

On The Nature of Things

...As They Seem

A Didactic Poem in Stichic Form
Composed of Joined Elegiac Quatrains

And Inspired by the Great First-Century-BC Roman
Didactic Poem of Epicureanism, *De rerum natura*
("On the Nature of Things," in 7,400 Dactylic Hexameters
Divided into Six Untitled Books [and Probably Unfinished])
by Titus Lucretius Carus (c. 99-c. 55 BCE)

Though More Fundamentally Motivated by the
Counter-Intuitive Nature of Our World
Revealed to Us by Embodied Cognitive Science

*D*esire drives the way our world's made
By us from out those crucial bits our nerves
Evolved to read—a narrative, portrayed
Electrochemically in flesh, that serves
To steer us through the blur of useless facts
In which priorities of sustenance
And safety are obscured, lest they detract
Our chance to pass on genes toward subsequence.
The antecedent of this mortal force,
Before the workings of biology
Emerged from properties at physics' source,
Is, basically, *attraction*—gravity,
Electromagnetism, and so on—
Found everywhere but most suggestive of
This recent earthly process we see drawn
Between two sentient beings, long called "love."
Lucretius sang a version of this song
Two thousand and some years ago but failed

To make it quite cohere, since he was wrong
(As was this Epicurus he unveiled)
About reality—*as are we all*
By sheer necessity. For, how could he,
Or anyone, back then or now, not fall
For the *illusion* of reality,
Which is *constructed*, not out there as shown?
Yes, nervous systems studied have revealed
That what's outside our skull cannot be *known*
Within but only *guessed at*—our best yield
With what weak instruments we've been bequeathed
By evolution's strict priorities,
Through which we're shaped by needs of our own niche
As ecological economies.
This is to say that sugar is not sweet
To anything but brains evolved to find
It so. And colors are but how we greet
Specific wavelengths (when not color *blind*)
Because our species has developed three
(Or, rarely, four) such cone cells to detect
Those lengths of radiation waves most key
To *our* survival—*not* to mean "correct"
Though, as is shown with other species' eyes,
Which see things differently with more or less
Of these same types of cells. And this applies
To every sense a species might possess,
Such as magnetic fields or heat, or tastes

Of acid, gas, or other signals shown.
These differences reveal how things are *traced*
And *not* how they exist out on their own.
In simpler words that have been said before
So often, yet so rarely understood:
We all experience these things explored
Not as they are but as *we* are. Why should
The fact that two observers will agree
On what they'd just observed mean *both* are right
When all the while *neither* can but see
Past their endowment, which just *seems* keen sight?
This strange delusion of sufficient range
Of vision confidently felt by each,
Despite their flagrant lack, is just what brains
Do best: pretend their models *have* no breach
Among their inputs, so to best maintain
A user interface from out this wealth
Of data simplified enough to frame
A unifying agency called "self."
Now, this unlikely, though convincing, sense
Of unity we feel, somehow, amidst
The chaos of diversities immense
At work beneath the hood, is how we're fixed
Neuronally to better navigate
This world that is our simulacrum's hold.
For, networks of robotics long innate
To our embodied brains, once they've foretold

Their higher functions what to ascertain
In our environment that could upset
That equilibrium we need maintain,
Can choose alternatives of lesser threat.
More yet, this unity we feel belies
The fact our cells all die and are replaced,
At varied rates, non-stop. And this implies
That we're composed today of stuff that's based
Upon the plan of former stuff now gone,
Like all those planks of wood that over time
Were substituted with their like out on
That ship of Theseus, maintained as shrine
Across the centuries, until it came
To seem a paradox to thinkers who
Now pondered if it should be called the same
Ship that our long-dead hero really knew.
For, by replacing its components, one
By one, until there were not any now
Original once all was said and done,
What *was* it in this vessel, from its prow
To stern, that could be reasonably thought
"The same"? Of course, it is the thing's *design*.
And while this leaves it a mere copy wrought
Of something that is gone, *we redefine*
This likeness as authentic, which but shows
How any whole is worth more than its parts,
And how each *part* from which it is composed

Contains *its* meaning where its *pattern* starts.
Yes, take an organ from a body, say.
Its value as an object cannot be
As flesh itself but as its *role* to play
Within a working *process*. This is key
To everything in life, down through those cells
From which all living tissue's made. The bits
They're made of have no meaning by themselves;
They're only seen as what their *use* permits
Within some higher system's functioning.
And by the time we've reached true *agency*—
That scope in which an organism brings
Self-reasoned causal power's currency
To bear upon the world—it's shown quite clear
That things themselves mean less than what their *role*
Is in a certain process's career.
(*The meaning of the part is in the whole.*)
But back to choosing—in it we carve out
Our few degrees of freedom from what's *thought*
Should be determined strict as fate about
Us, as Determinism's wrongly taught.
Yes, these same experts say we have no will
That's free because to pick an option turns
Upon all prior happenings fulfilled
For which the picker has no claim discerned.
In other words, said author of this act
Herself depends upon such things realized

That made *her* action possible, in fact,
And that *she* couldn't have done otherwise.
And this is but *exquisitely* untrue,
Of course, despite the solid craftsmanship
Of such deductive logic, as its view
Depends on blind acceptance that one skips
Causality's determined laws each time
An agent chooses to control the way
Said laws effect the course of *her* design,
As if just *one* trajectory's in play.
But picture to yourself how this might work:
Without that element of choosing left
From right upon some forking path, we'd shirk
All chance to use what knowledge we'd assessed,
Resulting in a state where knowing things
Were *just the same as not*, since all was fixed
To play out rigidly on puppet strings
Regardless of an agent's well-planned twists.
No, choosing between options that may *each*
Themselves be found within causation's chain
Does *not* entail some necessary breach
Of laws through which our nature is constrained.
Determinism, after all, is *not*
The same as *predetermining* a fate.
It is compatible with our best shot
At how a certain system's future state
Derives, *at length*, from out its current one

Without an intervention *from outside*,
Which doesn't rule out alternates that run
Within said system, *causally* supplied.
The difference has to do with *meaning*—*that*
Through *information* on these future states,
Discriminating between options at
Each fork that possibility creates.
In other words, although we cannot cause
Or pause the wind itself, we *can* control
The way its course effects our own with laws
That help us trim our sails toward our best goal.
And this control upon determined things
Is no more contradictory than how
A thermostat restrains unwelcome swings
Of temperature within that realm endowed
It. Yes, that human agent who'd employed
Its mechanism to respond to change
From out some chosen stasis best enjoyed
Is sharing that control within *her* range.
Another way to word all this about
The type of freedom agency can wield
Is this: Although those choices found throughout
Our world may be, *in of themselves*, revealed
As but determined, such does not entail
That we, as knowing agents, are not free
At least to *choose among them* in that pale
Of outcomes possible when they're foreseen.

Now, back to our observers, whom we'd left
In some agreement as to what *they'd* seen.
Historically, concordance of such heft
Was viewed as proof of some "objective" being—
Past the noise subjective bias rings
Upon the seasoned scientific ear—
But *neither* viewer had observed those things
An sich—external to how *they* appear
Portrayed by *fleshly* means—but just within
Their ken, which had itself evolved to meet
Quite different needs back while some fen had been
Their habitat instead of poured concrete.
All this is just to show that it's desire
Rather than causality that draws
Reality's ontology, inspiring
Life from out of information's laws.
Its impetus pervades the fabric of
That top-down modelling of how things can
Become—which, bottom-up, is tweaked by stuff
The senses furnish that refine the plan.
Yet note: This "will" cannot be *truly* "free,"
Especially in that ghostly sense Descartes
Had spooked us with, wherein the very key
To how our bodies move is in the cards
Played seance-like *beyond* what physics moves,
Like cats or rats, whom he would grant no soul
And would be right: They don't, *which further proves*

The same for us, their cousins in this whole
Descent we've made from out those very first
Prokaryotes on earth three billion-some
Odd years ago. Of course, to those more versed
In nitpicking, we should concede the dumb
But valid point that "soul" can also mean
Another thing as well, like character
Or personality, when we are keen
On it in someone. But we must demur
When told these traits will then ascend from out
The body that created and conserved
It, just to flourish in thin air, no doubt,
Where nothing feeds such circuitries of nerves
That are the stuff of which all thought is made.
And given this, we see our every thought
Is *physical* and leaves a proven change
Upon the brain in which it had been wrought,
Which means, of course, these products of the mind—
Which is the process of a working brain
And nothing more—cannot be reassigned
To flesh outside these neurons' own domain,
Where they'd developed in connection, full
Reciprocally, with that same body it
Had grown with from the start—"dyed in the wool"
Inseparably through interaction's fit.
And even harder to explain by far
Is how this pattern of emergence, where

These nerves had done their work, could somehow start
Again *without them*, fostered by pure air.
Now, think about this in a different key:
Just take an engine simpler than a brain
By far—say, one that changes energy
Into some movement's use, not ascertains
A thing like *meaning*—yes, and then observe
Its work continued *once it's been destroyed*.
How different is this process made by nerves
Once *they're* removed from how they'd been employed?
If products such as these could be sustained
Without all that machinery that built
Them, why expend the efforts that had framed
Their prospect well before this milk was spilt?
Such industry, expended without need
Of any kind, acutely contradicts
A law of nature that, from smallest seed
To largest forest, never fails: a strict
Economy that underwrote the first
Cell viable and, through it, then constrained
The many consequences *it* dispersed
Engaging with this world it now attained.
Yet this consistency of nature's laws,
So necessary to the way things work
Within a world where each effect has cause,
Is often, like some nonessential perk,
Ignored when inconvenient to respect.

And in its place, we're offered at such times
The lower-hanging fruit that faith collects
In order to explain its own designs.
I mean, of course, this business of "God's hand"
One finds so often dealt to circumvent
Whatever's difficult to understand
Without the help of science (or plain sense).
For, quite unlike our own, this hand, it seems,
Can infiltrate causality's fine weave,
Knit tight by physics' laws, and like those dreams
Where pigs can fly, coerce us to believe
There is no incongruity in it.
The hand withdraws from where it interfered
And, magically, each severed strand is fixed
Again, till these same laws may be revered
Once more as tamperproof, and all is well—
At least to those who're willing to pretend
For God's sake, or a seamless fear of hell,
That this is something reason can defend.
Intelligence of the creative kind—
From which each artwork, theory, building, or
Whatever novel world you'd wish designed—
Should, in itself, be viewed as much, much more:
A RECENT feature of our universe.
That's right; from out so many billion years
Of gas and rock that could not plan, rehearse,
And execute some change in their careers,

It wasn't till biology emerged—
And, eons later, nervous systems too—
That agency evolved to ride an urge
Toward choices that result in something new.
This needs the mechanisms of a brain
Within a body in environment
And its strict competition to maintain
That fragile balance toward which life is bent,
All subtly tweaked continually by chance
Intrusions of miscopied code, through which
New prospects can emerge into the dance
That influence its tempo, flow, and pitch,
Effecting that next toss of chance's dice
Against *this* information's likely reach
Of *new* experience that proves the price
Of living in *its* everchanging niche.
And thus, from out this mix of unique strands
Of memory's constructions comes that weave
Sustained by meaning's ever-seeking hands,
Whereby new information takes its leave
Till futures can be dreamt from out the past—
Remembered as the present—where a thing
That hadn't worked before might be at last
Compared with options through remembering.
Creative intellect of *any* kind—
Why, even fashioning some twig to nurse
An insect from a hole, so never mind

Complexities like our whole universe!—
Cannot *precede* the evolution of
A thought, which cannot live in gas or rock
Or charge, no matter whether named as “love
Or “god” or even “the eternal clock.”
It takes a complex system that can change
In order to sustain such simple thought
As “on or off,” quite let alone so strange
A concept as redemption as is taught.
And so, illogical as it may be
To contemplate some merest *concept* made
By rocks and gas and charge, to try and see
Intelligence back then that could *create*,
Instead of just *encompass*, nothing less
Than our entire universe, is down-
Right counter to the way we’ve come to test
Our inner model of what’s all around
(And in) us, which we call “reality.”
So inconsistent is this top-down view
Of how this world we live in came to be
Without that bottom-up to which it’s due,
It’s difficult to understand how we
Have come to privilege *so* this type of quick
Design without slow change (which *can’t* prove key
To how things got this way without some trick).
That wider menu of tomorrow’s born
From chance as thrown against the stuff that’s here

Already, not to mention how it's worn
Away the while by entropy's career.
For, though a single human can design
Top-down, a great cathedral in a plan,
Another version made without a mind
By termites, bottom-up, *as all began*,
Shows how we're biased blind by how we've come
To see what we can do. The end result
Of all this insect work, derived but from
Robotic mindlessness, we should exult
As loudly as we do our own: Behind
What these same termites have achieved in theirs,
Though not through synthesis of one great mind,
Is found the answer to survival's cares,
And maybe even *better* than does ours.
For though *our* great cathedrals may supply
The ambience we need toward *our* best powers,
They don't come even near the reasons why
The insect's great design is so sublime—
Such as thermodynamically to start—
As might compare with ours, which but provides
Us cool and quiet and a place for art.
As said above, these termites have amassed
Their triumph of contrivance not through "Art"
That's synthesized within one mind—from past
And future goals—but with mere *mindless* parts,
Just like those mindless nerve cells in our brain

That nonetheless conspire to perform
Collaboratively a complex network's chain
Of honed intentionality that's now our norm.
It could be argued that the realized work
Of termite and of man but constitutes
A vast amount of time in which was learned
The skills required through these different routes
And that what came to be hard-wired in
Each insect after generations of
Mistakes had its own correlate within
That single human mind we praise above
The most impressive group of simpler jobs.
But even if the termite's version proves
Superior to ours in housing mobs,
Our bias toward the top-down plan behooves
Us to respect far more the architect
Than all the expert craftsmen she's employed—
All this despite the fact their end effects
Obtained are but comparably enjoyed.
But wait, I hear you say, remembering now
What I'd just writ that neither gas nor rock
Nor energy had Agency and how,
Therefore, these lacked the consciousness to block
Or cause events top-down. How can that be,
You ask, when consciousness itself, it's said,
Is downright "fundamental"—*underneath*
The fabric made by physic's laws instead

Of just *contingent*—through our universe,
In *everything*, down to its smallest quark?
Some thinkers, wishing to avoid the curse
That substance dualism casts so dark
Upon good reputations now but still
Prepared to eat that cake that's made in part
With stuff that *isn't* physical, will thrill
To savor things from off that tidbit cart
Of mental-yet-*non*-physical clichés,
As if one really can but have it both
Ways, as they seemed back in idealist days
Of Plato, Berkeley, and the rest whose oath
Was that the physical is but the fruit
Of some great mental fundament and *not*
The other way around. This deft salute
To that old hunger to transcend this rot
Of flesh called Death was named by desperate Greeks
Way back "Panpsychism," a name that now
Affords the desperate dualist who but seeks
To *seem a monist* his own holy cow.
The mantra of these mentally obsessed
Is: "*How* can consciousness emerge from parts
That *in themselves* are lacking consciousness,
Like something made from nothing's deck of cards?"
This question *sounds* seductively "slam dunk,"
Like any syllogism might, where sense
Deduced through reason makes good thinkers drunk

With faith that their respondent lacks defense.
But when you really *think* about it—out
Beyond where language ties one up in knots
So many times—you'll find beyond a doubt
This question fails to really connect dots.
And that's because it's lacking in respect
For that big concept we most otherwise abide:
Emergence. Yes, there's few who would object
When told the whole is more than just the tidy
Sum of all its parts because the play
Between these bits imbues the full event
With something new, that didn't even weigh
Among the features that such parts present.
To pick among the lowest hanging fruit,
Try water: It has features absent from
The molecules it's made of—attributes
Like slipperiness and more that but become
What hydrogen and oxygen cannot
Out on their own. Yet no one says that to
Create this slippery substance from its lot
Of parts *that aren't slippery* is due
To inconsistencies of nature's laws,
Like magic tricks. No, science shows us how
The bonding of these molecules gives cause
Toward making new through what these rules allow.
And these new features that emerge from out
The mix of said components lacking them

Is what we're faced with when we call in doubt
That consciousness could be that thing that stems
From *combinations* of robotic parts
Despite the lack of consciousness within
Each one in of itself before it starts
In concert with those others as *they'd* been.
But I digress. This look at how design
As our own species thinks of it cannot
Apply to how our world seems divined
Now brings us back to a most salient spot:
Lucretius tell us that the gods exist
But cannot intervene in our own lives.
This to say, as substance dualists do,
That gods are just not physical and leave
No footprints on our grass as they waft through
Our world, like weightless thoughts that we perceive.
But this just misconstrues the nature of
A thought, which *is* but physical indeed,
As each, regardless of its content—love,
Regret, whatever—*leaves a change* to read
Within the brain that formed it in its stride.
It is the *process* of a network made
Quite physically: A thought can't live outside
A working brain, though it can be *replayed*
In other brains that have but read or heard
Of it, conveyed as recipes that guide
That other brain to which it's been conferred

To reconstruct that networking that tied
It into meaning in brain “a” back then.
In other words, when brains die, so do thoughts—
Unless they’re reconstructed once again
In other brains to which they have been taught.
So, gods then, since not physical, are just
Ideas too that brains create. They die
When not remade in other brains; they must
Unless such narratives are writ to buy
More time for them in memories that tell
Of why the world is the way it seems.
And since it seems unjust and cruel as hell,
These must be painted bright within our dreams.
And here’s where Fear comes in to save the day.
Because embodied brains evolved that sense,
Refined beyond all others, that relays
To us those endless ways our best defense
Might fail our warding off of certain DEATH,
We tag those thoughts involved with gaudy hues
To help us trigger actions that could cost our breath
But save our life, in order to but choose
That narrative in which we read our world
Toward safest end. And gradually we came
To want that rush itself we had unfurled
Each time we learned a bit to save our game.
And so, we’ve come to like those stories that
Can replicate that feel of knowing how

Things work enough to navigate our vat
Of life and bypass death—except that now
We privilege that same *feeling* over what
Might really be the truth of how things work
And sacrifice with ease such truths that shut
This feeling off, till we now *love the murk*.
Yes, fear has helped us do all this and more:
It's helped us spawn our many gods to take
Responsibility for our bad score
In knowing what's best done toward our best sake,
Till we can savor that smooth feel enjoyed
While thinking that we know just how things are
The whole time we do not. But gods employed
As such will soon take on our own bizarre
Misunderstandings till they look and act
Just like we do and fight among themselves.
And so, some groups of us would soon change tack
And kill off all these gods like needless elves,
Except for ONE, of course, in whom to trust
With all our former needs. The beauty here
Is that we'd now transfer this inborn lust
For sweet delusion round our every fear
From out the baffling chaos of this lot
Of them into an easier design
That serves as *single* parent figure—God,
That is—in whom the rest have been combined.
Yes, more than one sage thinker has declared

We're *all* but atheists regarding Zeus
Or Thor these days; it's just that some have dared
Go *one god more* and find belief no use
In of itself. Now, some of these preferred
To keep the trappings of their creed to skip
The sense of vulnerability incurred
Withdrawing from celestial guardianship.
For, manifest authority, enforced
With in-group solidarity, helped mold
Rough moral choices smoother, since endorsed
From high above where fate had been controlled.
Now, suddenly bereft of dogma, they
Are faced with all the complications brought
By contemplating context and its grey
Shades not much used by God in judgements wrought.
And what's our godless then to make of SIN?
This concept theologians have supplied
With endless shelves of doctrine that could spin
Your head at all the ways they have denied
Their flock the dignity of living life
As nature shaped it. More like children spanked
For insubordination and but rife
With petty selfish greed for being thanked.
This notion quickly falls apart without
The patriarchal certainty of fact
That God can lend, discerning *without doubt*
What's right from wrong and therefore how to act

In every case like model children do.
The problem is, of course, that kids who meet
Ideals like this are usually untrue
To their own sense of self and play the sweet
Submissive sheep they learn will satisfy
(For now) some angry parent's thirst for full
Control. But learning only to comply
And not to reason pulls proverbial wool
Around their eyes, unfit as they'll then be
To go engage in what is real out there.
Yes, they've grown ill-equipped for living free
Of cruelty where all they know is prayer
And punishment. No, thinking critically
Is crucial toward developing as fair
And just compassionate adults—the key
To *their* success in raising kids who care.
Conversely, those who're taught the practice of
Morality-by-wrote learn that their crimes
Of deed or thought are scrutinized above
By top authorities, then redefined
In terms of proper reparations to
This church that had but codified it all.
Extortion comes to mind, like when you do
A thing that's disapproved till it's judged small
Once payment's made to those who'd called it wrong
To start. As if not bad enough, this dire
Thought for which they're charged had seemed so long

An innate *healthy* type, such as DESIRE.
Yes, this feeling that began it all—
Not just our poem but that very course
Of life it would exalt—foretells the fall
Of man to those God wants to feel remorse.
Of course, *like anything*, indulgence in
A feeling past what's good for others whom
We'd live with should invite restraint, but SIN
Goes way past that by virtue of its gloom.
We're told to *feel ashamed* of what's innate
Instead of just control what doesn't work—
As if our *feelings*, by themselves, create
The problem, not that *we'd* been such a jerk.
Delight is something we'd evolved to feel
As part of learning—till this God of theirs
Showed up to claim it contraband and deal
It back to us at higher rate through prayers
And penance for His mercy. Keep in mind
That this delight was *ours to start*—yes free
To us through evolution's slow design.
Yet now we're told it's ours *but for a fee*,
A payment that's coerced from us by threat
Of punishment, no matter whether here
Or ever after, till we're in such debt
We cannot pay it off except through fear
And guilt, self-condemnation, and despair,
And all but due toward blessings by the church

For our own joy that now, it's been declared,
 Is given *us*. Now, *there's* a joy besmirched!
 This very notion that we'd need to go
Apologize for our desires—pay
 For them in guilt *and* money—should but blow
 Our mind: That's racketeering *any day*
 When viewed without a church put in between!
 Yes, like a prism breaking purest light
 Into bedazzlement, "God's word" is seen
 By true believers simply as what's right—
 Regardless of the lack of sense it makes
 To our innate morality. So, when
 God tells good Abraham to go forsake
 HIS OWN BELOVED SON just for some yen
 That jealous gods like Him cannot resist—
 That need to test one's subjects' loyalty
 Against those *other* gods that don't exist—
 We're shown just how AMORAL He can be
 Who needs to threaten members of His flock
 With punishment for disobedience
 That's merely thinking for themselves, *ad hoc*,
 As each new context tries their common sense.

[634 lines so far, but to be continued.]

—David Borodin, October 24, 2024 through June 3, 2025

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