

Rethinking

Written by Robert LePage

Edited by Jody LePage

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As well as all whose sacrifices and labors have made and make a complex World like ours possible.

Rethinking

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Part I — Why

1 where to begin

whether driving down a fog enshrouded interstate and seeing red brake lights up ahead
 or suddenly suffering shortness of breath and feeling crushing pain in one's chest
 if what we wish were the case doesn't align with the facts
 and we fail to change our minds in order to get it right —
 self-deception / illusion can lead to disaster

In our everyday lives
 we generally understand this.
 it's better to pay attention to what Reason
 informed by our senses and experience is telling us,
 less good to base decisions on desire and imagination alone

many of us would agree
 we've reached a critical moment in human history
 in addition to the longstanding threats:
 international tensions / wars / nuclear arms
 political manipulation of fears and hatreds
 extreme wealth and privilege alongside deprivation and hunger
 new perils have appeared:
 cyber, hypersonic and information warfare
 global pandemics
 and, most pressing —
 the unsustainable relationship with our Mother Planet
 climate crisis tracking to disaster

the root causes of our hurting World
 begin with questions
 whether consciously asked or not —
 where do we come from?
 what are we a part of?
 and the stories told in answer
 by our culture, our religion, and by our own interpretation
 defining who we are
 what we see as possible
 what we're willing to do

with the acceleration of technology and industrialization
 the time to make the needed corrections is rapidly shrinking
 bringing us abruptly to this juncture

do we keep going on the path we're on?
 or pause at this precipice,
 rethink what brought us here?

2 to rethink or not to rethink

rare the situation that requires us to rethink everything
 we seldom need to question our place in the World
 what we mean to One Another
 responsibilities, family, class schedules, work patterns...
 our busy calendars typically don't afford much space
 for reviewing the big picture
 every day brings its own set of challenges
 and we need to get on with our lives

when a difficult situation does arise
 our initial response is to adapt
 go along with what seems to be working well enough
 we often put up with trouble — even serious trouble
 trusting that things will eventually right themselves

yet it can happen that a situation calls for rethinking —
 when an event or circumstance proves no longer acceptable
 or an alternative so desirable
 that the impending loss outweighs the risk of not acting
 like falling in love

some might question how a deep rethinking of our most basic beliefs could help
 besides, it might be argued —
 you're never going to get everyone to rethink what they have in mind, anyway
 and even if you could,
 thinking and doing are very different propositions
 and we need to do something

although most of us would agree with that
 what we don't agree on is what to do
 while fewer and fewer among us deny there's a problem,
 some still advocate clinging to the path that brought us here
 others fear that trying to take the situation in hand could make matters worse
 we lack the necessary unified will

if only we could simply turn to Science and say,
 "Fix it — please. Quick!"
 "...and while you're at it, end poverty and bring world peace, too."
 but it doesn't work like that

Science can point out our urgent problems
 forecast the scenarios ahead, if we don't act,
 tell us what steps we need to take to avert disaster
 but Science — as it stands right now
 can't help us with the attitude shifts that would bring us together to act

why not?

3 mind and matter

most scholars would probably agree that René Descartes
laid the foundation for Modern Science
when he urged his contemporaries to doubt everything
and, what will prove to be of central concern for us here —
made an issue of the question:
what are we to make of the difference between Mind and Matter?

Descartes was writing at a time when people had for centuries
believed whatever they were told
by the church, the king and local folklore
his goal was to establish a reliable basis for our entire edifice of knowledge
so he asked: 'What can we know for certain?'
and proposed his now-famous method in answer:
'Doubt everything.'
every piece of knowledge you've ever had
and you'll find that you can doubt everything
— except
you can't doubt that you're "thinking" (doing the doubting)
for Descartes, nothing else can be known for sure
including that there's anything outside our minds
the Mental (Consciousness) and the Physical (World) irreconcilable

what's at issue is easy to understand
we readily observe that material things like bodies, books or computers
extend in three dimensions
height / breadth / depth
Objects have definite shapes
we can usually determine where things begin and end
none occupy the same space at the same time
and for the most part, things can be broken down into smaller pieces
we can separate and count things
the physical is measurable

Mind is different
though we're able to associate particular wavelengths with kinds of mental activity
meaning itself can't be measured
states of Mind, even reasoning, entwine with memory / feeling / intuition / perception
Inner Space has no distinct boundaries
it's where music, art, poetry, friendship invite
it shelters dream, mystery, the impalpable
it's the sanctuary of the Personal

the Mental is the realm of Subjectivity
not subjectivity as opposed to objectivity
but rather Subjectivity as being a distinct Self
a Subject Center endowed with Will / the capacity to choose
a Presence that defies definition
never reduced by what is said about it
always doing the saying / making the move / taking the action

Descartes concluded that Mind and Matter are so radically different that they're mutually exclusive

you don't have to know Descartes' name to have absorbed this understanding with the advent of the Scientific Age
the Cartesian Paradigm gained ascendancy
a predominance it has retained into the 21st century

today's Science tells us that the cosmos is the effect of random chance a lucky set of circumstances that set off a series of mechanical events

most Religions, meanwhile, still teach
as they taught before Descartes
that the Universe is the creation of a Supreme Being existing outside of it
in other words, God (a Subject Center) created the World (an Object)

Science or Religion —
either way, Nature is bereft of Mind
whether in the pre-Cartesian view
or via the Cartesian Paradigm
ours is not a culture that believes the Universe itself has Subjectivity
that it could communicate with us on a Personal level
Nature, however awe-inspiring, is reduced to Object status

instead of Intersubjectivity —
the default of our Identity is Self as Subject / the World as Object
and because we exist in each other's World
we become Objects to one another / separate Selves
an Ego Identity reproduced by Ego cultures

we need to be clear from the beginning, however
that what we mean by the Ego Identity
does not equate with what Psychology refers to as the "ego"
that is, the individuation made from infancy
when we come to recognize our unique personal presence and that of Others
nor do we simply mean, "selfishness."

the Ego Identity that we need to rethink is the culturally transmitted concept of the Self as utterly Separate
Separate from One Another / from Nature and the World around us
with fully separable Self-interests

as we'll see,
Science makes clear that this is a mistaken notion of who we actually are
physically as well as psychologically and socially
and although Science remains committed to the Cartesian notion
of an absolute split between Mind and Matter
it also provides us with evidence for rethinking that idea

to unravel this paradox, we might start by asking:
How did Descartes' conclusion become so influential a paradigm for our World today?

4 the backstory

to answer that question
we need to revisit the context in which Descartes was writing

17th century Europe had been reshaped to some extent by the Renaissance
an intellectual stepping away from the Medieval worldview
although not yet away from its social order

that “order,” called Feudalism,
had emerged from the smoldering ashes of the Roman Empire
it allowed whoever could assemble the most knights
to take ownership of whatever lands they could grab and control
including the animals, plants and people living there
all to be treated as property —
whether or not they were called slaves or serfs

the feudal system gave such overlords titles of “nobility”
which their eldest male offspring inherited
along with whatever wealth and power they’d seized

relatively speaking,
the kings, noble lords and ladies lived lavish lifestyles
enjoying every pleasure available at the time
while outside the castle walls —
hovels / hunger / a struggle to survive

Christendom, by then institutionalized as a patriarchal hierarchy,
fit right in with this “might makes right” system.
Instead of preaching and practicing the “love-one-another” ethics
that Jesus Christ had taught,
the fathers of the Church legitimized feudalism’s raw violence
even exercised it themselves.

In addition to portraying the social order as ordained by God,
the Church hierarchy dictated what people were allowed to think and say.
Its Inquisition burned so-called “heretics” at the stake.

perhaps more important for our rethinking
fundamental Church dogma completely devalued Earthly life
insisting that we humans are flawed from birth by Original Sin
our Bodies and their desires — a fallen Nature, therefore necessarily evil
our Souls (Mind) — eternal and redeemable
but only if we believe the approved doctrine
all of Creation, all other Creatures were seen as having no Soul
no feelings / no pain / no personality
Heaven was designated our true home, not Earth.
the Renaissance brought a bit of relief from this bleak picture
at least for the upper classes
renewed appreciation of beauty, art, sensual pleasure, knowledge
led progressively toward an awakening

not only to Human capability / but also to the possible

in this context, philosophers such as Descartes would launch the “Age of Reason”
 yet even as he was writing his famous “Cogito”
 such work still remained subject to Ecclesiastical censorship.
 the Inquisition had just forced Galileo to recant his public agreement with Copernicus
 that the Earth goes around the Sun

elsewhere across society,
 there was no public education / very little education at all
 no trustworthy source for news or information
 no Science.

superstition, tradition and rumor thrived
 anything could be said to mean anything
 the educated few, however,
 increasingly recognized the need for useful knowledge

Descartes’ “doubt everything” proved irresistible.
 doubting — along with other factors
 such as Europeans coming in contact with other civilizations
 and beginning to drink coffee
 contributed to an enormous cultural change

the Enlightenment brought forth notions that we presently take for granted
 but that were unheard-of at the time —
 a central tenet was a sense that you *could* and *should* think for yourself
 instead of simply believing whatever you were told.
 “Dare to know,” as philosopher Immanuel Kant put it.

Enlightenment thinkers advocated a commitment to logical Reasoning
 a love of the new evidence-based Science
 a budding recognition of Human Rights
 and humane behavior as a moral imperative
 challenging practices such as torture and slavery.
 women also fared somewhat better
 at least those born to the upper classes
 still treated as merchandise on the marriage market
 still considered inferior
 but respected more by Enlightened men,
 for it was women who hosted the salons where this new thinking
 later named “Modernism”
 was nurtured / given a place to grow

seeded by the Enlightenment,
 the Age of Revolutions left us a legacy of constitutional democracies
 including civil liberties such as freedom of speech, press, assembly, religion...
 all of which added to the force of the Cartesian Paradigm

by the close of the 19th century,
 applied Scientific Method had made clear its usefulness.
 steam and electricity were opening previously unimagined possibilities

while Descartes solidified the foundation for Science,
 his Methodical Doubt played out differently for Philosophy.
 — if all we can know for certain is our thinking
 then the world outside our minds may not even exist
 we infer that our perceptions arise from outside — but do they?
 — if Mind is one thing and Objects another
 how do material things get inside a mind?
 can we actually know anything outside our minds?
 while Scientists ignored this problem,
 it would keep Philosophers busy for a long time to come.

Church authorities, of course, didn't like that doubting business.
 but Descartes avoided getting into worse trouble
 because he pronounced Mind and Matter absolutely separate.
 others had been burned at the stake for saying they're inextricable
 or that Nature has Subjectivity and is Sacred
 a heresy called, "Pantheism."

Even though Descartes' doubting
 provided groundwork for profound scientific, social and political modernizing,
 he hadn't created an entirely new pattern
 but had rather distilled what had been going on in European culture for a long time.

we find the Mental-Physical split already prevalent in Ancient Greece
 the oft cited cradle of Western civilization

although several Athenian philosophers proposed a single-substance World
 (all things made of water, for instance, or fire)
 the underlying One-ness of their worlds didn't carry Subjectivity
 no guidelines for engagement with Nature
 no dialogue with the Universe

Aristotle (who would have a more important effect on our culture)
 assumed an Object world
 to him, Greek society's rigid class structure
 its slavery / extreme inequality between the sexes
 war and territorial conquest
 were just the way things are
 the goal of knowledge was not to question that Reality
 but rather to identify the pieces / state how they fit together
 categorize it all into hierarchies

to find what came before the Greek mindset
 we would need to go back further still
 back before the hieroglyphs with their war chariots
 before cuneiform tablets
 before recorded history

when writing first appears
 men are already occupying positions of power
 sitting atop social, political, military and economic hierarchies

established and enforced by violence
 indicating that the Separate Self / the Objectification of Others
 has already taken hold

regarding cultures before that, we have only fragments
 texts with vague references to former times
 archeological finds indicating burial practices
 female figurines possibly pointing to fertility cults
 goddesses in hieroglyphs / on temple walls / on Mount Olympus
 all of which has informed speculation that in an earlier time
 there might have been greater respect for women
 in light of their reproductive power
 and that matriarchal societies may have preceded the patriarchal

Greek legends of Amazon warriors suggest, however
 that if such societies existed, they too may have objectified others.
 although it's certainly conceivable that if "the before" were woman-centered
 people may have enjoyed a different and more rewarding community life.
 a matriarchy might not have meant women powering over men,
 but might have fostered equality between the sexes
 a deeply felt connection with One Another
 cooperation and sharing
 a Personal engagement with Nature
 as characterizes certain indigenous cultures today

how the objectifying mentality and power hierarchies emerged
 must also remain speculative
 perhaps with the growing use and elaboration of language
 minds fell into conceiving the World and Others
 in the way that words deliver them to our minds
 as mental Objects

or perhaps in a crisis of some sort
 with survival of the whole community at stake
 fear and desperation might have driven one group
 to try overpowering a neighboring group,
 taking food from others by force
 the most ferocious "winning" the fight

although it meant the breaking of Personal bonds
 viewing Others and Nature as things may have been contagious.
 imagine a group infected with the mindset
 encountering an uncontaminated group
 the uninfected would likely be overrun, made subservient or killed off
 Or, if they tried to take up arms and fight
 they became like the infected anyway —
 and if defeated, those who survived may have seen the objectifying mindset
 as more "successful" —
 their new overlords, the "winners"
 taking more than a fair share
 reveling in the exercise of power

however the Self-as-separate identity first took hold
it enabled our history of hierarchy enforced by violence
and, with few exceptions, males at the top

by the time of Descartes
after tens of thousands of years of discourse and practice
alienation from Nature / powering over One Another
the Subject-Object model had become embedded in the imaginary
its features dominant in the cultural mindscape
seeing the World through the lens of a Mind/Matter dualism
was already taken for granted

5 modern science

more than any other factor
the obvious benefits of modern Science
gave Descartes' articulation of the Paradigm its staying power

Science became modern
when Galileo (Descartes' older contemporary)
began making real progress by relying on evidence
working only with experience — how Matter behaves
observation / measurement / description
foregoing what others might have said or have to say about it.
although forced to recant by the Inquisition,
he'd taken important steps

freed from speculation
(thanks in part to Descartes)
and with a specialized language (math) to carry out its reasoning
Scientific knowledge made giant leaps.
Newton and his celebrated Laws of Gravity exemplified the new method's combination
strict logic and experimental evidence

in a short 500 years
Science has produced comforts and conveniences
unthinkable to the kings and aristocrats of old
central heating / electricity / cars / televisions
jet travel / the internet / cell phones
the wonders of modern medicine / foods from around the globe...
Human footprints on the Moon / sensors on Mars

and the technology to obliterate all of civilization — several times over
but not the moral mindset for rejecting that kind of development

Science works by identifying physically connected causes and effects
discovering laws and principles underlying outcomes
it aims for predictive power
with the overarching purpose of controlling Nature
harnessing Her forces

for most Scientists — the World is fundamentally mechanistic
 neither matter / nor the biological realm / nor animal life exercise freedom
 (although some do believe that we somehow have freedom)

Scientists trust only verifiable data
 strive for conclusions that others can test / build on
 they long ago rejected the idea of alternative facts
 they doubt, cross-check / count on one another to find errors — if any
 by strict adherence to the method.

they don't always agree — they argue
 but by acknowledging only measurement and physical description
 while striving to keep their work free of all personal interest
 political considerations or emotionally based motivation
 they together make step by step progress
 crediting each other as they make their way

recognizing only what can be measured, however
 means that Scientists limit themselves to appearances
 none propose that their discoveries or laws carry deeper meaning
 none attribute purpose, goals, choices, values to the Universe
 all of that remains outside their realm
 unacceptable in Scientific discourse
 although they sometimes refer to their theories or to the phenomena they study
 as elegant or beautiful —
 for the most part, Scientists are true Cartesians
 for them, the material World is devoid of Subjectivity.

several problems, however,
 have recently begun pressing more than a few Scientists
 to rethink the Cartesian Paradigm:
 since evidence indicates that our physical-biological being evolved from Earth,
 — if we assume there are no Mind-like qualities in the smallest units of Matter,
 (from which our complex World developed)
 where did our own Consciousness come from?
 how can there even be Consciousness?

some Scientists propose that Consciousness just emerges
 from not being there at all
 they speculate that Mind simply appears at some level of molecular or cellular activity
 when subatomic fields oscillate in precisely the right way
 or particles start performing certain operations
 suddenly — Subjectivity happens
 where there had been no trace of anything like it before

many Scientists prefer not to go there
 indeed, some bend over backward to avoid it
 even going so far as to declare the whole phenomenon of mental activity an illusion
 what we experience as our awareness is not actually real, they argue
 so the issue can be dismissed altogether
 there are other problems with the Paradigm, too.

even among those who consider Consciousness real.
 If there is no Subjectivity outside our own
 does that mean the animals are machines?
 the flowers and plants photosynthetic factories?
 and perhaps most importantly for our rethinking —
 if the Universe is simply a mechanism
 and the shared Mental experience of being here a fantasy
 what purpose is there beyond our own immediate considerations?
 what guidance on the evolutionary path?

6 mind side meaning

several years before the first World War
 Wilhem Dilthey was struggling with the problem of meaning
 'If Physics is correct that the Universe is mechanical / without Subjectivity —
 where does that leave meaning?' he wanted to know
 'Where does meaning come from?'
 He argued, that since the realm of meaning doesn't depend on cause and effect
 the study of Human life requires a different approach.

aiming to set the social sciences on equal footing with the physical sciences,
 Dilthey was confident that a topography
 (something like geography's multi-dimensional mapping)
 of being Human was possible.
 he believed that meaning could be found by searching for embedded intentions
 a task that could be done by describing the lived experience of individuals
 interpreting their personal histories
 documenting their worldviews

Edmund Husserl picked up on Dilthey's search for meaning
 but took it his own way.
 focusing more on how things come to have meaning —
 he devised his famous "phenomenological method."
 'Take whatever object you wish,' we might imagine him saying,
 'and bracket it off from the rest of the world for a moment...
 pretend you've never experienced it before
 that you have no idea what it could be about
 what its purpose might be
 Would it tell you its meaning?'
 No.

making the point that we, as individuals
 and as participants in a culture
 are *assigning* things their meaning
 our awareness of any given object / even our ability to perceive it
 depends on what Husserl called "intentionality" (Mental content)

this became an important step
 toward Modern Philosophy's understanding of "Reality"
 and the part we play in creating it

the effort to establish meaning in a Universe without Subjectivity
comes further into focus with Martin Heidegger.
He sees the phenomenological method
as a way to reveal the meaning of Being itself.

'What is "being-there" all about?' he asks
using concepts such as being-with / care / concern...
being-unto-death / temporalizing (placing experiences in a sequence)
Heidegger's descriptions open a new window on Human existence
but he fails the moral test of his historical moment
by choosing to join the Nazi party.

His work nonetheless contributed significantly to that of Jean-Paul Sartre
a younger philosopher who most powerfully articulated what Nazism
— the killing of millions of Jews and others in the Holocaust —
taught us:
we're each inescapably responsible for our World.

Sartre undermined the Ego idea of Self
in the introduction to his book, "Being and Nothingness,"
he points out how Consciousness is pre-reflective —
it doesn't need to become aware of its awareness to be aware
Consciousness doesn't depend on the Ego
the Ego depends on Consciousness.

although Sartre's observation that Consciousness comes *before*
the awareness of thinking
effectively undermines a key piece of Descartes' model —
(the famous: "I think therefore I am.")
Sartre himself continued to view the World through the Cartesian lens
never attributing Mind or Consciousness to Matter.

most important to our rethinking here,
Philosophers such as Husserl, Heidegger and Sartre demonstrated that Reality
is not something "out there"
waiting for us to learn / accept / or "face it"
much of what we see as "reality" is a construction
a set of meanings we and our cultures produce
and as such, it's something we can deconstruct and reconstruct
— rethink
Students of those earlier 20th-century scholars would explore how

Michel Foucault shed light on the construction of our Subject Selves
by following the paths that power took
as it moved away from the display of raw force (torture in the public square)
to locate itself where it works more efficiently — as it does today
dispersed through the "microtheaters" of our World
in our schools, families, social circles... even in architecture
where power not only operates by saying, 'No,'
but also, and more importantly, by giving permission, saying, 'Yes.'

Foucault observed that power becomes interiorized within each of us
 so that we keep ourselves in check
 pursue our perceived self-interest in ways that don't threaten the social order
 He sees the Subject-self as aware and capable of choosing how to act,
 yet believes coercive power is so ubiquitous in our society
 so embedded in the everyday hierarchies of modern life,
 he isn't certain we can ever break free.

Foucault describes us as entwined with culture —
 but not with a Natural World endowed with Subjectivity.
 he remained on the mind side of the Cartesian canyon
 nonetheless, he spelled out some of the ways that culture operates
 and that can help us counteract its effects
 as we rethink our relationships with Each Other / with the Universe itself

going deeper, one of Foucault's students, Jacques Derrida,
 aimed at deconstructing language.
 he observed that it's founded on binary oppositions
 (subject object / self world / mind body / man woman / etc.)
 and that, in every case, one term of the pair is considered superior to the other
 calling our attention to how language imposes structure on our thinking
 words themselves invoke hierarchal relationships
 Subject and Object are never equal
 Objectification an act of power over the Other

Derrida added to the analyses of language done earlier.
 Ferdinand Saussure had pointed out that language generates meaning
 by links between signs.
 Insofar as words are defined by other words defined by other words,
 meaning itself rests scattered across chains of signifiers
 with no necessary connection with anything outside the sign system
 to which any words supposedly refer.
 language can be out of touch with the Referent
 (which might help explain our problematic relationship with Nature)

Roland Barthes noted that words are "sticky."
 they associate with all the meanings they've ever had
 and therefore may drag along old notions
 beliefs we may have thought we'd rejected and left behind
 such as racism and sexism

insights into how language works
 can take our rethinking beyond the superficial —
 to deeper changes in understanding that lead to more effective action

this late 20th century movement
 (called "Postmodernism" because it looked beyond "Modernity")
 pointed out that the freedom brought by the Enlightenment and the Age of Revolutions
 isn't as free as we may have thought.

although some Postmodern writers go so far as to doubt the possibility of freedom
they've also shown us keys to liberation

how language and culture effect us without our being aware of it
how we absorb meanings and prejudices reproduce and pass them on — unconsciously
thus suggesting how we might get free of them

language and cultural systems affect our ability to think / even to perceive
they have everything to do with seeing our Subject Self as Separate
seeing Others and Nature as devalued Objects

fortunately that's not the only storyline our culture carries

7 a less-taken path

πᾶν ψυχή —

pan: all, everything

psyche: mind, breath, spirit, soul

Panpsychism maintains that Mind and Matter are coequal
that some kind of Mentality (Mind) is a fundamental feature of the Universe.

Although not the pathway that dominant civilizations took
expressions of the Panpsychist understanding have long existed.

As Europeans conquered and colonized much of the globe
they found peoples with very different cultures.
Fortunately for Humanity and all of Being with us here on the Planet,
some survived the brutal business of colonization.

many indigenous peoples have documented and still give witness
to an attitude toward Nature as Sacred, Conscious loving Being
translating into a different appreciation of One Another and the World
seeing meaning in encounters with Nature and Each Other
every day events as connected
evoking a trusting attitude toward Life and One's community
motivating individuals to live, as some have put it, "in a Sacred manner."
nor has mainstream culture itself remained without similar narratives

in the 16th century

Giordano Bruno advocated a version of Panpsychism
attributing various degrees of Intelligence to Matter
for that and other heresies like saying the Earth revolves around the Sun
and that God is inseparable from the Universe
he joined a long line of people murdered by Church and secular authorities
for expressing "wrong" beliefs
including more than 40,000 women burned to death as witches

not quite a century later
with Philosophy deep into the Cartesian quagmire —

*'If thinking is one thing and the material World totally another,
how can we know anything outside our Minds?'*

Baruch Spinoza would reason his way to a solution.

progressing from definitions and axioms to propositions
he states that there can be only One Substance that necessarily exists:
God — uncaused / eternal / unlimited / with infinite possible attributes.
Humans can know only two of those attributes:
Thought (Mind) and Extension (Matter)
thus Mind and Matter are not exclusive of one another
they're two attributes of the same One Substance
And Nature is Divine

living in liberal Amsterdam
Spinoza fared better than he might have elsewhere
for proposing such a Pantheistic cosmology
he did get expelled from his Synagogue
and ostracized by the community
but not burned at the stake

Later, a radical Enlightenment movement in Amsterdam embraced his ideas.
And one of that era's best known writers, Diderot,
would playfully enfold the workings of fate that Spinoza's model implies
into his novel *Jacques the Fatalist*
in ways that suggest he found it persuasive.

In Spinoza's own time, writers and philosophers didn't show much enthusiasm,
although Gottfried Leibniz did travel to consult with him at least once.

Leibniz, the famed mathematician,
came up with his own answer to how Mind and Matter relate.
weaving together some older metaphysical threads and adding imagination,
he put forward the idea that all things are assembled from small atom-like points
which he called, "monads"
each endowed with perception and appetite
each with its own little window on the Universe
when asked how all these individual simple substances manage to avoid chaos
(since each monad is an independently minded force)
Leibniz answered, "God synchronized them from the beginning."
and since God is good —
He would only create, "the best of all possible worlds."
an assessment that Voltaire's satire would later scathingly expose
for its seeming failure to notice the world's horrendous troubles

Literary artists have provided a welcoming space for the Panpsychist viewpoint.
Poetry, in particular...

William Blake conceives magical relationships with One Another.
he wants to hear the workers' songs
and "no more mourning voices in the valley."
He points to the stars
"...everything that lives is holy," he writes

“...every particle of dust breathes forth its joy.”

Emily Dickinson invites us into Her Garden
 where she serves up mystery tea
 wraps your visit in word brocades woven with eternity
 a madness that infuses Earth with Heaven

Gerard Manley Hopkins wants to immerse us in “inscapes”
 draw us into the “this-ness” of individual beings and things
 to have us feel the Spiritual in Nature

In addition to a long list of poets,
 prose writers like 19th century transcendentalists
 Ralph Waldo Emerson and Henry David Thoreau
 voiced the message —
 ‘in Nature alone can we hope to find true traces of ourselves.’

in more recent times, numerous Theologians and Philosophers
 have taken Panpsychist positions

Martin Buber taught that we become Ourselves
 only in what he called I-Thou dialogue —
 Relationship characterized by full Subjectivity on both sides
 with One Another
 with Nature
 and with our deeper Selves in quiet solitude
 for Buber, these moments of Encounter represent lines radiating from a Center
 the singular Absolute Thou (God)
 present in each of our individual lives
 although he describes such moments as vulnerable
 easily reverting from I-Thou into I-It
 as the way of the Objectifying culture re-imposes itself

Teilhard de Chardin takes up evidence unearthed by geology and paleontology
 ‘If we have Consciousness, all of Matter must have it,’ he asserts.
 He follows “grains” of awareness as they evolve / complexify
 through the geosphere / biosphere / the noosphere (our Consciousness)

a theologian as well as paleontologist
 de Chardin calls the evolutionary process “Christogenesis”
 and envisions it reaching an Omega Point
 where opposing political forces
 — progress versus the pull backwards / regression —
 converge in an apocalyptic struggle
 a Point where Life either collapses beneath the weight of planetary exhaustion
 or culminates in Universal love / music / beauty

mathematician and physicist turned philosopher
 Alfred North Whitehead helped to pioneer “Process Philosophy”
 a school of thought that sees Matter as dynamic
 and change as its defining characteristic

which, in his view, implies Panpsychism.

'If we look at reality as composed of events,
rather than bits of matter,' Whitehead reasoned,
'Matter with Mind at all levels could account for the otherwise inexplicable phenomena.'

the model he proposed features Subjectivity from electrons to Human persons
Self-determination of some kind throughout the Universe
immanent and everywhere in Nature
a creativity that he sees as stemming from God
urging toward a destination —
but, given the unlimited possibility of a Cosmos laced with freedom,
the Endeavor comes with no guarantee.

in our time,
discoveries in physics and microbiology
have pressed Philosophy to address what David Chalmers calls,
the "hard problem" —
"What is the place of Consciousness in Nature?"
a growing list of philosophers, physicists, neurobiologists, and astronomers
contribute a cascade of answers

in a distant echo of Spinoza
Priority Cosmopsychist philosophers such as Yujin Nagasawa
consider Consciousness a fundamental attribute of the Cosmos itself

neuropsychologist Giulio Tononi and team
recognize Consciousness wherever information is processed
focusing on the physical structures that could account for it

Philosopher, Barbara Montero addresses "the combination problem."
how is it possible for individually aware, self-conscious entities — such as cells
to get together to form a larger life-form with a unified Mind — such as a body
she contends that fully shared perspectives are not needed
for Subject Centers to combine
combination might represent a kind of marriage

each agent retaining a degree of their individual identity
while joining in relationships with Others
analogous to the relation of parts to the whole observed in chemical bonding
where lower level atoms don't "pool" into molecules
nor molecules lose themselves in the grouping of macromolecules
Montero sees further evidence of how combination might work
in the complicated ways that individuals interacting
can spontaneously create what could be called the 'Spirit of an Age'

for Environmental Philosopher, Freya Matthews
the World is personally responsive and communicative
she describes the Universe as a unified "Subjectival"
an indivisible One differentiated into a Many
imbued with meaning and purpose
each individual Subject center being part of the undivided Whole

Matthews spins threads of Personal engagement
 into a new ecological responsibility
 encouraging us to sing our brutally silenced World back to Life
 the first step — each of us making ourselves open to another Subjectivity
 beginning to Care

in general,
 Panpsychism theorizes that there is an “inside” to Matter
 not in terms of drilling down *into* the physical reality
 or exploding subatomic particles to see what they’re made of
 what’s meant is that Matter itself has a Mental dimension
 a “within” / an “interior”
 a Subjectivity paralleling our own

to state that, “all things possess a mind-like quality,” however
 doesn’t mean that rocks, telephone poles, tables and chairs
 have the same kind of Consciousness as Persons
 (free-acting unified Subject centers)
 it does mean that such material things carry on Conscious activities
 at least on some level — the molecular / atomic / subatomic
 including the smallest conceivable, “quantum” scale waves

most Panpsychists distinguish between aggregates
 entities composed of loosely gathered bodies
 each retaining their own identity
 and Complex Dynamic Adaptive entities
 such as biological forms with unified Consciousness
 where free agents have created networks from the ground up
 identifying with and laboring for the common good
 becoming more than the sum of their parts

where Panpsychism meets Science
we find the start of a new pathway

Part II — What

8 where to turn

all would agree that our species has a prowess for technology
 people in high income countries
 inhabit a world unimaginable to someone living in the 1800's
 we take for granted the miracles of modern science
 medicine, transportation, communication, entertainment

we also know that homelessness, malnutrition and hunger are rampant
 that our present rate of consumption and waste
 our ever increasing human population
 — are not sustainable

geologists studying the impact of humans on the planet
 call the epoch of our being here the “Anthropocene”
 accelerating since the Industrial Age and all too evident in our present World
 with glass, steel and concrete megacities / pipe and power lines / mines
 interstates and autobahns / shipping lanes / air traffic / satellites
 machines of unprecedented scale mining for coal, minerals, metals...
 dragging the oceans for fish / clearcutting the forests

the Anthropocene —
 the reality that each day 150-200 of plant, insect, bird and mammal species
 become extinct.
 that our plastics pollute the seas / rivers / landfills
 that we continue to pump heat-trapping carbon dioxide molecules into the atmosphere
 despite the signs of global climate crisis already upon us

— all this from a species with the potential
 to serve this Garden Planet as Gardener
 a Lifeform known for Love
 taking care that Everyone has adequate resources to meet their needs
 living together in pluralistic societies
 growing in appreciation of diversity
 instead, we find ourselves divided along lines of class, race, nation and religion
 manipulated by individuals competing to wield the most power
 actively working to deepen and exploit our differences
 in a mental landscape marred by scorn for morality

government bound up in gamesmanship is dangerous at any time
 and becomes more so —
 when the time for fixing what's broken grows short

the minimum we need to move beyond this impasse
 is the acknowledgment that we face these problems together
 and only together can we solve them
 stating the obvious, however —
 doesn't get us there

to move beyond our divisions
 we need a shared understanding of Ourselves
 a basic notion of what it means to be Human
 an identity that we could be confident in
 because it's based on evidence —
 rather than opinion / our imaginations
 or the failing assumptions of Ego Narratives we've inherited

as the 2020 global pandemic has reminded us
 there is only one source we can turn to when in need of reliable information —

What can Science tell us about Ourselves and our World that could help?

More even than we might have thought.

9 it's elementary

in an early 19th century experiment
 Thomas Young observed that light
 passing through two closely cut parallel slits
 in an otherwise opaque barrier
 cast a strange pattern on a screen beyond.
 instead of two definitive bars
 as one might expect from a beam of light split into two beams
 Young saw a pattern of alternating dark and light bands

Later physicists duplicating the two-slit experiment
 offered an explanation:
 when light traveling as waves meets the two slit barrier
 some waves get through
 passing partly by way of the one slit
 partly by way of the other
 becoming independent waves on the other side
 which collide and merge
 where a crest meets a crest — the wave is amplified
 where a crest meets a trough — the wave is cancelled
 when the resulting new waves arrive at the screen
 they produce the dark and light bands called the “interference pattern”

fast forward to modern times
 after Einstein had established that light is made up of particles (photons)
 raising questions surrounding the previous explanation
 The two-slit experiment was elaborated.
 Researchers slowed the stream of photons way down
 separating the single particles of light by long intervals of time
 sending only solitary photons to the double-slit barrier
 they expected this twist to produce two strong bands on the screen
 (indicating which slit the single particles had gone through)
 but instead — the interference pattern again appeared.

they then tried sending other particles:

protons, atoms, molecules at the double-slit barrier
and watched as they arrived one by one at the screen
slowly building up — the interference pattern

what could it mean that instead of acting in a predictable manner

(two slits, therefore particles appearing on the screen in either one of two bars)
the particles produced the alternating pattern that waves would be expected make?
how could particles do that?

could a single particle be going through both slits at once?

was Matter not made up of particles as previously thought?

Researchers set out to determine which slit the individual particles were actually using.
they placed sensors just beyond the double-slit barrier

marking each particle as it passed through the one or the other slit
which produced another surprising result:

it eliminated the interference pattern —
any attempt to observe the particles at the slits
resulted in the two distinct bars

Danish physicists Niels Bohr and Werner Heisenberg

would cite this phenomenon as illustrating an important new understanding:

the “Principle of Complementarity”

Matter exhibits *both* wave and particle behavior —

although you can't observe both aspects at the same time.

They followed that with the “Uncertainty Principle.”

if you know the location of a particle,

you can't at the same time know the momentum of its wave (where it's going)

and conversely,

if you know the momentum of a wave,

you can't know its particle location.

‘The particle moves as a wave,’ they explained,

‘until it's measured —’

‘at which moment the wave function “collapses,”

and it appears as a particle.’

in other words,

a wave carries all the possibilities available to its particle performance

(the infinite pathways the particle might take to the screen).

it holds these probabilities in a kind of suspension

(for as long as it's functioning as a wave).

if you look to see what's going on, however, the wave ceases to be a wave,

and you get to know the particle's location.

Observing makes all the difference

as you may already have guessed,

one reason we're talking about this is that these findings

undermine the model that separates Matter and Mind so absolutely.

How can particles “know” they're being observed?

another takeaway, Bohr pointed out —
 is unpredictability.
 there's only a probability that a particle will land at any particular location on the screen.

as the implications of the Bohr and Heisenberg insights became clear
 "probability waves" displaced the former concept of reliable particles.
 the atomic model changed —

instead of electrons portrayed as tiny orbiting planets
 Physicists postulated clouds of energy
 and depicted the nucleus itself as a field of dense waves.
 the picture reflecting a broad re-definition what could and could not be known
 entangling the observer in the results of every experiment
 and undoing the predictability of Classical Physics.

this was too much for Einstein
 who had himself had upended pillars of Western thought
 when he established that time and space are relative
 but these new conclusions — he couldn't accept
 insisting that they must be incomplete.
 If indeterminacy were correct, predictive power was lost.
 He feared uncertainty would destroy the supremacy of the Sciences
 one might never again be able to say, "This will" or "that is —"
 Science would become, "There's a chance that..."

Bohr and Einstein debated the issue for decades
 until an experiment that Einstein had in part conceived, finally put their dispute to rest —
 confirming Bohr's explanation.
 the results obviously didn't mean the end of predictability
 which continues to permit practical developments in technology and medicine
 but it did shake the absoluteness of that foundation

if that weren't troubling enough,
 the experiment also broke another longstanding assumption:
 Classical Physics' "Principle of Locality."

it had always been sacrosanct among Physicists
 that if an event at one location is to be linked with an event at another location,
 something, a signal at least, would have to travel between them
 some kind of communication between cause and effect
 and logically, the distance separating cause from effect
 could never require information to travel faster than the speed of light
 (since the speed of light had been discovered to be absolute —
 nothing can go faster)

in this experiment,
 conducted at the quantum (smallest possible sub-atomic) scale,
 particle pairs initially involved with one another were separated by distances
 tantamount, in relative terms, to half-way across the galaxy
 yet something done to the one,

evoked a seemingly instantaneous response in the other —
 as if there were no space between them.
 experiment after experiment verified the phenomenon
 “non-locality” became accepted fact
 and that had implications

since the Universe would have been wholly in touch with itself
 (at its beginning / before it began expanding)
 Physicists now added “entanglement” to their understanding of the Cosmos
 every particle of Matter is entangled with every other
 each inextricable from a unified Whole

Science edging away from the model of Mind/Matter separation,
 even as most scientists still don’t question the Cartesian Paradigm.

late into the 20th century,
 Researchers were still grappling with the double-slit experiment.
 this time, they added a layer between the sensors and the final screen
 “erasing” any trace added to the particles to learn through which slit they had passed.
 the interference pattern reappeared
 which only raised more questions —

How can a particle arriving at the slits be aware that it’s going to be measured,
 and so enter the one slit or the other?
 but then abandon that particle behavior, take up the wave function again
 when it recognizes that it is no longer being observed?
 Why should a particle “care” that someone or a device is looking at it, anyway?

if you find all this hard to understand, so did they.
 some ran with it —
 Erwin Schrödinger and Paul Dirac, for example
 developed equations that made accurate predictions
 enabling further exploration of how Matter behaves at the quantum level.
 Richard Feynman created a system to graphically depict what was happening
 but — *what was actually happening?*

what mechanism could (supposedly mindless) Matter be using to transition
 from the possible (a wave) to the actual (a particle)?
 and why?
 incomprehensible in the Cartesian framework and frustrating —
 as indicated in the oft cited quote among Physicists in response to the situation:
 “Shut up and calculate.”

Keep on calculating / researching / theorizing...
 because that’s what Scientists do.
 Paramount among their core principles,
 “You never have all the answers.”
 in the sense of absolute, inalterable conclusions
 you’ve always got to be ready to deal with new information and discoveries
 even if at first a new finding doesn’t seem to make much sense

21st century Science continues to work its way through the conundrums revealed through experiments performed at the Quantum level
 (the Uncertainty Principle, Non-locality and such)
 while at the same time — on the scale where Classical Physics applies
 Science continues to excel at accurately describing the problems we face
 tracking changes / forecasting trajectories / warning of consequences
 and suggesting needed changes

but not at addressing the realms of meaning, purpose
 or ethical understandings
 at a time when we're in dire need of a unified political Will
 in order to move into action / create and enact solutions

must Science fail us when it comes to providing that all important guidance?

suppose we suspend the Cartesian assumption for a moment
 begin with the premise that Matter has a Mindedness
 grant that the Universe is endowed with some kind of Consciousness.

but can we drop the Cartesian Paradigm without reverting to the Medieval?
 none of us are interested in abandoning modern thinking
 going back to 'anything can mean anything'
 believing what we're told without supporting evidence.
 such concerns may be unfounded,
 since a reasonable Panpsychism can fit quite well with modern Science.

consider what we've just seen in Physics —
 that Matter is made of quantum waves
 holding possibilities in suspension
 resisting predictability
 responding to being observed
 choosing pathways
 all behaviors that accord with our own experience as Subject Centers
 performance we associate with Mentality

the Panpsychist perspective proves even more compatible
 and holds more potential for expanding the thinkable
 as we consider another set of issues raised by scientific discoveries

10 space, strings and branes

when Quantum Physics moved from office chalkboards
 into the lecture halls where Relativity Theory held sway
 and the ultimately small met the cosmically large
 more discord ensued
 and it wasn't just Quantum Physics' unpredictability and non-locality
 versus Relativity's locality and determinism
 the theories disagreed over the meaning of Space itself

we often see Space depicted as a grid-like pattern

a rubbery net of crisscrossing lines that warp and sink
 in response to the presence of Matter (gravity)
 we know, however, that Space is not actually a floor-like plane
 the Space we inhabit is not two dimensional like graph paper
 it extends in three dimensions
 left and right / forward and back / up and down
 or longitude / latitude / altitude
 Space encompasses us / it's in us / it's the everywhere of the Universe

Newton and Einstein
 to some extent shared a common notion about Space
 for them, it's a place where you can put things
 they also believed (as common sense might)
 that there could be empty Space
 where there isn't anything / not even air or other particles
 — a vacuum
 that idea, however, proved incompatible with Quantum Physics

the Uncertainty Principle states:
*'You cannot know the momentum of a wave (its motion / where it's going)
 and at the same time its particle location.'*
 for a Space to be a vacuum, however, would require both measurements to be zero
 no wave / no particle
 but because it's not possible to know the status of both states simultaneously...
 Quantum Physicists reasoned —
there can be no such thing as a vacuum.

that inference immediately gave rise to an obvious problem.
 some Space shows no evidence of either a wave or a particle being there
 thus —
 to say, "there is no such thing as a vacuum," implied something further.
 if a Space has no Particles within it / and no measurable Waves
 either the Uncertainty Theory, carefully built up from the evidence was wrong
 or the Particles-Waves must be canceling themselves out

Quantum Physics staked its credibility on the latter assertion
 "empty" Space cannot be empty at all
 all Space must be in a state of constant fluctuation
 Matter and Anti-matter Waves canceling each other out
 Particles appearing / meeting their Antiparticles and disappearing
 the explanation gained adherence
 when it also made sense of previously unsolvable problems

Physicists gave this understanding of Space
 the confusing name — "Vacuum Field"
 we'll call it, "The Field"
 and they named the logical necessity for its existence —
 the "quantum fluctuation requirement"
'Space is everywhere filled with particle pairs coming-in and going-out of being.'

this is significant for our rethinking because if a vacuum doesn't exist

Space is everywhere connected

filled with a continuous field of Fluctuating Waves

this includes the Space inside us

 between the electron shells and nucleus of every atom that makes us up
 leading to the understanding that we're connected / inextricable from the Universe

although The Field explanation enabled further technological progress

 including, years later — computers, cell phones and advances in medicine
 it made integration of Quantum Physics and Relativity Theory
 that much more difficult

Space in the Quantum World

became foaming with virtual pairs constantly emerging and disappearing
 making The Field "jittery"

while Space in the Relativity model remained reliably smooth and quiet
 a place for material bodies to accelerate or come to rest

and when Quantum and Relativity worlds were brought together
 they fell into each other's infinity —
 here's how:

on the one hand, applying Quantum Mechanics to Astrophysical Realms
 means enlarging the Quantum (smallest possible) Fields

and, since the Universe is infinitely expanding,

would require endlessly increasing their associated Energy/Mass.

On the other hand, applying Relativity Theory to the Quantum scale

means that that Gravity would descend into ever smaller values... until it vanishes

this represented a serious problem

Gravity is at the heart of Classical Physics

 which still works on the practical level

even as there was no denying the findings of Quantum Physics

there had to be a both/and explanation

it took several decades before String Theory

bridged the infinitesimally small with the cosmically large

by conceiving both Particles and Waves (Matter and Forces)

as string-like entities

String Theory left the standard model of Physics in place

but re-envisioned everything as a "String"

 for every Particle of Matter — a String

 for every Wave — a String

therefore, every Force, like Gravity — a String

Physicists imagined Strings to be either a length with two open ends

 or closed in a loop

defined them as one dimensional and able to vibrate

their particular vibration expressing their identity

representing every Particle and every snippet of Energy (Wave)
 as a vibrating String
 meant that the Graviton Particle (responsible for Gravity)
 could be treated similarly to the other Force Particles (Photons and such)
 a major step toward integrating the smallest with the largest

String Theory made mathematical sense and fit well with the accepted models
 except for one important feature —
 in order for the explanation to be consistent with established laws
 the Universe would need a total of nine spatial dimensions
 adding six to the known three
 these extra dimensions that could be either extremely large and extended
 or extremely small and curled up
 a million billion times smaller than technology presently permits us to see

another problem emerged
 when Physicists realized that the open-ended Strings were unrestricted.
 being without boundaries meant that they could wander — anywhere
 an explanatory factor seemed to be missing

there had to be boundaries
 Strings representing Particles with Mass
 would need to stick to spatial boundaries / at least stay within them
 (so that the Matter making up the Universe couldn't wander off)
 while Strings without Mass
 gluons, gravitons and photons —
 (radio, television, cell phone and Bluetooth Waves...)
 would need to pass right through the boundaries
 so the boundaries would need to perform much like a membrane

to meet the requirements, the concept of a “brane” was proposed
 at first, just the “d-brane” (as in “demarcation”)
 a single dimension brane for the single dimension Strings

but since Strings representing the Particles that constitute our World
 occupy and move through more than one dimension
 the theoretical brane concept had to be extended:
 a 2-brane representing a two dimensional plane
 a 3-brane could deliver a three dimensional World
 p-branes could provide for any number of dimensions
 up to nine according to String Theory

which means we reside within a 9-brane, 10 dimensional Space
 Time plus three extended and six curled up dimensions
 which Scientists refer to as “degrees of freedom”

11 what's time got to do with it?

whether providing a means to coordinate activities
 meet up / work together / join an event
 Time has proven so useful
 we've made it a ubiquitous feature of our lives

we wear it on our wrists
 it hangs on walls / waits in phones / towers over cities
 Time frames our days, plans, years
 we often think of it as an amount of something
 a quantity we can save / buy / sell / waste / have some left of
 (the length of a game, for instance)

most agree that Time moves in a forward direction
 we watch the seasons change
 we know that broken glass doesn't reassemble itself
 our bodies don't grow younger / all know we someday die
 Time appears an integral part of what we're about

writing about Time goes back to when writing began
 we find it carved in bones / marked on cave walls / inscribed in stone
 recorded in cuneiform and hieroglyphs
 history records references to it long before we had clocks

Aristotle taught that Time is a kind of order
 a number we add to an observation of change
 the countable instants of a before / or an after
 for Aristotle, Time depends on change
 and on being able to count

18th century Enlightenment thinker Immanuel Kant
 saw Time as a subjective intuition
 a structure that the mind imposes on the raw data of sense perception
 a kind of separator
 making possible the awareness of individual things

in the much-changed world of the early the 20th century
 Henri Bergson took a deep descriptive approach to Time
 he observed that mental states are forever melting into one another
 reasoning / feelings / intuitions / imaginings / perceptions blend
 knowledge overlaps / intermingles / flows together
 making it impossible to isolate a distinct moment from the larger stream
 every second is entwined with the ones before
 the past entangled with present moments / prefiguring those that might follow
 Time, Bergson contended, is not measurable

Jean-Paul Sartre, consistent with his emphasis on human freedom and responsibility
 his insistence that we create reality
 viewed the temporal structures of the World (past, present and future)
 as an order which only Consciousness could impose

making the Human mind proprietor of Time
not the point of view of most Scientists

for Science

Time has less to do with the Mind / everything to do with the World
as a factor in math, Time delivers measurable results
from figuring out how long a hundred mile trip will take driving at 70 mph
to calculating the rocketry required to rendezvous with Saturn and beyond
as far as Classical Physics is concerned — Time is out there

consider light traveling across space, for example
light is not instantaneous
so even at its speed of 186,282 miles per second
light needs Time to traverse even the smallest length
the greater the distance the more Time it takes
light from the Moon takes 1.3 seconds to reach us
when we look at the Sun we see what happened 8 minutes ago
light from the nearest star traveled for 4.2 years before arriving on Earth
the Andromeda Galaxy is 2.5 million light years away
the more distant the star / the farther back in Time we're seeing

in 1887, scientists discovered that the Speed of Light is unchanging
(you can't add to or subtract from the Speed of Light)
in order to make sense of that —
Einstein revised the two most basic concepts of Science: Space and Time
his Relativity Theory fused them together
and established that "spacetime" can contract or expand
(depending on the observer)
although Time was no longer absolute
as the founder of Classical Physics, Isaac Newton, had thought
it remained where it had been — out there

"out there" carries serious implications, however
if Time is out there
all of it — from beginning to end has to be out there
which means that the future is also out there

some Physicists see Time as a "block"
others have portrayed Time as a baguette
"now" moments conceived as thin slices taken off the Spacetime loaf
an image further used to visualize how in such a world
one person's now is another person's later
depending on the distance from one another
plus the angle of a moment's glance

the occasionally admitted
and extremely troubling implication —
if the future already exists, our freedom to create the World doesn't
what's going to happen has already happened
what difference can anything make?
how could what we choose to do matter?

Time as out-there locates us as Objects in a larger Object world
 parts in a clockwork
 rendering illusory all that we commonly associate with Subjectivity
 luckily, not everyone agrees with that explanation
 not all philosophers as we've seen, nor theologians —
 nor even all Scientists

Kurt Gödel, a brilliant mathematician and friend of Einstein at Princeton,
 wasn't convinced of the out-there explanation
 although aware that behavior shown by distant galaxies
 indicates that the Universe is expanding, not rotating,
 he solved equations associated with Einstein's Relativity Theory
 as if in context of a rotating Universe
 and in so doing, established that time-like curves could exist
 fall back on themselves into time loops
 negating the existence of Time altogether
 his work received little support

for reasons of their own
 Quantum Physicists also doubt that Time exists
 they point out that until a Wave (with all its possibilities) is measured
 Time is suspended —
 only when the Wave Function collapses
 does a Particle appear with a before and an after
 additionally, there's Quantum Physics' understanding of Space (The Field)
 Particles constantly emerging — meeting with their Antiparticles
 precludes a temporal sequence

moreover, in the diagrams used to visualize Quantum interactions
 Particle behaviors and exchanges go back and forth / move both ways
 while Time, as classically understood, goes only in one direction
 some Physicists theorize that Non-locality itself
 (the entanglement of Particles from the Beginning of the Universe)
 implies Non-temporality

which brings our rethinking back into focus

if Time is out there
 as Cartesian Science would have it,
 a closed system / predetermined / the future fixed —
 then the possibility of creating the World all of us would wish to be
 moving beyond this pathway's end
 is not in our hands

if Time is a dimension associated with Subjectivity, however,
 our own and that of a Universe from which we are inseparable
 as Panpsychism would propose —
 then the freedom we experience in our daily lives is not an illusion
 the Future hasn't happened yet
 we have responsibility for it

from here, our question — “What’s time got to do with it?”
becomes — “Where did Time come from? How did it begin?”

12 in the beginning

although Scientists recognize the indisputability of Quantum behavior
most disagree with the conclusion that it rules out Time
among those who believe that Time does exist
there’s uncertainty as to its origin

many suppose that some mechanical cause must have started it
an eternally existing multiverse
or a world forever bouncing back and forth between contraction and expansion
or a fortunate collision of the brane structures that String Theory proposes

for others in the Scientific community
before the Beginning
when there is no place to locate anything
no “outside” to enable a point of view
no moment a first can follow
no before from which a “once upon a time” can start
can mean only Chaos — and they leave it alone

Whatever the thinking about what came before,
most Physicists would agree that the Universe begins with the Quarks.
And researchers feel confident that particle accelerators duplicate conditions
approximating those earliest moments.
What they “see” there suggests that Time begins
when Particles / Waves cease immediately canceling each other out
and instead —
Particle pairs appear
although the initial relationships last for only an instant

it’s an open question
whether the first attempts at Relationship did not succeed because of the size-inequality
between what the researchers call the “Top” and “Bottom” quarks
or another generation, the “Charmed” and “Strange” quarks
or if other factors such as extreme temperatures inhibited the endeavor

in any case,
we know that stable quarks don’t appear
until the “Up” quark and “Down” quark particles — nearly equal in size
bond in threes
conceived as Strings — they’re making a kind of music
viewed as Particles — they seem to be dancing

importantly for our rethinking
when the two Up quarks with a Down / or two Downs with an Up do emerge
they’re passing an energy packet back and forth

sharing the so-called “Gluon” Particle/Wave
 a giving and receiving activity that effectively holds them together
 creating a duration — Time
 a Reality that had never happened before.

according to many astrophysicists
 this very Beginning of the Universe
 when more Matter than anti-Matter was being created
 involved an Energy fluctuation in a pre-existing “Vacuum Field”
 causing Space to expand at exponential speeds

after a period lasting only seconds
 the remnant Energy condensed into radiation and particles
 particles that Physicists would refer to as having Mass
 such as the unified one Up and two Down quarks — known as neutrons
 and the one Down and two Up quarks — protons
 entangle with a kind of “gooeyness” (named the Higgs Field) associated with Space
 resulting in resistance to movement

these mass-bearing Particles immediately engage in patterns of attraction (Gravity)
 self-similar to the behavior of their quark particle constituents
 Gravity becomes a characteristic of Matter so reliable
 that it will some day be described by Newton’s Laws of Motion
 a predictability which permitted modern Science to emerge

within minutes, Gravity and “Dark Matter”
 (Matter that must be there because it’s measurable, but we can’t see it)
 draw the neutrons and protons together
 and, bonding — they create the first nuclei
 Physicists believe this epoch, called “Nucleosynthesis,” lasts only for about 20 minutes
 during which the first two types of nuclei form
 one proton with one neutron — a Hydrogen nucleus
 two protons and two neutrons — a Helium nucleus
 no more nuclei will develop until there are stars

the pathway to the stars begins almost immediately,
 clouds of negatively charged Electrons are attracted to the positively charged Protons
 wrap them in their Energy
 forming Hydrogen and Helium — the first atoms

during the next 100 million years or more
 Gravity and Dark Matter draw the Hydrogen and Helium molecules into gaseous clouds
 which continue pulling themselves together / tighter and tighter
 until their nuclei fuse — turning stellar

Stars gravitate into galaxies / galaxies into clusters
 all the while so called “Dark Energy”
 (Energy we know must exist, but don’t know what it is)
 pushes the galaxies outward / expanding and accelerating the Universe

the past of the Universe is, of course, our past
 it's where we came from —
 discovering its story, we learn our own

Science shows us that the atomic structures at the core of our being
 enacts Relationship / Belonging
 rather than behavior that could be described as separate Self-interest.
 the Ups and Downs at the Heart of Matter are not powering over each Other —
 they are giving to One Another / equally sharing the Gluon Particle (Wave)
 yet, because the Cartesian Paradigm
 restricts Scientists from attributing any meaning to the story
 whatever lessons it might teach us are locked away

it's worth noting that some Scientists who adhere to the Paradigm
 acknowledge that the Cartesian approach
 could never have predicted the emergence of Time, Matter, the Universe
 nor can it answer, 'why' —

why would the Quarks have behaved as they did
 bringing forth Matter in Time
 or in other words —
 why is there Being rather than Nothingness?

Panpsychism doesn't shrink from attributing the sharing activity of the Quarks to choice
 emerging from a Consciousness pre-existing Time
 from Being without boundaries / an undifferentiated Oneness
 a No-thingness from which any emergence of being some separate thing
 would have to have been met with not-being that

the Quarks, instead of putting forth a separate Self
 begin the Universe by choosing Relationship
 they hold on to each other, creating
 Intersubjectivity —
 rather than One undifferentiated Subjectivity
 giving expression to the meaning of Being: Love

a Belonging from particles to atoms and stars
 a Beginning and a Complexification that outlines a virtual roadmap
 for moral and ethical decision making
 one that can take us beyond this pathway's end

13 Complexity

in the late 1880s,
 mathematician Henri Poincaré
 demonstrated that adding a third, fourth or fifth body
 into the Laws of Motion that Newton had formulated using just two bodies
 resulted in too many solutions.

despite widespread recognition
 that Poincaré's conclusion undermined the stable Newtonian picture
 theoretically suggesting that the solar system itself could hurtle into chaos
 Scientists set the issue aside
 preferring to explore what were then seen as more promising fields of study

in 1961, the troubling theme once more came to light
 Edward Lorenz, an assistant professor at MIT,
 using computer technology to improve weather forecasting
 found that introducing even a small variation into his simulated world
 tantamount to the quiver of a butterfly's wing
 could effect profound change thousands of miles away
 non-linear complex systems like the weather, he concluded,
 are so "sensitive to initial conditions" — they're unpredictable

only a few years later, Mitchell Feigenbaum, mathematician and physicist
 doing research at the Santa Fe Institute
 uncovered a route that some systems take as they transit into chaos
 as his model ("period-doubling cascades") proved helpful for making predictions
 from species population collapse and stock market crashes
 to cardiac arrest and mental breakdowns
 possibly even earthquakes
 studies in Complexity Theory multiplied

in the latter half of the 20th century, mathematician Benoit Mandelbrot
 pointed out that the simple spatial definitions
 which the ancient Greek geometer Euclid had assumed
 failed to take into account the way things actually are
 what looks smooth from a distance (the floor tile, for instance)
 up close is a rugged irregularity (lumps, valleys, pits...)
 Mandelbrot's dream was to formulate a mathematics
 that could capture what he called the "roughness of the World"
 how mountains aren't perfect cones / rivers meander
 shorelines shift / lightning bolts run jagged

He proposed we conceive of space as "fractal"
 every dimension fractionally a part of another
 which he explained by highlighting a central consistent feature, "self-similarity" —
 at whatever scale of observation
 the larger pattern of any system will be found in smaller nested copies
 from neurons to neural networks
 the veins within the leaves of trees to their branches, their roots
 sea shells to spiraling galaxies
 in this fractal Universe, we're all part of something larger

as computer technology enabled visualization of complex systems
 Complexity Theory expanded / contributing to a wide range of disciplines
 sociologists found it worked for studying group behavior
 biologists acquired new vocabulary for evolutionary processes
 clinical medicine arrived at additional points of view

psychologists devised workplace strategies for human resource administrators.
 it was also given more sinister applications
 military and political strategists found it useful for information warfare
 that the repetition of falsehoods can make them seem believable, for instance
 or that, by introducing noise, uncertainty, distrust — by producing chaos
 you can destabilize a system
 like other scientific discoveries, Complexity Theory works.
 for better or for worse.

Complexity Studies connect with our rethinking in several ways
 when researchers turned their attention to Complex Adaptive Systems
 that is, not machines but systems in which the whole is greater than the sum of the parts
 systems found nested within other systems
 and capable of responding to environmental changes
 they identified “self-organization” — as fundamental
 emphasizing the role individual agents play in creating change
 which points toward the efficacy of democratic processes.
 Although there may be varied roles, responsibilities and structures,
 equal input and participation in decision making by all agents in a system
 proves the most successful practice for adaptation and survival

as Complexity Theory gained the scientific community’s respect
 it produced an array of new concepts and tools
 while absorbing terms already part of the scientific lexicon
 including one of utmost importance to us here.

“Phase Transition” refers to a system making a dramatic transformation
 from one state to another, often at the edge of chaos.
 Change that can appear a complete break from the past.

Phase Transitions surround us
 some can be predicted
 at zero degrees centigrade, for example, water will turn to ice.
 other Phase Transitions are only explicable with Subjectivity — can never be predicted
 as when someone falls in love

while minor Phase Transitions happen all the time
 adding cream to your coffee, for example
 Scientists recognize three exceptionally Great Phase Transitions:
 the first was the Beginning of the Universe (the Quarks’ work described above)
 the second — the appearance of Life on Earth

14 a long story short

according to most Astrophysicists
 our planetary story opens some 4.6 billion years ago
 about 9 billion years after the Beginning of the Universe
 in a spiral arm of the Milky Way Galaxy
 where a wave sent out from a nearby star going supernova
 stirs a slowly rotating glowing cloud of interstellar gas and dust

whereupon the cloud's motions, temperatures and pressures change
 as Gravity and a strong Magnetic Field draw it together
 each Particle contributes its rotating momentum to the whole
 causing the cloud to spin
 and like a ballet dancer — the tighter the cloud pulls in, the faster it spins.
 it takes almost a million years
 for the rotating cloud to become a star / our Sun

in the dense regions closest to the new star
 dust particles and bits of matter that can withstand the solar wind and heat
 grow into clumps / gather themselves together
 become the inner planets — Mercury, Venus, Earth and Mars
 farther out, where temperatures are much colder,
 gas giants Jupiter and Saturn and the ice giants Uranus and Neptune form

early Earth is molten
 traces of nuclear reactions from the nebular womb whence she came
 still glow deep within
 while her outer surface is subject to searing asteroids, comet tails, and such

a planet-sized sphere, that we've named Theia, glances off the infant Gaia
 the impact splashes some of Earth's mantle into space which falls into orbit
 adding to the body of the now orbiting unexpected guest
 becoming our Moon

as lava on the Earth's surface slowly cools, sheets of crust develop
 which slip beneath the still hot liquid
 these layers eventually build up into plates
 and land masses

when the fall of asteroids finally tapers off
 and Gaia's temperature drops below the boiling point of water
 moisture in the atmosphere condenses and falls as rain
 for millions of years — it rains
 water that Earth may have carried within her rocks from the time of her birth
 water that may have been delivered from falling stars / comets and the like
 until water runs in rivers on the land / gathers in lakes / forms oceans
 Earth turns a wet warm steaming

by about 3.5 billion years ago
 our Mother Planet has a solid core, land masses, oceans
 a Magnetosphere shielding her from the Solar Winds
 and by virtue of her own Gravitational Field —
 she holds tightly to her atmosphere
 filled with volcanic gases
 Ammonia, Nitrogen, Water Vapor, Carbon Dioxide...

here, too, some Cartesians admit that their Paradigm
 could never have predicted Earth's evolution
 from a so-called "Goldilocks" planet (neither too hot nor too cold)
 to a possible home for living beings

even less so understand
 how the next Great Phase Transition — the emergence of Life
 could have transpired without Matter having some kind of Mentality
 for Subjectivity seems present from the start

our best estimates suggest that Life on Earth begins
 around 3.5 to 4 billion years ago
 though exactly where is uncertain
 surely somewhere in Gaia's warm steamy waters
 then steeping with free floating mega-molecules
 some delivered from outer space by meteorites / comets / stardust
 others Earth-born

it may have been in a soft wet clay
 along a river's edge or among a lakeside's boulders
 or maybe near volcanic vents beneath the oceans
 perhaps in oily droplets serving as protective domes
 sheltering the delicate possibilities within from the turbulence outside

Scientists postulate that it started with "Long Chain Polymers"
 highly evolved complex molecules that had developed a unique set of skills
 not only recognizing and acknowledging One Another
 but also playing a kind of game together, passing a molecule back and forth.
 Not everyone can play, however
 to perform the little trick
 a chain needs the requisite information strings (particular sets of molecules)

at some point
 the Long Chain Polymers add something new to the game
 they begin supplying the missing information strings to those in need
 so that they, too, can participate
 a simple act —
 yet one that changes everything
 'providing energy or information to initiate or sustain activity'
 defines metabolism, the Hallmark of Life

the metabolic activity is behavior not previously observed
 so profound a development
 that Science recognizes it as a Great Phase Transition
 Matter transiting from the Chemical world into the Biosphere
 by way of a bonding more fragile and delicate than the chemical alone —
 that enables the numbers of atoms linking into molecules to increase exponentially
 opening astounding horizons of form and function
 beauty / intelligence / possibility

here again, some Cartesian Scientists admit that how this transition came about
 is almost inconceivable —
 although it would be far less so if these proto-life forms had some kind of Mentality

from a Panpsychist perspective, prioritizing the potentiality of Others
 indicates that the Long Chain Polymers
 have taken the Universe a step beyond the earlier sharing activity
 into doing something entirely for the benefit of Another
 (and maybe also for the mutual pleasure of playing together)
 — a kind of altruism
 creating a new basis for Belonging

Possibility / excitement / ...Life
 as the recipients choose to repeat the same gesture
 the activity takes off
 metabolic activity cascades

these Proto-organisms are soon linking up
 with an ever widening range of molecular strings
 gathering in immense numbers
 bringing together diverse information sets
 developing new repertoires not possible with the earlier bonding method

at the outset of what even Cartesian Scientists sometimes refer to as the “miracle”
 the waters are rich with unattached macro-molecules
 opportunities and possibilities exist everywhere
 on invitation into Relationship by the Metabolizers —
 free Strings readily respond
 find themselves cared-for by others / choose to care-for others in return
 join the joyous celebration — serving One Another
 unifying on a whole new level

after hundreds of millions of years or more, however
 the teeming supply of available molecular Strings that once filled the pristine waters
 begins to dwindle
 the required energy (food) becomes less obtainable
 Mother Earth’s living off-spring are facing starvation

Cartesians can’t ask,
 but Panpsychists can:
 do the Metabolizers somehow recognize where the food molecules have gone?
 and that none can give up the now living pieces of themselves without dying?

plus a larger question —
 are they aware that to take the needed segments from Another
 to deny Life to Someone else in order to sustain One’s own
 reverses the sharing / altruistic course
 that brought them from The Field through the Quarks / Atoms / Molecules
 to Life?

if the Universe has some kind of Consciousness,
 the Community of Life may have understood
 that reciprocity was the only way
 they could preserve the continuity of who they were
 where they came from.

However inspired, these early Proto-Life forms shifted to eating One Another,
 and, if not becoming food for Others,
 serving the larger Living Network in some other valuable way
 as would much later be the case with predators not often prey themselves,
 wolves, for example
 who, after they die, feed scavengers, fungi, return to Earth

some, like viruses, don't seem to fit the reciprocity pattern,
 commandeering cell functions for purposes of their own reproduction
 often destroying their host and apparently giving nothing in return.
 But they also lack basic Metabolic behavior,
 so that many Microbiologists don't recognize them as a Life form.

the Metabolizers alive when the food first ran out
 somehow reached a decision that moved the whole Network of Life beyond the crisis
 a change that would someday evolve into interdependent eco-systems
 a Communion of the Living

whether from the Cartesian point of view or the Panpsychist
 the solution would seem a strange paradox,
 Nature has woven herself with internal conflict
 since every Proto-Organism alive then
 and any healthy Creature living now — or that has ever, will ever live
 wants to go on living

the “struggle for survival” that ensues, gives evolution a violent side
 which later will bolster those who argue
 that the Ego Cultural mindset is inevitable / “only natural”
 citing this “tooth and claw” side of Nature as evidence that we were separate Selves,
 over and against each other from the start
 an easy argument to make —
 too easy, it turns out

not long ago,
 biologists themselves tended to reduce “survival of the fittest” to “competition”
 believing domination the signature mandate of evolution
 convinced that our own competitive behavior represents Nature's ways

more recently, however
 researchers are finding that powering-over isn't always the best survival solution
 cooperation sometimes proves the more effective strategy
 both within species, as many primates demonstrate
 as well as across species,
 warning one another about predators / mutually helping find or obtain food.

Getting back to the story we're telling here, however —
 as we move toward the third Great Phase Transition
 we're still billions of years in the past

15 the Eukaryotes

as the Proto-Life forms eat and are eaten
their intermingling greatly accelerates evolution

several groups find ways to get food and shelter without injuring others
symbiotic parasites help preserve the Life of their host
even prove themselves indispensable
developing repair services, transportation, sanitation and more

among “guests” who contribute positively to hosts
and the evolutionary direction:
Mitochondria devise a way to convert food into ATP
an energy packet for powering cellular activities
and able to be stored for later use
a most welcomed presence

another molecular Chain learns how to catalyze
enhance interactions without being changed by them
yet another, the RNA group, specializes in memorizing molecular sequences
making accurate reproduction possible

RNA comes up with valuable innovations such as a cell wall
a semi-porous membrane that can protect the “Organelles”
(individual entities that perform essential activities for the cell)
while allowing needed food to enter from outside
once walled cells appear — recognizable Bacteria take the stage

within the protective cell walls, RNA modifies its own structure
reinventing itself into the double-helix form
becoming DNA — the matured catalyst and pattern carrier

like its predecessor, DNA determines the functions and forms cells take
it instructs how the proteins are to be assembled
becoming double stranded rather than single stranded
DNA shows greater stability
can correct mistakes
carry out more complicated processes
respond more quickly to in-coming information
come up with better-fitting adaptations for ever-changing environments

one group of bacteria creates an entirely different method for obtaining food
instead of eating others
these Cells begin producing their own nourishment
assembling it from the basic atomic building blocks

using Sunlight for energy
they split Carbon Dioxide (CO₂) from the air into Carbon and Oxygen
break apart water (H₂O) to obtain Hydrogen
synthesizing the needed food molecules from renewable resources
Photosynthesis will eventually serve as the foundation for all of terrestrial Life.

the Cartesian Paradigm permits no suggestion of intelligence,
 or purpose in the story of Evolution.
 it attributes all adaptations and improvements to chance, random events.
 whether according to the older Darwinian Theory
 which suggested the process occurs at the level of the Organism
 or the more recent assertions that move the locus of change to the DNA level.
 for strict Cartesians, adaptation must remain a mechanical fluke

yet Science progresses —
 and in light of insights provided by Complexity Theory
 numerous Researchers, particularly in the field of Microbiology
 edge closer to modified Panpsychist explanations
 many now believe that some kind of Mentality
 something like creativity and choice
 better accounts for the adaptations

this next part of our story,
 the third Great Phase Transition, provides a striking example

about 2 billion years ago
 Earth's Life-forms still consist only of a wide variety of single-celled bacteria
 called "Prokaryotes" (cells without a nucleus)
 yet even with those limitations, they flourish
 blanketing the seas / swarming the continents / covering mountainsides
 in an astonishing diversity of color, form and skill
 among them, the photosynthetic microbes are proving extremely successful

after almost a billion years, however, an unanticipated problem develops
 the use of water in photosynthesis produces the by-product of free Oxygen (O₂).
 Iron laying along Earth's surface had long been absorbing that Oxygen
 but when it became saturated — a surplus began building up

Oxygen accumulating in the higher atmosphere interacts with the Sun
 transforms into an ozone layer — a good thing for Life
 as it shields Earth from ultra violet radiation

it's a different story down below.
 Oxygen is lethal to almost all then existent Life forms
 as the Oxygen levels mount, masses of cells are dying off
 the once fecund hillsides turning bleak and desolate
 one of the greatest extinction events in the history of Earth is underway
 Gaia's fragile Network of Life at a pathway's end

luckily — for all of us
 two unique forms of Bacteria happen to meet up
 one of them, tail-wiggling Spirochetes
 skilled in mobility with an innovative method of reproduction.

the other, an eccentric group of Purple Bacteria

perhaps avoided by most other bacterial forms
 due to their dangerous habit of toying with the poisonous Oxygen
 but after millions of years playing around with it
 they no longer die from it / they've learned to breathe it

in their initial encounter
 the two groups may have perceived one another as potential food
 but the Purple Oxygen Breathers may also have recognized a power to find food
 in the Spirochetes' mobility
 important, since their own local resources were rapidly diminishing

while the Spirochetes, in turn, may have understood that
 odd as the Purple Bacteria's breathing of the Oxygen might be,
 it represented a kind of salvation —
 for they appear immune to the death happening all around

even if they grasped the advantages each had to offer, however
 they faced seemingly insurmountable obstacles for sharing those resources
 both are Prokaryotes
 small single-celled individuals
 with rigid walls and simple structure
 not known for cooperation / nor for working with others as a unit

improbably,
 the Spirochetes and Purple Oxygen Breathers
 leave their old bacterial Selves behind
 and emerge a single Creature
 effectively securing their future by sacrificing their pasts

the unification of the two individual identities into a new Self
 will so profoundly impact the make-up of the Living World
 that scholars consider it a third Great Phase Transition
 comparable to the Beginning of the Universe
 and the Emergence of Life
 and not only because it moved Life beyond the Oxygen Crisis
 here's why:

the new "Eukaryote" cell is radically different
 instead of everything that makes them up
 floating indiscriminately in the liquid within their cell walls
 (as will remain the practice of Prokaryotes)
 the Eukaryotes create an orderly internal network
 everything organized around an innovative central nucleus
 where their DNA resides

these Nucleated Cells are immensely successful
 their Oxygen breathing method of metabolism results in greater energy efficiency
 while their DNA — now protected within its own nuclear envelope
 optimizes its abilities

and there's more —

before this time, Bacteria reproduced by way of “binary fission”
 an asexual form of reproduction
 a kind of cellular cloning in which
 first the DNA and then the cell splits in two
 resulting in two identical daughter cells

the Eukaryotes improve on this basic idea by adding more steps
 including repair and innovation
 taking more time / yet rendering greater accuracy

they also invent a more complicated reproductive method
 in which parent cells produce four daughter cells
 each with only half the genetic information necessary
 reproduction occurs when two of the four from the opposite sexed parents unite
 this new method multiplies the opportunities for diversification and adaptation
 since cells from different parents are likely to meet up

the Eukaryotes Self-organized into a Life form of such complexity
 that it will enable their descendants to retain their individual identities
 while becoming integral agents of larger living systems.
 multi-cellular organisms, in turn, will lead to multi-organelled creatures
 bodies with bones, skin, a heart, lungs, eyes, digestive and neuro-systems...
 functioning together in mentally unified Living Networks
 the future of Life on Earth

— but that comes much later

immediately after crossing the nucleated threshold
 the Eukaryotes enter a relatively quiet period
 perhaps solving problems associated with different kinds of cells linking up.
 the fossil records show flotillas of differently structured cell types
 coming in contact with one another
 coordinating their skills / mutually dividing labors
 developing specialized abilities / adapting their shapes and functions

until a great deep freeze occurs
 one of several ice ages that cause extinction events on Earth

fortunately, when mild weather returns
 neither Eukaryotes nor Prokaryotes have been wiped out
 multi-cellular creatures, in fact, have developed unexpected skills
 some can perceive light and shadow, for example
 plants have begun to appear

on the way,
 the Eukaryotes have solved another problem facing the larger Living Network
 they had inherited an exceedingly long life span
 their Prokaryotic ancestors were potentially immortal
 they could starve / die of thirst / get crushed or eaten
 so probably didn't actually live forever.
 yet their longevity / living on and on

severely restricted the rate at which adaptations could occur.
 the Eukaryotes' answer: forgo individual immortality
 encode aging and death into their DNA
 creating themselves and their progeny as beings-unto-death

their solution, reminiscent of the sacrifices their ancestors made
 stands in stark contrast to our Ego Culture's idea of separate Self-interest

however they reached the point of making such a surprising change
 it would prove profoundly advantageous to the larger Living Community
 not only reducing the time it was taking for adaptation and evolution to occur
 but also in a distant future —
 cells dying so that others can take their place
 will make possible embryonic and fetal growth
 complex nervous systems such as our own

by 540 million years ago
 diverse cell groups are living together as unified Organisms
 re-configuring and re-building their structures
 in response to cues from their environment
 when a group learns to make use of Calcium
 hard body parts like shells and bones appear
 unprecedented forms / functions / adaptations emerge
 Life blooms

to reach the appearance of Humans
 we need to overleap hundreds of millions of years
 past important moments
 like the migration of Life Forms from the water onto the land
 the 165 million years of Dinosaurs and their extinction
 past the emergence of Mammals and then Primates

to about 3 million years ago
 when our most famous common ancestress, Lucy,
 was living with others like herself in present day Ethiopia
 they're tool-makers
 they gather plants, scavenge, hunt and fish together
 and after another million years or so there's evidence of befriending fire
 some of these early Humans will migrate out of Africa to Asia and Europe
 cross the Bering Land Bridge
 into what Europeans will later call the Americas

about 100,000 years ago, we're burying our Dead
 soon after, creating unprecedented forms of Art
 beautiful cave wall paintings, jewelry, decorative beads, stone work
 antler carvings, statuettes that may be Goddess figures
 eventually some groups begin farming land and domesticating animals
 their communities grow

a short 5000 years ago
 rivers and river valleys cradle the first cities

we're making tools from metals
 navigating by the stars, Moon, and Sun
 using systems of letters and writing

by then, the Ego Identity had already engulfed us
 the first known civilizations so typically feature hierarchies of privilege and power
 that some Anthropologists define "civilization" by the presence of stratified societies

for thousands of years,
 we've told and enacted a story of separate Self-interest
 Objectified each other and Nature
 but a quick review of some points we've drawn from Science
 reminds us of the strong evidence against that narrative,
 as well as the Cartesian view that Matter has no Mentality.

- consider the unexpected behavior of light going through those two slits.
 the particles seeming to know if they're being observed
 and seeming to "care"
- that particles, once involved with one another remain entangled
 so that something done to one inexplicably affects the other
 even across distances too great for cause and effect to link
 and since all particles were in touch at the Beginning of the Universe,
 Everything is entangled. "The Field" nowhere a vacuum.
- the theory that reconciles Matter's behavior on Cosmic and Quantum scales
 by conceiving every possible Particle and snippet of energy (Wave) as a String.
 A kind of harmonious music at the Heart of the Universe.
- the story astrophysicists tell about the Beginning of the Universe
 that it starts with the Up and Down quarks dancing in trinities
 sharing the Gluon Wave
 creating enduring Relationship
- and from there, Matter self-organizing
 spontaneously joining into nucleons / bonding into Atoms
 sharing and exchanging energy Particles
 drawing together into greater unities — stars / galaxies / planetary systems
- the Long Chain Polymers transitioning from chemical bonds
 to living Relationships by doing for Others: Metabolism
 Life beginning by virtue of giving and continuing by serving One Another
 as evidenced in the activity of the Organelles within each of our cells
- the Spirochetes and Purple Oxygen Breathers sacrificing their prior identities
 joining together, creating a new form of Belonging
 making possible multi-organelled complex Creatures such as ourselves

in the model of the Universe offered by Panpsychism
 (where Mind and Matter are not separate)
 these pathways taken by our pre-human Ancestors represent choices

sharing, altruism, cooperation / working for the benefit of the Whole
form the basis of our Material / Biological / Psychological Selves
the Scientific evidence that we're inextricably entangled with the Universe
mentally and physically with One Another and all of Nature
stands against seeing the Ego Identity as "only natural"
the best we can do

could this be why we stubbornly persist in doing good?
why making someone happy gives us such joy?

Part III — How

16 or who

were it not for our culture's historical decision
 to base what qualifies as knowledge on the actual
 on measurable descriptions
 there would be no Science / no modern medicine / no technology at all
 there is a truth to Matter — it behaves in certain ways
 there are truths about Biological Life
 (if the Organelles within a cell cease working together — it dies)
 likewise there are truths about Ourselves

given the problems we face —
 one would think that the enormity of the danger would already have been enough
 to unite us in uncovering and correcting what we're doing wrong

instead, we find Ourselves standing at the canyon's edge
 peering into the chasm
 some of us generating dystopian tales
 others telling ourselves preferred lies / half-truths
 ignoring the Scientists who say we're running out of time

although many of us do see the problems
 and imagine the World we could create
 we're failing to unify

the distance from where we are to where we need to be seems dauntingly great
 yet Nature has faced similar moments in the past
 and on each occasion the individual agents comprising the system
 found a way to move beyond the crisis
 unpredictably / unexpectedly
 as improbable as the Beginning of the Universe —
 Great Phase Transitions have happened before

17 what's holding us back

although we've not yet begun to hammer our swords into plowshares
 not yet altered our economies so that not one child goes hungry
 not yet fully changed over to renewable non-polluting energy sources
 if asked —
 none of us would respond that we're standing in the way
 each of us might answer, in fact, that we're already doing all we can

with an eye to moving beyond this impasse
 our rethinking needs to examine more closely the workings of
 the mindset that brought us here

in practical terms,
 the Self-as-separate Ego Identity translates perceived differences —
 gender / skin color / family / social rank / nation / religion / species...
 into *"I'm not that."*

instead of appreciating the wonder of our diversity
 the beauty of difference
 and creating a Culture that rejoices in pluralism —
 the Ego Self views the "other" as Object
 works by comparison / competition
 the effort to power-over
 a basic pattern which appears in the Ego Narrative's various modalities:
 sexism, racism, classism, nationalism and such

so how does this mistaken notion of Self come to have us in its grip?
 lodged for millennia in our Ego Cultures —
 it enters our individual lives in childhood.

it begins at birth when we're assigned one aspect of our Ego Identity
 based on a potential biological reproductive function
 growing up, we'll be programmed to our position in the gender hierarchy
 males taught to be masculine boys
 females programmed to be feminine girls

girls get the message that fulfillment comes from pleasing others
 especially men
 becoming the object of desire
 they learn their society's notions of female beauty
 domesticity / motherhood and service / the Caretaker

meanwhile,
 boys learn that they must never show / or even feel emotion
 they're supposed to be in control of the situation
 dominant over others — at all times
 impossible, of course, and therefore anxiety-producing
 but at least they get to tell themselves they're above girls
 (which they may cling to, seeking but never finding relief from the anxiety)
 boys' and men's "locker room talk" further instills disrespect for women
 what results:
 domestic violence, widespread sexual assault and harassment —
 as an international "Me, too" movement has recently revealed

sexism — the primary modality of the Ego Identity — plagues every continent
 it's even worse in cultures that make no pretense of liberating women
 genital mutilations, honor killings, child marriages, and more
 ours is not a woman-safe world.

a more generalized kind of programming to the Ego Identity
 also begins in early childhood
 a message implicit in language and learned from the performance of others
 at home with our families, at school, in sports, what we see in the media

telling us that competition is the name of the game
 a message reinforced in the actual games children learn to play
 with siblings / friends / classmates
 games where there's the winner and the loser
 no one wants to be a loser
 but when you're younger or the smallest kid in the game...
 and no one / nothing comes to help
 it makes a deep impression

building on the "better than" idea underlying such competition
 the classism modality of the Ego Narrative tells us that if you have more —
 you're worth more.
 this hollow notion of personal value produces a craving that can never be satisfied
 on display in the Forbes 500 rivalry
 perpetrated in advertising, TV and films
 esteem for the owner of the luxury car
 admiration for the mansion / the multi-million dollar yacht

this modality defines "success" as having taken much more than your share
 even though grabbing all you can get is on some levels frowned upon
 at a dinner party, for instance,
 you'd never take eight pieces of a cake cut into ten
 — leaving just two for the other nine guests.
 yet, classism normalizes the top 10% of society controlling 85% of the wealth
 while many of the other 90% of the people don't have enough to meet basic needs.
 the Ego Identity applauds economic disparity / works at retaining it.

we cherish the ideal of equal opportunity —
 yet all of us are aware, except perhaps some of the privileged themselves,
 of the advantages certain children enjoy
 in access to education, connections, career prospects and economic support

we believe in democracy —
 but permit money to corrupt our politics
 and we seem to accept without question the dictatorship operative in workplaces
 where owners of businesses exercise absolute power over employees

the racism modality of the Ego Narrative
 has produced some of its ugliest manifestations.
 it programs Whites to believe they're superior to Blacks
 and other People of Color
 outright racists consciously hold the opinion that the color of their skin
 marks them off as better than people with skin of any other hue
 excusing personal abuse and institutionalized forms of discrimination

very few individuals now openly proclaim such attitudes
 in part due to the lesson hard-learned when Hitler's White Supremacist narrative
 dragged the whole World into a nightmare
 in part because society has acknowledged
 the evils of slavery, segregation, lynching and KKK rallies

so people generally don't want to call themselves racists anymore
indeed, most who harbor racist attitudes sincerely believe they don't.
denying the problem, however,
makes it more difficult to address the racial unfairness
in educational and economic opportunities
the criminal justice system, housing, healthcare...

Like sexism and classism, racism alienates us from One Another and our World.

we may not feel that we're caught up in these modalities of the Ego Narrative
because they work largely on the unconscious level
they're in our language
saturating the words that formulate our thoughts and register what we see
in the assumptions that our culture teaches us to make
when we see One Another in public
in how we understand the news

to begin to liberate ourselves
we need to recognize that, no matter how we were raised
or what we might think our attitudes are,
all modalities of the Ego Identity embedded in our culture necessarily affect us —
the first step is to admit it
only then can we effectively work at noticing and countering it
in our thoughts and behavior
minute by minute.

the Ego Narrative has warped some of our greatest leaps of progress,
and it underlies the worst moments in our history.
such as colonization and the unspeakable enormity of the Holocaust.
our history could leave you thinking that we've never had any guidance
toward another path.

but we did.
all along.

18 guidance

we've known for a long time
that the Ego pathway doesn't take us where we want to go
in part, thanks to Religion

anthropologists agree that Religion,
broadly defined has been present in all Human societies.
questions remain, of course —
is it about explaining the Cosmos?
is it what a society holds Sacred? / what binds its members together?
does it refer to beliefs? / rituals? / moral codes?

as Scientists, Anthropologists insist on evidence
drawings / artifacts / pictures / words / sculptures / performance...

measurements and descriptions
 what things mean, or may have meant less welcome to the discussion
 because meaning is subjective
 (and who can tell what something meant or means to someone else)

yet Anthropology does study belief and practice reaching far back into our past
 from the Carnac stones and Stonehenge to the Teocalli temples
 seeming references to the Sacred
 exactly what kind of Sacred we don't know

we do know that, at some point
 some of our ancestors cast the Divine in anthropomorphic terms, that is,
 with humanlike characteristics.
 Gods and Goddesses, maybe with foibles,
 or one God —
 so revered for some, that His name must never be spoken.
 Others have formulated Wisdom Traditions based on models of the Universe
 that call for harmonizing our behavior with its Way.

Different cultures, each in their own expression.
 Even religions and spiritual traditions associated with our hierarchicalized civilizations
 have consistently discredited the Ego Narrative
 at least in its simplest manifestations as selfishness and greed.

Buddhism with its emphasis on compassion, for example.

Judaism with its commitment to Community
 and its long line of prophets like Isaiah urging us to care for those in need
 and foretelling a day when we will 'hammer our swords into plowshares.'

Islam whose prophet Muhammad said,
 "He is not a believer whose stomach is filled
 while the neighbor to his side goes hungry."

and Christianity, based on the life of Jesus Christ,
 who taught, "love one another" / "feed the hungry" / "put away your weapons"
 urged the wealthy man to "sell all you have and give to the poor."
 although that message never entirely disappeared
 it was mostly explained away / made secondary
 as men institutionalized the religion that took his name

it's not only because religions are brought to us by Human Beings
 caught up in Ego Cultures
 that they haven't fully and consistently pointed us in a better direction.
 it's also, in part, because many have taught that theirs is the Only True Religion
 and, perhaps more important, here —
 the teachings of many religions objectify and devalue Nature.

in addition to religions and other spiritual traditions
 Art, Music and Philosophy have also provided guidance

a more modern source for the notion that there's a wider Reality
 came after Psychology's emergence as a scientific area of study
 not from Sigmund Freud
 but from Carl Jung, whom Freud had mentored

Jung pursued a basic insight that Freud had popularized:
 that in addition to our conscious thinking / we have an unconscious
 a function of our psyche that archives past memories and experiences
 and that, if we repress a stored episode
 particularly one which carries an intense emotional charge, it can take control
 impinge on our ability to think rationally / make choices
 limit our freedom / our possibility

starting there, Jung came to realize that there was more to it.
 He discovered that patients' narratives and dreams
 sometimes connected with motifs, stories, myths, images, patterns...
 that repeat across societies and throughout human history.
 He saw these shared "Archetypes" as evidence for a "Collective Unconscious"
 a deeper layer beneath the individual unconscious
 a realm of shared experience that plays a significant role in our psychology

this Collective Unconscious insight certainly connects with our rethinking.
 it resonates with the Panpsychist idea of a greater Subjectivity
 associated with the unified understanding of Space, "The Field" of Quantum Physics.

Jung coined the term "synchronicity"
 to refer to events that carry meaning beyond what might be attributed to chance
 when a thought or a psychic / mental state coincides with a physical outer event.
 as if by "magic"

like the way the I-Ching works
 the I-Ching or Book of Changes
 is a compendium of ancient Chinese wisdom
 that links the random toss of coins or movement of sticks
 with a mathematical formula that generates a set of broken or unbroken lines
 called hexagrams
 the hexagrams, in turn, are associated with images drawn from Nature
 and given further elaboration through poetic explanations
 the process seems to enable a dialogue between Questioner
 and the Subjectivity of the Universe
 sometimes describing the landscape of one's own thinking
 sometimes offering a sense of another person's perspective
 sometimes prefiguring what might unfold from a particular course of action
 in any case,
 it always encourages goodness and intelligent behavior —
 with several passages explicitly rejecting the pursuit of separate-Self interest

another tradition that calls into question mindless Matter
 and can deeply discredit the Ego Identity
 is the idea that the arrangement of the Solar System (the Stars) at the moment of birth
 seems to describe a dimension of Personality

a premise that might make sense in that Life on Earth evolved over billions of years
 in this uniquely changing physical field of Sun, Moon and Earth's sibling planets
 bathed in the rhythms of the seasons
 a macro-micro Cosmic mix into which each of us is born

many people find Astrological descriptions accurate
 yet without a scientifically verifiable linkage
 the Stars remain controversial for academia.
 nonetheless, including this element in our sense of Identity
 provides us with an expanded notion of Self
 a personal worth and value that can far exceed the Ego Narrative's arenas
 of comparison and competition
 if we find the descriptions true...
 you have to judge for yourself

the idea that we're part of a Universe imbued with Subjectivity
 that could engage with us in dialogue
 touch the smallest detail in our lives
 message us in our sleep
 doesn't mean that anything can mean anything
 attaching significance to the random
 whether an undeniable coincidence / a compelling dream
 or the stream of information daily coming our way
 involves a risk we learned about in childhood
 the danger of mistaking the imagined for the real
 seeing only what we're looking for
 spinning facts to suit our wishes — courts disaster

more Scientists are beginning to recognize, however,
 that carefully widening the scope of our vision to make room for Subjectivity in our World
 doesn't require going back to the way things were before the Scientific Method
 indeed, a Panpsychist perspective might even help resolve issues
 raised by Quantum Physics and Microbiology
 and it certainly provides an alternative to the alienation and competition
 characteristic of the Ego Cultures' world

as the year 2000 dawned
 our networked planet welcomed the new Millennium
 with music, show and spectacle
 celebrations of dance, words and pyrotechnic display
 Bob Marley singing, "One Love"
 cut across time zones / political boundaries
 a moment filled with hope and promise
 some likely had in mind that we were leaving the 20th century
 100 years of painful memory
 nightmare never to forget

others were welcoming more than a new decade
 more than a turn of century
 the start of the third thousand years
 perhaps carrying the fulfillment of unforgotten prophecies

tears ran down many cheeks that night

but a globe technologically linked
 aspiring for the same dream — doesn't make it happen
 twenty years later, that New Year's moment remains a winsome reminder
 a passing apparition of what Everyone wishes could be

Human identity metamorphosing from separate-Self interest
 to solidarity, mutualism, altruism
 suddenly turning to One Another and Nature with loving eyes
 freely dispersing our fortunes
 paying debts owed for colonization and exploitation
 forgiving each other / putting away our weapons
 inventing a new economic system
 everyone working together to create a sustainable relationship with our planet...

it seems almost impossible
 but, seeming "impossible"
 fits one of the key descriptive elements of a Phase Transition
 and such transformations have happened before

19 reconsidering

evidence tells us that the Ego Identity is not inborn
 not inevitable
 its modalities are cultural expressions
 the idea of a separate Self lays atop our physical / biological being
 so that once we become aware of it — we can do something about it

given the Will to leave our Ego-bound history behind
 where do we start?

we learn from Complexity Theory
 that the individual agents of a system carry and produce the larger pattern
 whether the flight of a flock of birds or a change in the weather
 the smallest fluctuation (the whisper of wind from a butterfly's wing)
 if met with resonance — reiterated / repeated
 can cascade upward / alter the pattern of the larger system
 in other words, small acts by individual agents in the system
 can bring about a major change

Each of us at the Individual level can be the only place to start.

if fortunate enough to grow up in a democratic political culture
 and to enjoy a certain degree of social privilege,
 we each choose what we will be about
 our career path / with whom we'll live / where
 what values hold / what story tell

our situation requires new thinking that leads to new practice

in order to free ourselves of the Ego Narrative embedded in our Culture
 we need to become aware of its hold on us,
 this requires each of us to be constantly on the alert for it
 ready to replace it with a more constructive narrative

we may not be in the habit of paying that much attention to our thoughts
 responses, feelings, impulses...
 we're not taught to consciously choose the way we see things
 how we think about One Another and Nature
 the larger implications of the smaller decisions we make
 so we may have to develop and use mental muscles that we've not exercised before
 taking control rather than letting ourselves be controlled.

this is where our rethinking can help
 we can draw strength to break the narrative chains constraining us
 by remembering that we're inseparable from The Field constituting Space
 which Panpsychism permits us to see as Conscious
 thus, we're each a part of a Larger Subjectivity
 from the undifferentiated One-ness before the Universe opened
 to the Intersubjectivity that began Time / Matter
 and complexified into the diverse Wonder of Nature
 infused with intelligence / goodness / beauty that is our World
 we're descendants of Acts of Love
 able to engage in dialogue with One Another and Nature
 we're never really alone

Mind and Matter are not separate
 nor do we live on the basis of separate Self-interest
 from our Quarks to our atoms / molecules / and the Organelles within our cells
 giving / sharing / and cooperation characterize every level of our Self

these understandings can inspire and encourage new behavior
 as can envisioning the transformation that will follow —
 a greater horizon of Freedom than we could have imagined
 a deeper sense of Belonging
 the Joy of a boundless Community

20 a change of heart

we know this much about where we are —
 according to Biologists
 we are in the midst of the sixth major mass extinction event in the history of Earth
 this one happening because of our activity
 threatening a chaos far surpassing the tragedy of our present pandemic
 we also know the other dangers we're facing
 signs that we've arrived at the end of this pathway

and we know this much about Love —
 nothing makes us happier.
 helping One Another resonates deeply with Who We Are

imagine a World no longer ensnared in the Ego Idea
 where no one would even want to take more — and leave others deprived
 where there would be not one child hungry / not one person homeless
 no more building weapons for killing each other
 no more wars
 a World where Humans have become Earth's beloved Gardeners

we could do that / be that

most of us,
 by the time we reach adulthood have developed empathy and compassion
 learned how to listen
 how to appreciate Each Other's specialness
 to respond with respect
 make a place for Intersubjectivity to happen

we experience glimpses of this possibility
 in spiritual practice
 such as quietude, meditation and prayer
 yoga, running...
 in moments with Nature
 or listening to music
 dance, art, poetry
 dreams and synchronicity
 in altered states of Consciousness
 it's there in ordinary occasions of our daily lives
 when in a word / an act / a picture
 with the children, our pets, One Another
 our Mind opens to the Universe

for such instants to change our cultural Reality, however
 to make Intersubjectivity rather than competition
 the fundamental expression of our World —
 each of us will need to do something more than we're already doing.
 first, by making sure our Hearts are truly ready to do whatever might be required
 to address systemic inequities caused by racism / sexism / classism

then — everyone doing whatever they can
 with whatever power or position they have
 to take the steps necessary to deal with our impending planetary climate crisis
 some by dispersing their accumulated wealth more generously than ever seen before
 giving the less privileged reason to believe
 that the Wealthy of our world can and will choose to share
 that the Energy Giants will make a changeover to renewable sources
 the Military/industrial Complex work for disarmament

in democratic societies, each of us doing what we can includes —
 voting

Voting resonates with what Complexity Theory teaches

about successful Complex Adaptive Systems (like Human societies)
 individual agents in such networks — although playing unique roles
 share equally in the making and carrying out of the collective choices
 and all are equally cared for
 voting means exercising the right that so many people struggled, labored and died for.
 a gift underrated by some / underused by many

as a process
 voting expresses the principle that everyone is equal
 it's a responsibility that democracy puts in every citizen's hands
 in a true democracy the majority would set the rules —
 all the people rather than a small empowered minority.
 voting puts into practice the idea that everyone gets to participate
 in making decisions that will effect them.

recognizing the power that our singular voices put together can have...
 could help transform the World —
 although each ballot cast may represent only a small step in a long journey.

this year, 2020, in the United States, for instance
 we will be voting on the general direction we want to take.
 in a country founded on rejection of one-man rule,
 do the people want to continue with a regime
 that keeps pushing to increase executive power,
 that sows distrust of the free press / Science / essential institutions
 that encourages white supremacist and misogynist demonstrations / hate groups
 works at reversing any efforts previously made to deal with the climate crisis
 disdains international cooperation
 closes borders to people in trouble
 or do we prefer a different direction than that

voting will always mean looking for candidates who lean toward
 rather than away from
 the World all of us in our Hearts may have at one time wished for
 the altruistic values at the Core of our Being.

If we each were to do all that we have the power to do to create that World
 a Relationship with Nature and One Another informed by Intersubjectivity
 that is, if respect, equality, reciprocity characterized our interactions
 if Love, Wonder and Generosity replaced the mistaken idea of separate Self-interest

we could create a Phase Transition