



Ways of Being

A Contemplative, Conversational Reading
Experiment, Inspired by James Bridle's Book

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onbeing.org



What follows is a compilation of seven weeks of Pause newsletter offerings, written by Krista Tippett and offered as an exercise in communal pondering.

Here are some of the notes she wrote to the far-flung Pause universe by way of invitation, after she returned from a sabbatical in the summer of 2022:

One of the gifts of this summer was a deepened experience of a ritual I've come to think of as contemplative reading. Morning after morning, I read, and interspersed with reading, I wrote. By hand. I had to go slowly as my handwriting is very, very messy. The going slowly was good for me, and so was the distance from a screen. I kept thinking of — and experiencing — [that wisdom of Naomi Shihab Nye](#), that when we write in a journaling mode we are getting in touch with “the many selves inside our self.” I was also inspired to write by hand [after learning from Dr. Christine Runyan](#) that when we write by hand, as distinct from typing, we are processing emotionally as well as mentally. Sometimes I was copying sentences and paragraphs that moved me, sparked something, or were simply beautiful. These jottings would often lead into my own reflections, and surface all kinds of memories and stories.

[Ways of Being](#) was especially rich for this kind of immersion. This book felt to me, as soon as I cracked it open, to be a fitting continuation of the idea of emergence so alive in our world and in my conversations of the last year. James Bridle is both a technologist and an artist. This book brings together a view of how emergence works in the natural world — but also in the ecosystem of our intelligence, the words we use, the economies that hold (and can break) us. All of this is held with an eye on the technologies we've come to live by, and how they could evolve in the direction of human and planetary flourishing.

If you're so inclined, I warmly invite you to find yourself a copy of Bridle's book and enter your own adventure of contemplative reading alongside me. Get into conversation with the voice on the page, the world of the life and ideas you've entered. When it says something beautiful that you love, stop and write it down. When it sparks a question or memory or idea that speaks to the laboratory of your life, let that flow out of you and onto the page. I've been using big children's or artists' sketchbooks and layering the book and a pen on top of it as I begin. It feels somehow more like playing than my usual earnest journal writing. It is more stream of consciousness than linear

While still tender after these last years, many of us are finally able to look up and around, and get settled inside ourselves as we walk into callings placed before us. Within that we are called to clarity that we are not alone in this, and there is much we do not know. We can and must seek out companions and teachers, summoning great tenderness and curiosity towards ourselves and the world.

I am honored to be a companion to you in this way.

A handwritten signature in black ink, appearing to read 'Krista', with a long, sweeping flourish extending to the right.

Krista Tippett

Introduction & Chapter 1

In the beginning...

More Than Human

The late summer sun lingers on the mountainsides and the still waters of the lake. The air is warm, the sky a deep, almighty blue. Cicadas hum in the thick undergrowth, and goat bells chime somewhere in the distance. A small fire has been lit among the reeds, and tins of beer have been cracked open. Someone produces a clarinet and, wandering among the trees that crowd the water's edge, begins to play. It's a scene of timeless tranquillity, yet it is here that one of the greatest conflicts of our age is being played out – between human agency and the intelligence of machines, and between the illusion of human superiority and the survival of the planet.

I'm fascinated right away that in the remote region of Epirus in northwest Greece, artificial intelligence is being applied to getting more fossil fuels out of the ground – energies ancient like the mythologies that emerged from the air and soil of this part of this world and mark us still. Like the theology I studied in the 20th century, the Greek myths bring home the enduring puzzle of our capacities to fail and betray our best intentions right alongside our capacities for goodness and greatness. Outsized to make the point.

This is an intelligence we often forget in my “younger” land: a knowledge that the stories we tell are also part of what make us and what bind or stretch what we are capable of. This feels so alive in our grappling/not grappling with our ecological present. We spin out one dystopian story after the other. They fix in our imaginations where this all is going, and translate into limits to our action.

And this is true, too, of our technological present: the “ecology of technology” as Bridle sees it, that we are all creating together.

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What future is being imagined here? And what intelligence is at work? If and when Repsol's intelligent algorithms reach the oil lying beneath the mountains and forests of Epirus, the result will be the inevitable destruction of environmental treasures: the felling of trees

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A companion to [Ayana Elizabeth Johnson's](#) question: What if we get this right?

Something seems to be deeply amiss in what we imagine our tools are for. This thought has crept up on me in recent years as I've watched as new technologies – particularly the most novel and 'intelligent' ones – are used to undermine and usurp human joy, security and even life itself. I'm not the only one to think this. The ways in which the devel-

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Winston Churchill: "We shape our tools, and thereafter our tools shape us."

Our technologies have given us the tools, for the first time in the history of our species, to think and act as a species. We are so far from living with them in this way, but this is the truth, stunning and stark.

We give in to a definition of intelligence that is beyond us and/or "profit-seeking, extractive."

all-powerful, irresistible algorithms – until it comes to dominate our thinking and understanding. We seem incapable of imagining intelligence any other way – meaning we are doomed not only to live with this imagining, but to replicate and embody it, to the detriment of

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And yet, we live in a time in which we're coming to grasp the intelligence in all kinds of life – the title we gave to [our show with Robin Wall Kimmerer](#).

William Blake: "Nature is imagination itself" – reminds me of [Michael McCarthy's](#) evocative understanding that the natural world is the original source of our imagination and all of our metaphors.

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power, has never gone away. Indeed, the current situation in ourselves today might be considered its violent reassertion. The task that lies ahead of us involves less a novel change in ourselves than a recognition – in the sense of a *re-cognition*, a realization and a rethinking – of our place in the world.

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Of our belonging to “the more-than human world”: the “broad commonwealth” of the non-human life with which we are “inextricably entangled and suffused by” – our “companions on the great adventure of time and becoming” (p. 17):

ineffable than these mere parlour tricks – the non-human world seems suddenly alive with intelligence and agency. It's a trick of the light of course: these other minds have always been here, all around us, but Western science and popular imagination, after centuries of inattention and denial, are only just starting to take them seriously. And taking them seriously requires us to re-evaluate not only our idea of intelligence, but our idea of the entire world. What would it mean to build artificial intelligences and other machines that were more like

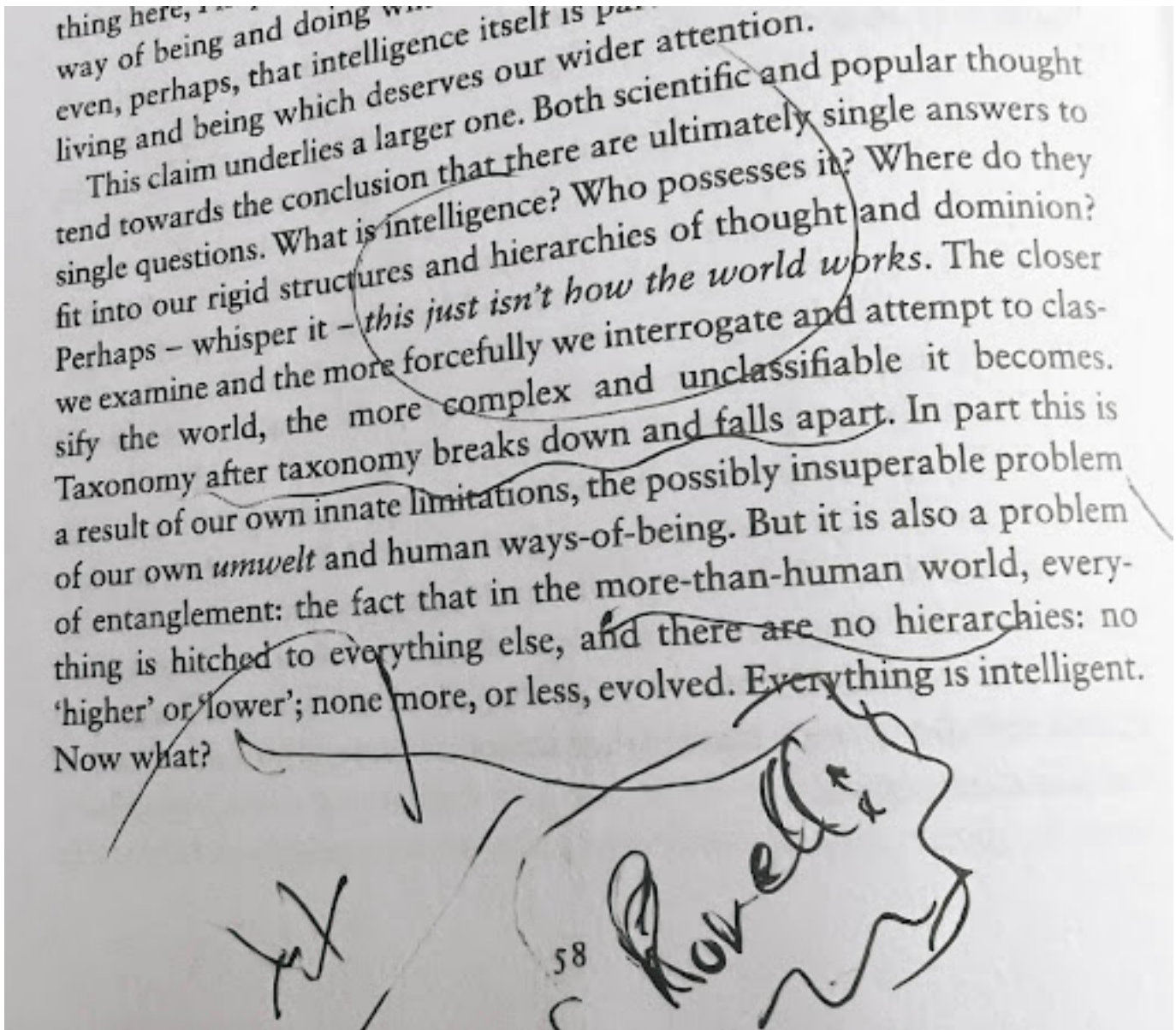
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Perhaps the briefest but most resonant description of ecological thought is that given in 1911 by John Muir, the Scottish-American naturalist, outdoorsman and father of the US National Park system. Reflecting on the abundance of complex life he encountered while writing his book *My First Summer in the Sierra*, he wrote simply: ‘When we try to pick out anything by itself, we find it hitched to everything else in the Universe.’¹⁶

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I didn't take as many notes on Chapter 1, which centers on James Bridle's personal forays into artificial intelligence. Though you'll see I got very excited about its closing paragraph.



Chapter 2: Wood Wide Webs

I am not surprised to find, as a focus for Chapter 2, that Suzanne Simard and her work in forests has been an inspiration to James Bridle. The [conversation I had with her in 2021](#) has come to flow through so much of my thinking and seeing. I'm fascinated by how, amidst all of the challenge and crisis upon us, we are the generation of our species to investigate and grasp how vitality functions in the natural world. Which is to say: how vitality functions in life. It's radically different from how we've structured societies in the modern West, organizing around separation and strength. Suzanne Simard grew up in a logging family in British Columbia and struggled to bring her science before her field, which had projected our views of strength and separation, and survival of the fittest onto the forest.

But now we know, through her and others, about "mother trees" that nurture the whole through underground fungal mycorrhizal networks of distribution and "mutual aid" that can cross thousands of miles and multitudinous species.

The way forests are wired for wisdom, for care, advances and deepens Bridle's arc of exploration of the incredible fact that we live in a "world-of-many-worlds."

spread confusion, shading into anger, rage and fear. It is the result of trying to find truth and meaning in a single world, a single box into which we cram all the contradictions and paradoxes of reality. But in truth, there are so many worlds.

The fact that we are still able to live, to function, to survive and thrive together in this world-of-many-worlds, also implies that these worlds are shared. There are points and planes of intersection, shared experience and shared awareness. All the inhabitants of the earth – animals, plants and diverse others – are, whether they care about classical music or not, whether we even notice it or not, buffeted by the same vibrations in the atmosphere. By dispensing with the fallacy of one world for all, we come to the awareness of a greater multiplicity of worlds which are held in common. This is a far richer cosmology than the solipsism of one world; it is an acknowledgement of communal being and experience. *We share a world. We hear, plants hear; we all hear together. We all feel the same sun, breathe the same*

CHAPTER 2: WOOD WIDE WEBS

Kindred science/discovery: Robin Wall Kimmerer, of course. Also, new to me: [Monica Gagliano](#) – Australian biologist. Plants have memory. Plants are capable of learning from experience and altering their behavior as a result.

There is a corollary here to [what I heard from Jane Goodall](#) about being in the Gombe Forest a half century ago. She paid close and patient and respectful attention to the social world of chimpanzees – and from that turned the idea that humans are the only tool-making creatures on its head. Now it seems our generation of science is making a transition in the way we see plants which that previous generation made in terms of how we see “higher animals” – capable of possessing qualities we’d previously designated as making humans special.

animals do likewise, we call indicators of intelligence.⁸

In just the last decade, we have crossed a once-invisible line in our relationship with plants: they have been transformed in our understanding from objects into subjects and, as in any conversation, their subjecthood will continue to expand in scope the longer we converse. As with the abilities of animals, this tally of plant agency will grow and grow as we admit more and more possibilities, come up with new theories and design the apparatus to test them.

This is not to make any specific claim about the intelligence of plants. The exact form of plant intelligence must always remain partially or mostly unknowable to us, because of the radical difference which exists between our own lives and our experience of the world, and that of plants. But because we share a world, we can think about what intelligence and memory might be, when we include others in that thinking, when we understand it as something which acts between us and in the world, rather than merely in our own heads. You can read endless books about plant and animal intelligence but they’ll all tell you the same thing, that non-humans are brilliant and also unknowable, and that the greatest joy in the world is to be found not in testing and taxonomizing but in going on together.

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I love this — what is true of coming to live in relationship with other humans is true of other species: “Where we start to move forward is when we learn to ask questions which are less concerned with ‘Are you like us?’, and more interested in ‘What is it like to be you?’” (p. 76). That’s another way to describe what Jane Goodall did at Gombe.

I also learned about [Pando: a single “clonal” aspen](#) in Fishlake National Forest in Utah that is somewhere between 80,000 and one million years old and looks like a forest. “They are one of the largest and oldest individuals on Earth.” And: “they don’t look like a tree; they break with the idea of what a tree is” (p. 77).

I love how Bridle immerses in the implications of what is newly seen but does not stop — encourages us not to stop — at marveling. They (Bridle uses they/them pronouns, the same ones they give to Pando) walk in a redwood forest outside Vancouver (with Suzanne Simard) and takes in its kinship to the internet: a planet-spanning network also largely beneath our feet of cables, wires, electromagnetic signals, microprocessors, data centers. I remember Suzanne Simard telling me that the mycorrhizal network also resembles what we’re learning of the neural networks of the human brain.

There are limits, as Bridle admits, to this complex of metaphor and comparison, and yet I am moved by this thought: Our experience with the Internet has helped us grasp what is happening in the natural world of which we are a part; it is “a gift from the technological to the ecological” (p. 82).

This is a question from Bridle, I would say, to live:

What if the meaning of AI is not to be found in the way it competes, supersedes or supplants us? What if, like the emergence of network theory, its purpose is to open our eyes and minds to the reality of intelligence as doable in all kinds of fantastic ways, many of them beyond our own rational understanding? (p. 82)

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tangled and cross-fertilizing thicket.

For a long time we have been unheeding of the more-than-human intelligences which surround us, as we have been deaf to the frequency of electrons, and blind to the ultraviolet light that soaks the plants around us. But these intelligences have been here all along, and are becoming undeniable, just at the moment when the new-found sophistication of our own technologies threatens to supersede us. A new Copernican trauma looms, wherein we find ourselves standing upon a ruined planet, not smart enough to save ourselves, and no longer by any stretch of the imagination the smartest living things around. Our very survival depends upon our ability to make a new compact with the more-than-human world, one which views the intelligence, the innate being, of all things – animal, vegetable and machine – not as another indication of our own superiority, but as an intimation of our ultimate interdependence, and as an urgent call to humility and care.

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I am haunted by something my 29-year-old daughter said to me recently, having spent time on TikTok, part enjoying the experience, and part self-appointed investigator: roaming around while simultaneously getting conscious of how the algorithms were working with her choices so intelligently. Feeling herself being drawn into places she would not have landed purposely and yet riveted in place. “It’s no wonder they call it a web,” she said to me. And that is the dark side of this comparison and this metaphor. I suspect that the term “web” was coined neutrally, descriptively: as form and function. But this is the power of language. Metaphors come from deep places in us – places before words – and they carry all of the implications of what they are conveying, even connotations we have suppressed or forgotten. A web can also be organically, powerfully, a trap.

Another qualification/re-membling, so important to note. Bridle and all of the scientists named so far – Simard, Goodall, Wall-Kimmerer – eventually circle back to the reality that when it comes to the natural world, much of what feels new is actually old. Much of what western science sees for the first time with consciousness has long been lived intelligence in Indigenous cultures. Even Einstein said that his revolutionary re-imagining of the nature of time simply restored time to the heart of nature, where traditional cultures had always located it.

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We are strange creatures, and we learn in two ways: sometimes by discovering something no one has ever seen or said before; more often, perhaps, by seeing and naming something we — the great we across time and space — knew forever and then ignored or forgot.

And sometimes, as I keep discovering, the traces of our species' previous knowing are carried in words we use. This is one of my favorite threads of this book — the connections it makes between words and intelligence and consciousness and our belonging to the natural world at a cellular level.

Chapter 3: The Thicket of Life

The metaphor of the “thicket” of life only takes us so far. A thicket is something dense and impenetrable, and that is how physics has appeared at times for James Bridle — and much more, I am sure, for me. And yet [conversations with physicists](#) have been some of my deepest pleasures across the years, and a conversation with physics is inevitable in an exploration of what we are coming more deeply to see and to name and to work with about the whole of reality.

I’ve been helped along the way to accept that I can take delight in science as a soaring aspect of the human enterprise, and so part of my inheritance, too, as a human. I might scarcely “understand” its equations and ways, but I can appreciate what it brings into the world just as I can appreciate, be immeasurably enriched by, a work of music — without being able to read the notes or perform it myself. Also, as my lens on the world is the lens of the human condition, I speak with scientists as human beings. It has occurred to me across the years that we get the science we’re ready for as a species, not just at the level of knowledge, but at the level of consciousness and agency.

So, alongside *Ways of Being* I am re-reading, dipping into, [Carlo Rovelli’s Seven Brief Lessons on Physics](#), which feels as much to me like a meditative, poetic text as a book of science explication. All of reality is interaction, he drove home so wondrously when we spoke a few years ago, and that is not just an observation about electrons. Circles within circles: I’m reminded that the Latin word “natura” was a translation of the Greek word “physis,” which for the ancient Greek philosophers was not about a body of knowledge but an understanding and experience of the world as, by definition, always moving, emerging, growing.

As we enter Chapter 3, James Bridle tells of discovering the thinking of [Karen Barad](#), a feminist theorist trained as a theoretical physicist who has coined the word: “intra-action.” Interaction, as Barad formulates it, suggests things exist fully formed and act upon each other. Intra-action honors the deeper truth showing itself continually, that the entire universe is “a continual process of emergence, in which nothing is certain or fixed, but is always becoming itself through its intra-action with everything else.”

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existence, and that its truth subsisted in this relationship: between the macro and the micro, the world and the subject, the story and the storyteller, the electron and its interference pattern.

Barad's talk also left me with another impression: that science's greatest advances arrive not as settlements or conclusions, but as revelations of a still-deeper complexity. This complexity exceeds our mastery and comprehension – but it is still relatable, still liveable, still communicable and actionable. Science, it struck me then, is a guide to thinking, not a thought: an endless process of becoming.

It's this realization that I hold with me when I try to understand what it means to live in the more-than-human world, because the more-than-human world is messy. It's complex, uneven, entangled and lacking in clear breaks, borders or divisions. And it has always been this way.

One of the places where life began is to be found 50 kilometres inland

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Places along the way of (literally) unearthing the newly evocative “intra-active” story of us:

- Danakil Depression
- Bruniquel Cave
- Göbekli Tepe
- Denisova Cave
- Neanderthal
- Homo sapiens
- DNA/RNA and proteins inside cells: “the internal fossil record” (microbiologist Carl Woese)

In the early days of *On Being*, a geneticist who was also an Anglican priest and theologian (the late, wonderful [Lindon Eaves](#)) told me that the spirituality of a scientist is akin to the spirituality of a mystic: always driven to investigate and claim what can be known of truth, while living expectantly, reverently, of what can not now be grasped, what can yet be discovered.

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I have loved this, and tried to internalize its appropriate and liberating humility. I hold it right alongside my understanding and attention to another bedrock physical reality, so alive at this time in the life of the world: that the human brain reaches for certainty and persistently creates category to make sense of the overwhelm of the fullness of reality. And science, a field peopled and driven forward by Homo sapiens after all, has also taken this route on the way to where we are now.

This is a long passage but I cannot do it better by paraphrase:

human uniqueness. This is technological ecology at its highest pitch: the combination of technological capacity with a more-than-human sensitivity which constructs new ways of seeing and appreciating the world. It allows us to recognize that everything is hitched to everything else, while simultaneously upending our notions of what technology is *for*.

Historically, scientific progress has been measured by its ability to construct reductive frameworks for the classification of the natural world, the kind of one-size-fits-all schema which came to dominate our thinking in the eighteenth and nineteenth centuries. This perceived advancement of knowledge has involved a long process of abstraction and isolation, of cleaving one thing from another in a constant search for the atomic basis of everything: the single, pure, definitive type, or the one true answer. It is in this image that we have constructed our technologies, right down to the either/or binary of ones and zeros which shape our calculations. And yet, time and time

(continued next page!)

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again, the more thoroughly we attempt to perform such abstractions, and the deeper we go into the structure of life itself, the more these distinctions blur and fall apart.

What we perceive as borders and conflicts – the things which separate us – often turn out not to be artefacts of the exterior world, but immeasurable gaps in our own conceptions, abilities and tools of discernment. We think we are studying the world – but in reality we are merely making evident the limits of our own thinking, which are embodied in our logbooks and measuring instruments. The truth is always stranger, more lively and more expansive than anything we can compute.

For me, this paradox is best expressed in the work, not of an evolutionary biologist or palaeogeneticist, but of a meteorologist, Lewis Fry Richardson. Richardson was a scientist, and also a Quaker and a pacifist, beliefs that shaped both his life and work. During the First World War, he was a conscientious objector; but though he refused to

How unnerving, how thrilling, to live wrapped in, suffused with, such mystery. I'll let Carlo Rovelli have the last word here:

Every so often I would raise my eyes from the book and look at the glittering sea: it seemed to me that I was actually seeing the curvature of space and time imagined by Einstein. As if by magic: as if a friend were whispering into my ear an extraordinary hidden truth, suddenly raising the veil of reality to disclose a simpler, deeper order. Ever since we discovered that the Earth is round and turns like a mad spinning-top, we have understood that reality is not as it appears to us: every time we glimpse a new aspect of it, it is a deeply emotional experience. Another veil has fallen.

Chapter 3.5: The Thicket of Life, continued...

“The truth is always stranger, more lively and more expansive than anything we can compute” (p. 101).

Amidst the abundance of where we are in the Ways of Being book, I’m going to dwell on two offerings from this “Thicket of Life” chapter that I did not get to last week – and that have stayed powerfully with me since reading the book last summer.

The first is a paradox, the second a word.

The paradox:

I am happy to be introduced to the meteorologist/Quaker/pacifist Lewis Fry Richardson in these pages. I love this: that he attempted late in his life to discover a mathematical basis for the causes of war and the conditions of peace. He was pursuing a hypothesis of his that a propensity for war might have something to do with the length of shared borders between states. The hypothesis turned out not to be true, a scientific dead end. And yet – as advance at scientific and personal scales so often goes – even as he did not succeed at what he had set out to do, he learned something he didn’t know to look for. It’s now called **“the Richardson effect”: the paradox that the more accurately you try to measure some things, the more complex they become.** The more closely you measure the coast of Britain, for example, the longer it gets.

As Bridle summarizes: “Instead of resolving into order and clarity, ever-closer examination reveals only more, and more splendid, detail and variation” (p. 102).

And isn’t that true, too, in life as in science?

The word:

It’s been a fascination of mine across the years, how modern culture receives and orients around the Darwinian soundbite of “survival of the fittest” – the idea that life has primarily progressed through fighting and winning. The evolutionary biology of our time is roundly revealing that to be such a reduction and simplification as to not actually be true. Cooperation is our superpower, not struggle, the evolutionary biologist David Sloan Wilson has taught me. James Bridle is in conversation with the work of the late biologist Lynn Margulis, who said it this way: “Life did not take over the world by combat but by networking.”

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She coined a word I can not stop thinking about and letting shape my view of the world, of change, of the human condition: endosymbiosis. It points at a deeper, radical collaborative creativity at the heart of evolution and reframes the very meaning of a phrase I use all the time: “life together.”

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descent, which posited mutation in individual branches as the driving force behind evolution, symbiosis asserts that change and novelty come from without. We are who we are because of everything else.

Models of progression, advancement, linearity and individuality – models, in short, of hierarchy and dominance – collapse under the weight of actual diversity. Life is soupy, mixed up and tumultuous. Muddying the waters is precisely the point, because it’s from such nutritious streams that life grows. The individual, under the microscope or under the sun, is always a plurality. Models of multiplicity are needed to make sense of this endlessly proliferating, teeming, oozing and entangling life. The tree is not a tree, but perhaps a bush, or a net – or a forest, or a lake. Or maybe a cloud? ??

While mathematical models of networks have proved useful tools for understanding the structures and affordances of artificial and natural webs, from the internet to mycorrhiza, they are no match for metaphors, the actual mental models we carry around in our heads, sometimes only in fragments or sometimes consciously. These are the

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Our very bodies are ecosystems like the trees in the forest. You and I consist, by some calculations, of more microbial than human cells. And that is only a swath of the intra-action that is a human person. We are the product of, and live in a world, populated everywhere by **endosymbiosis: organisms living inside other organisms**. In James Bridle’s words: “Every time we train our most sophisticated tools upon the central questions of our existence – Who are we? Where do we come from? Where are we going? – the answer comes back clearer: Everyone and Everywhere” (p. 109).

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I'm always attentive to the tender reality that revelations about the strangeness of life and the limits of our understanding, even our wild interconnectedness, can be hard on us human creatures to take in — unsettling, unnerving, especially in times when the very ground beneath our feet feels tenuous. And that describes a lot of people in a lot of circumstances in our world right now.

And so, here's a pleasing coda before I send you off. The "Richardson effect" was picked up by the mathematician Benoit Mandelbrot as he developed the notion of "fractals." And fractals — as a way of seeing the deep and wondrous strangeness that is the true reality of nature and of life — come up all the time in my conversations in these years and in all kinds of contexts. The "emergent strategist" [adrienne maree brown](#) described to me how learning about fractals when she was a political organizer helped her make sense of that reality that theories of how things should work consistently failed to match the way they do work. Now she finds it a helpful, even practical and "comforting" way to be in touch with the world we can see and touch even as we reorient to all that is being learned, all we're being called to see:

"Sometimes I'll use the language of fractals: sometimes I'll just point to actual examples. Look at a head of broccoli. Look at a fern. Look at the delta around New Orleans, and then look at how these veins and artery systems move through your system and your heart and your lungs. Look at the spiral shapes on your fingertips, and then look at the shape of galaxies. And in that way, we can begin to see there are no isolated patterns. The universe has some favorites, and they repeat and they repeat, at every scale ... yes, your body is a whole water system. There's all these different formations that are all how to move water, and we're one of them. And I find it very comforting to find myself in one of those patterns."

If you want to read deeper into contemporary evolutionary biology, I recommend David Sloan Wilson's book *This View of Life*. I'd also offer up [an On Being episode including him](#), which feels resonant for this contemplative reading exercise and maybe even the spirit of Thanksgiving week: an intriguing, mind- and heart-expanding exploration of the ideas of the 20th-century Jesuit paleontologist Teilhard de Chardin. We're adding that to the playlist below, along with my beautiful conversation with the wise and wonderful ecological writer and explorer [Robert MacFarlane](#), who first told me about Lynn Margulis.

Chapter 5: Talking to Strangers

I am a lover of words.

Now we arrive at a place I mentioned weeks ago: this book's connections between intelligence and consciousness and our belonging to the natural world at a cellular level — and the way words we use all the time have carried all of this long after civilization forgot. Words have kept it fresh in us waiting to be rejoined, re-membered.

A first reawakening to this was planted in me a few years ago by the naturalist and journalist, [Michael McCarthy](#), who wrote a wonderful book called *The Moth Snowstorm*. The natural world, he points out, is where most of our metaphors and similes come from. It is where we learned sound and eventually speech. It remains, he said — and these words hold a sense of homecoming — “a resting place for our psyches.”

In this chapter called “Talking to Strangers,” James Bridle kindles a joy in onomatopoeia, words that sound like what they are evoking, and reminds me they are everywhere and as old as time. And Bridle collects personal fascinations and stories of present places where we can still directly see how the non-human world has inspired and taught us literally to talk, literally to sing: the linguistic communing of herders with herds; a brown bird with a pink beak called the honeyguide that proactively collaborates with the Yao people of Niassa and may have contributed to the evolution of our brains; the sounds of the throat singers of Tuva and of the Australian aboriginal songlines; and the joik of the Sami Peoples of northern Europe: “the world singing through the singer.”

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between grazing areas or construct shelters. Like the songlines of Australian aboriginal peoples, which document a landscape in part to map and traverse it safely, the Tuvan songs are an enacted cultural record of a lived relationship with the Earth.¹³

In northern Europe, the *joik* of the Sámi peoples, the continent's oldest continuous musical tradition, is also considered to be a gift from the land. In return, joikers sing the land and its inhabitants: each song represents a particular person or place – or rather, it enacts it. To speak philologically, the verb 'to joik' in the Sámi languages is transitive: one does not joik about a place, one joiks it directly. The result is that songs about the land, animals and plants contain the sounds of those things directly too: the call of the raven, the cry of the wolf, the wind in the forest, or the running of the sea. When sung in this way, the joik is an expression of the land itself: the world singing through the singer.

This notion is far closer to our contemporary understanding of the world as a densely interconnected organic network, a web of intertwined beings and phenomena, than any nineteenth-century philologist's parsimonious account of word roots and phonemes. Just as the ecological sciences emerged in reaction to the clumping and splitting of traditional biology, urging in its place attentiveness to the interrelationship of all

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I am a lover of languages. I speak two and dabble in more.

Now I stop to ponder how I've applied a modern eye to the differences in languages that fascinate me – marveled at their distinctive grammars and musics. Now the universe of language human and non-human comes into relief for me as ecosystem – tributaries, webs of kinship and flowing routes and meanings that evolved and continue to grow and evolve – a linguistic tree of life.

I find an unexpected grief in the move we made in my mother tongue and others I know with some intimacy, away from the pictographic – languages built around characters which more directly refer to the thing being spoken of. Thus, language became part of our separation – our

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estrangement — from the natural world: “The phonetic alphabet ... substituted images of the world with images of language itself ...” (p. 151).

But here is a passage from *Ways of Being* that has kept me walking through recent days — and my vocabulary, and my sentences — alert to what has been lost, yet remains to be seen and re-integrated into my love of language as stuff of possibility, relationship, mystery, life:

Nonetheless, there remain traces of the natural world in human language; indeed, the natural world continues to haunt, infiltrate, evoke and shape the computational. And this is true of the characters that make up the phonetic alphabet, which I am typing now, into a machine.

Aleph, the first letter of the Semitic alphabet, was written א. *Aleph* is also the ancient Hebrew word for ‘ox’, which the letter depicts as a head with horns. It is also related to the Egyptian hieroglyph of that animal. Rotated, it became this letter: A. Likewise, our letter M is derived from Semitic letter *mem*. The Hebrew word for ‘water’, *mem* was drawn as a little wave: ם. The letter O, made into a vowel by the Greek scribes, comes from the letter *ayin*, meaning ‘eye’, while Q derives from the letter *qoth*, which also means ‘monkey’. The tail of this ‘q’ is a vestigial monkey tail. Traces of animals, of waves, of bodily parts, exist within text, within the kernel of this machine. My computer speaks bow-wow.

If language arose, and continues to arise, from our encounters with our surrounding environment, this should also be true for our interactions with new technologies. Language itself should show the signs

p. 152

*

I am a lover of the form of words that is poetry.

I’m curious about where poetry comes from in us, what it works in us, why it rises up in societies when official language fails and can feel at times as necessary as food and air. Now I wonder: is one of poetry’s gifts to us that it is a bridge back to the original impulses of language in becoming, belonging, and homecoming in the natural world? It walks us at least halfway back, over and over again, with its insistence on words that evoke and shine and make music and

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pictures and metaphors that strike bone deep.

The estrangement of language from its origins in human interaction with the natural world reaches its apotheosis in computer technology, Bridle notes. Yet “the Cloud,” in which so much of modern life is now mysteriously stored, is but a new representation of our old impulse to make metaphor and meaning from natural elements: “... the Cloud evokes the weather. In naming it, we seek not mastery, but accommodation with forces greater than ourselves.”

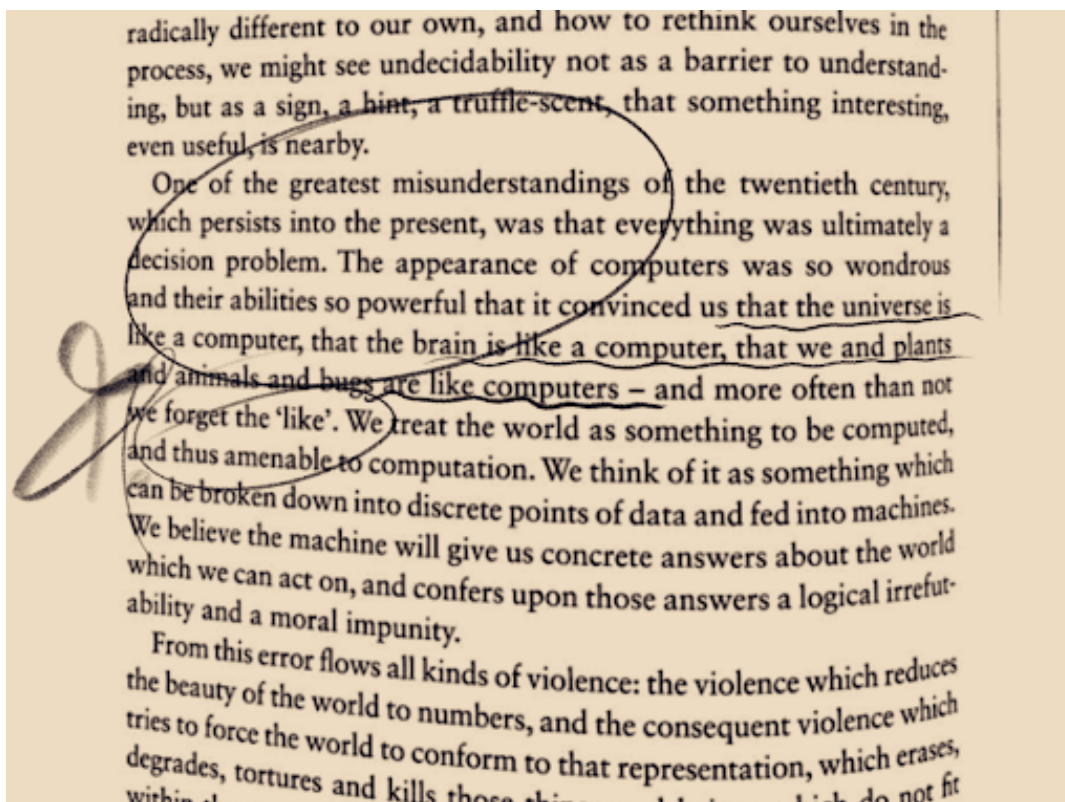
A curiosity: are emojis and digital shorthand reinventions of onomatopoeia and pictographic language? As in the ever-present hahaha?

Words make worlds, the ancient rabbis said. From the Genesis story to the aboriginal songlines, naming is understood to be a powerful, creative act that literally helps bring things into being. And Bridle has much to say in this chapter and the next about the massive effects of English as the first given universal language of the Internet, and the way the language and meaning of code has been interpreted and implemented in a very specific, narrowing way. The western culture of mastery found its way into the creation of the Internet. But it didn't have to be this way and it doesn't have to stay that way.

Chapter 6-7: Non-Binary Machines & Getting Random

I'm going to fly over and around two chapters that take on the intersection of the digital, the computational, the ecological, the political, the artistic, and the human and more-than-human reality. I encourage you to read these in their fullness now or in a time and space when you are able to sink in: "Non-Binary Machines" (Ch. 6) and "Getting Random" (Ch. 7). Here I'll share one helpful analysis these pages have offered me of a quandary that has been troubling me for a while, and an unexpected way in to imagine a path beyond it.

There's been a puzzle growing in my mind as I immerse in vastly contradictory energies and awakenings of our time. On the one hand, we are understanding, with ever greater detail and confirmation, that every aspect of life at every level is all complexity — all emergence, and all array rather than binary choice. Yet this stands in an existential tension with the inborn human impulse to simplify and categorize in order to navigate multitudinous reality. This serves us, of course it does, up to a point. It was manifest in the impulse to classification that gave us foundations of modern Western science. And it was manifest in what you might generously call a hope that became an ideology that underlaid a 20th century ideal of progress, in which technology held pride of place. Bridle describes this well, I think:

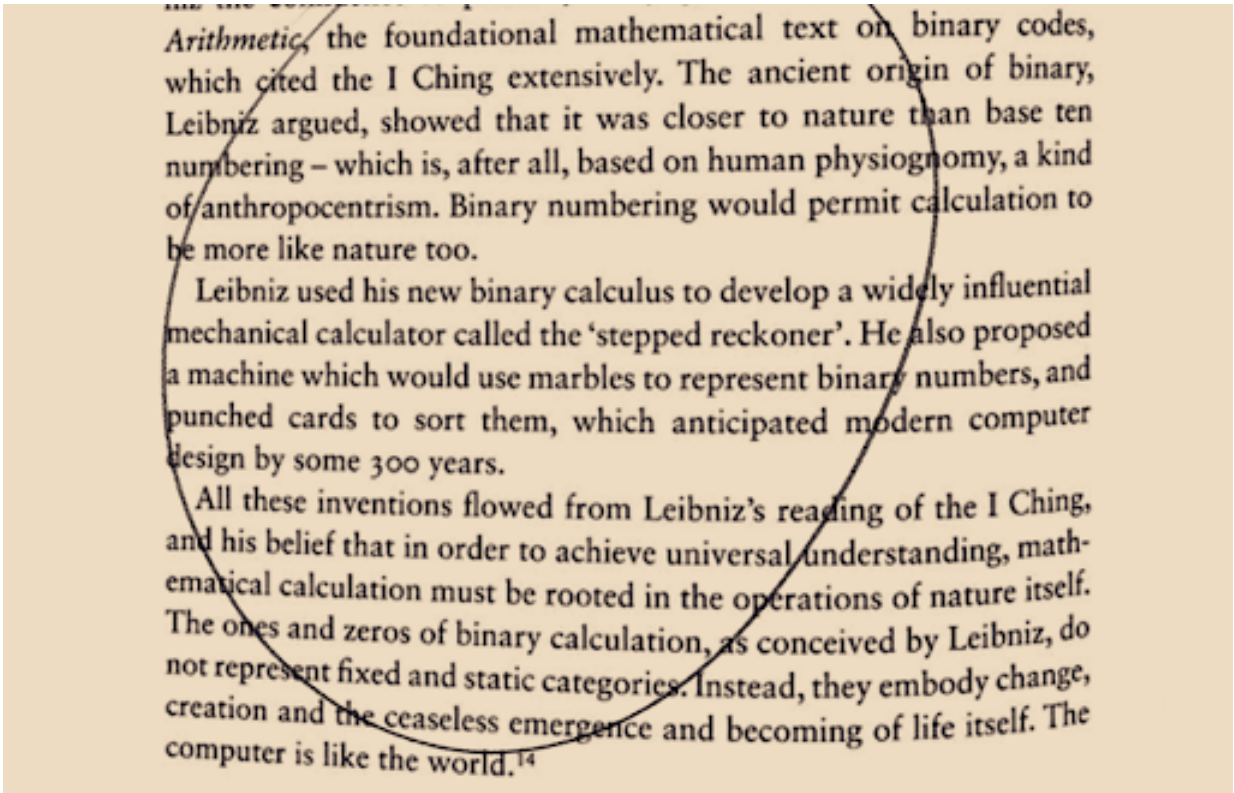


CHAPTER 6-7 NON-BINARY MACHINES & GETTING RANDOM

So we arrive in the 21st century with technological tools, and on technological platforms, that are based on binary code. All the while, we are faced with existential global challenges that require us to transcend either/or thinking as a matter of survival and to grapple with complexity at a species level if we are to flourish. In this light, I have been holding a certain despair around the possibilities for transformation of the technologies we've come to depend on so rapidly and comprehensively. James Bridle explores the real-world consequence of this contradiction, and also a few unfolding alternative and possible scenarios.

One of the most enthusiastically marked up pages of my book — and one of the ideas which has stayed most alive in me — introduces an origin story of binary code that cracks it, in my imagination, wide open.

I take very seriously the origins of a thing — an organization, a person, a situation. Origins are a force in all that follows, rippling through time in mysterious ways, even after circumstances change beyond recognition. Perhaps I should have learned somewhere in school that the 17th-century polymath Gottfried Leibniz had a role in the development of binary numbers. But I did not. He was deeply religious, and for him, “the purity of the one and the zero were symbolic of the Christian idea of the creation *ex nihilo*” — out of nothing, something. In other words: emergence. I learn from Bridle, too, that Leibniz found in ancient Chinese mathematics another reflection of his “belief in the eternal, sacred nature of ones and zeros.” I am letting this roll around in my imagination: binary code is itself, in its DNA, a language of emergence, and in conversation with ancient theology and philosophy and moral imagination.



Arithmetic, the foundational mathematical text on binary codes, which cited the I Ching extensively. The ancient origin of binary, Leibniz argued, showed that it was closer to nature than base ten numbering — which is, after all, based on human physiognomy, a kind of anthropocentrism. Binary numbering would permit calculation to be more like nature too.

Leibniz used his new binary calculus to develop a widely influential mechanical calculator called the ‘stepped reckoner’. He also proposed a machine which would use marbles to represent binary numbers, and punched cards to sort them, which anticipated modern computer design by some 300 years.

All these inventions flowed from Leibniz’s reading of the I Ching, and his belief that in order to achieve universal understanding, mathematical calculation must be rooted in the operations of nature itself. The ones and zeros of binary calculation, as conceived by Leibniz, do not represent fixed and static categories. Instead, they embody change, creation and the ceaseless emergence and becoming of life itself. The computer is like the world.¹⁴

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To the playlist alongside this chapter, we add [Daniel Kahneman](#), the social psychologist who changed economics — and changed me and others — in so wisely and matter-of-factly bringing home that none of us is as rational as we believe ourselves to be — none of us is an equation that computes. We're adding a conversation I had with a philosopher of our lives with technology, [Kevin Kelly](#). We also added [Maria Popova](#), the singularly wise and wonderful curator of beauty and complexity in digital spaces. Finally, we added the conversation I was so fortunate to have with the late, exquisite [Mary Oliver](#). I read her poetry side-by-side with *Ways of Being* last summer. Her way of seeing and living is one way into why poetry (which I seem to circle back to with regularity) matters existentially. It, too, confronts and beguiles us with the mysterious complexity of reality and how that can bring us ever more alive.

Chapter 8: Solidarity, and an ending and a blessing...

I'm longing for us to do more pausing and looking each other in the eyes and acknowledging what we've been walking through these last three years and what we are walking through still. Even when we are now able to gather in the same rooms with the same people as before Covid (the new B.C.), we're all changed, and most of our institutions are changed, at a cellular level. We have losses, large and small, yet to grieve, including a loss of certainties that were illusory and that we don't want back. But uncertainty is hard on us as creatures. We are not getting back to normal, and yet our instinct is to power through as though we were.

I'm holding all of this in myself, perhaps alongside you, and feeling the toll it all takes. Yet, at the very same time, I'm impatient for us — those of us who are able — to look up and out and begin to walk into all we've been given to see and to learn, all the ways we've been given to grow. I'm re-summoning the astonishing realization, which we made as a species, that civilization rests on something so tender as bodies breathing in proximity to other bodies. I'm meditating on the first calling the pandemic set forth when we had to ask “what is essential?” as a matter of societal urgency — and every answer had something to do with the giving of care.

Serendipitously, the chapter we've arrived at — Solidarity — speaks to this matter of care as we're learning to appreciate it in the non-human world, too. Mutual aid, natural kinship, pleasurable sociality, moral feeling, herd behavior, swarm intelligence, communal mourning, the dignity of personhood, entanglement with other beings — these are all qualities of the larger world of vitality in which I know myself ever more intimately to belong. I'm adding one of our all-time favorite shows to the playlist this week — with [Katy Payne](#), a pioneer in discovering the songs of whales and the emotional communion of elephants. The word “solidarity” rings idealistic at best in the context of human society right now. But James Bridle's definition of solidarity parallels what I've come to understand as the way hope functions in lives that shift the world on its axis. It begins with an insistence that things do not have to be this way. It throws body, mind, and spirit at that insistence, and so has real world consequences:

***Solidarity** is a product of imagination as well as action, because a practice of care for one another in the present consists in resisting the desire to plan, produce and solve. Those are the imperatives of corporate and technological thinking, which bind us to oppositional world views and binary choices. Active, practical care resists certitude and conclusions ... It is the result of encounters, not assumptions (p. 280).*

CHAPTER 6-7 NON-BINARY MACHINES & GETTING RANDOM

Wherever you are, however you are doing, go gently on yourself in this time of ours. It is an honor to walk alongside you in holding hardness and strangeness as well as coaxing ourselves and each other into a new presence to the world, and a new depth of life.



With Love,
Krista