democracy, world community –all good stuff!– but the interdependent web of existence is a *fact*; there's nothing to argue about. It's like gravity - it's not the kind of law you can break. The consequences are automatic. You cannot extricate yourself from the web of existence. The more we act like we can, the more damage we do, and the more we suffer.

So. We can start with awareness. When we *drink*, we can *think*, about how this cup of coffee or juice or whatever contains molecular emissaries from every ocean and every creature that ever lived.

When we look up at the night sky, we can see ancient ancestors and life-givers twinkling there, and give thanks.

When we see a dung beetle cleaning up a mess, we can say “Hey there, cousin! Congratulations, and thanks for your work!”

As we walk in the woods, we can see relatives rather than resources. We can greet new people like long-lost cousins we've not yet met. These are the cultural shifts—from ego and separation to humility and appreciation—that might just save us.

Once aware, we can accept that everything we do affects everything else, no exceptions. We can sit with that for a while, letting both the power and the grief of it settle in our hearts and minds. We can affirm, “I matter.” As long as I’m alive, all the interconnected threads run through me, too. I can’t NOT matter! It’s a massive responsibility! What do I do now?!?

Well, I won’t just complain about gas prices; I’ll tug on that thread; see what’s connected to it. The submergence of island nations. The wars in Yemen and Ukraine. Livelihoods for oil workers. The extinction of polar bears. Global supply chains. And on and on. <p>

Is there *anything* I can do to lessen the harmful impacts of having to drive my car? That questioning is where the difference is made.

Before I put that thing in my shopping cart, I’m gonna tug on those threads: where was this made? By whom? Where will it end up? Do I really need it? I walked through Target the other day, and was amazed to notice that almost everything I could see was completely optional junk, stupid stuff that nobody needs.

When I fill out my ballot, am I voting in accord with short-term self-interests, or the seventh generation yet to come?

Those future great-great grandchildren are part of the interconnected web, too, a

web of oneness that unites the entire cosmos into a single song. This moment in this service this morning *is* that song, still being written, and each of us has a part to sing. What else CAN I do, but resolve to treat every one and every thing I encounter as an essential expression of *my largest self*? Because it is. May it be so.

jdstillwater.earth

Parting Words/Benediction:

As we leave this gathering and go back to our lives, let us remember to think when we drink, and breathe deeply the rich and ever-restless air of the living Earth, our home and our larger body, of which we are a small but grateful part.

Meditation:

We breathe. In, and out. And in again. Every breath a bridge of deep connection across perceived separations. We are embedded. Each essential to the existence of everything, right now. Connected in ways we have only begun to explore. Let us be mindful of our oneness, our wholeness, even amidst our astonishing diversity. Let our suffering, our joys, our griefs and conflicts and all our perceived otherness serve an ultimate Good, even when we are as ignorant of that wholeness as a bone cell inside me is ignorant of the songs we sing together. Let us be always aware of our inseparability, with one another, all our relations, our blue marble Earth, ancient stars, and the pure white light of the dawn of time,

now alive in us. Here today, in this room, right now. Let us enjoy some connective silence together.