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

Desire 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 [10]
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: [50]
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 [60]
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. [70]
For, networks of robotics long innate
To our embodied brains distinguish old
From new till higher functions can then ascertain
From our environment what might upset
That equilibrium we'd need maintain
And 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 [80]
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 [90]
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. [100]
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*— [110]
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. [120]
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 [130]
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, [140]
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 *pre*determining a fate. [150]
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 won'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. [160]

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 [170]
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. [180]
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 [190]
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. [200]
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 [210]
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 can 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 [220]
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 [230]
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 [240]
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 [250]
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 something 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— [290]
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, [300]
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,
Which, *via metaphor*, help us conceive
The future that we dream from out the past
(Remembered as the present), where a thing [310]
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." [320]
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 [360]
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, [370]
Collectively, a complex network's chain—
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 [380]
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 [390]
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 [400]

Upon good reputations now, yet 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* [410]
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 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?" [420]
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 which we most otherwise abide: [430]
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 [440]
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 [450]
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: [460]
Lucretius tell us that the gods exist
But cannot intervene in our own lives—
This to say, as dualists will insist,
The gods are just not physical and strive
With not a footprint left, to waft *above*
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 [470]
Within the brain that formed it in its stride.
It is the *process* of a network, keyed

Quite physically: A thought can't live outside
A working brain, though it can be *replayed*
In other brains that have but read, as guide,
Its recipe from which it's then *remade*.
That other brain to which it's been conferred
Must reconstruct that networking that tied
Together just those strands on which that word,
Sound, image, action, feel or such allied [480]
Themselves toward 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 should be how it seems. [490]
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 this sense,
Refined beyond all others, that relays
To us those endless ways our best defense

Might fail our warding off our certain DEATH,
We tag those thoughts involved with gaudy hues
To trigger actions that could cost our breath
But save our life, in order to but choose [500]
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 [510]
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 [520]

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 [530]
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 such faith 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. [540]
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, all no use to God in judgements wrought
Against His disobedient through **SIN**,
A concept theologians have supplied [550]
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—just like children spanked
For insubordination, though now 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 [560]
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. [600]
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 [610]
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* [620]
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 [630]
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.
Enough though! For, pathology is not
The *only* way to deconstruct how things
Should run in health. Yes, though such petty gods
Reveal the workings of each mind that brings [640]

Them into being (and are, therefore, worth
The studying, if but to better know
Ourselves), our poem aims to cut a berth
Around our lust for *judging* what they show.
(*Too late, or ineffective at the least,*
You say, who find the passage just conveyed
A thing of judgement surely—just, a piece
Of propaganda damning faith—one made
To disaffect those wholesome citizens
Who, out of fear, still harbor gods within [650]
The attic of their reason. My defense
Is that it's not and that your skin's too thin.)
So, let's return to our Desire once
Again for deeper understanding how
It constitutes the means with which life hunts
Its hallowed moment in the here and now.
Among biology's machinery,
Few mechanisms prove more valuable
Toward furtherance of what's conveyed by genes
Than pleasure does. The weight that it can pull [660]
In prodding organisms to survive
And launch their traits toward future flourishing
Is unsurpassed in fruitfulness of drive
Except, perhaps, for pain's didactic sting.

Indeed, all earthly creatures have evolved
To find their life sustained between these two
Most fundamental promptings that resolve
Poor choices of the past from those proved true.
Attraction and repulsion should be seen,
Therefore, as guardrails used by living things [670]
To keep on track with life and not careen
Into oblivion on reckless wings.
Yes, everything that lives, from simple cells
To those complexities from which they're made,
Depends on what their system can foretell
Of nourishment and risk and how they're weighed.
All this is gleaned from what's then learned anew,
On top of what's inherited, from those
Past lives whose traits have been bequeathed to you—
All information changing as it flows [680]
Two ways within the context of a life
Developing amid environment.
It's this that makes each living being rife
With possibilities past all events
Predictable from out of physics' laws
Alone. For, these same "laws" (which are, of course,
Just *tendencies observed* amid the "cause"
Thought driving mattery, energy, and force)

Comprise that language *we*'ve developed to
Describe phenomena we sense are there [690]
Though cannot *know* first-hand since filtered through
The tissue of biology's dark lair.
And this is true of mathematics too:
No matter how you squint, you'll never find
It in the world "out there," as it's construed
By *us*, re-membered into stuff of minds
From out the dialogue of things and how
They're represented in our nest of nerves.
It's but a *language* we've developed out
Of need to speak more subtly of the swerves [700]
Of space, time, matter, energy and force
With which our universe is woven so
Minutely from necessity's own source
In chance, wherein a sudden moment's throw,
Potentiality can realize, from
A singularity of happening,
Complex trajectories that can become,
From pregnant nothingness, our everything.
Yes, mathematics is that language we're
Creating, step by step, to better read [710]
Relationships at play all round us here
Within this universe that sprang with speed

From its potential. And, yes, like those "laws"
Of nature that they measure, it's not *there*—
Out in the world, without a mind to cause
Its body-governed form from out thin air—
But in our heads, another product of
Biology examining its past.
And while we're on the subject, the above
Applies to all those other fields amassed [720]
By human culture, like morality
And ethics, justice, faith, and beauty—laws
And customs of all sorts we've honed as key
To our best being, even with their flaws
(By which I mean those prices paid for them
In the economy of focus that's
The brain of each beholder, as each gem
Of insight costs *some* blur elsewhere, I'd add.)
But now I need your full attention, please.
Despite the great respect we surely owe [730]
Lucretius, who endeavored to bequeath
To us what Epicurus had bestowed
By singing it deep into memory,
We also need to recognize the stuff
In it that makes no sense. For, now we see
Through scientific method well enough

To better understand the way things work
Out there (as well as here inside where they're
Constructed into "laws") until what lurked
In mystery, like gods, dissolves in air.
Now, these fine things that Epicurus taught
Were saved by our Lucretius in his verse
And proved a balm to lives that had been fraught
With fearful supplication to the worst
That superstition offers those it lures.
For they found solace in the atomists'
Belief that while the gods themselves endure,
They cannot either hinder or assist
Us mortals in the living of *our* lives
And are but the repositories of
The basest fears and qualms a mind contrives
By reading omens in each hawk and dove.
But then our poet seems to disregard
Such sage advice with invocations to
Those gods and muses whom he prays real hard
Might help him see his lofty poem through.
The inconsistency in this is clear
As day and is explained, I think, by those
Conventions that our poets still revere
In that they're part of how their art arose.

I mean, of course, through ritual—by means
Of incantations that had long been used
To mollify our fears into routines
And transmute seeming sense from what confused
Them. When a verbal formula was voiced
Within the ceremony of concern
Around some mystery, one could rejoice
Within the feel of having (somehow) turned
Some chaos into order. Words became
The pageantry through which to gain control [770]
Of what they feared, and through their sounding, tame
It in the splendor of their spoken whole.
And this is why just how a thing is said
Is so much part of how it comes to mean
And why, therefore, a poem can, instead
Of prose, make better sense of *how things seem*.
And this is why *our* poem does not dare
Attempt to paint for you "reality"
As had Lucretius's, as you're aware.
For, just as how he saw the "seed" as key [780]
To how things were and worked—yes, used this trope
To help explain quite everything he saw—
Someday the scientific facts I hope
Explain it now will *too* be shown as flawed.

And so, since greater minds than mine by far
Have failed achieving a consensus on
What really is this key to how things are,
My song will only sing of how *they're drawn*
By us in thought. On this is what the whole
Of all we know must ultimately rest: [790]
How things are *represented*. That's the goal
In which all meaning's made, and hence our quest.
Yes, as was said above—or then *before*
For those not reading this but *hearing* it
Recited—all we ever *can* explore
Of this, our world, is *not* the slightest bit
That might exist *outside* biology's
Translation into impulses on nerves,
But rather just some *likeness* of it we
Can *represent* this way, such that it serves [800]
Within that inner model brains construct.
And this brute fact is one we always bump
Against (though rarely recognize as such)
While moving through our world, as every clump
That matters most is rendered seamlessly,
Though meagerly, within our flesh, because
That's what brains do: They strive to make us see
Whatever keeps us in the game. All flaws

In the fidelity of what is sensed,
Therefore, prove less important, said and done,
Than that attention bought at their expense
To muster agency toward what's best won
In sustenance and safety, love, and sex.
And our best proof of all these shortcuts made
By brains prioritizing what affects
Survival is the ease with which we're swayed
By "magic" tricks and others that dispose
Things to us only as we'd *reconstruct*
Them. Optical illusions, such as those
Employing shadows cast with crafty pluck
To seem a different tone, are still contrived
By brains to be believed as "seen" *despite*
Our being shown just how they'd been derived.
What better proof is needed to indict
Our senses for collusion in false truths?
How can we just assume that we can "know"
The nature of things when, as shown, brains soothe
Themselves with what they're looking for and throw
Away the truly obvious instead?
The answer's found on evolution's trail,
Of course, along which every brain's been led
Without its knowing, so it may prevail.

Yes, brains evolved to solve the problems of
That niche their bodies strive in—that complex
Reciprocal ecology above
Which nothing matters more, as one expects.
Their job at first was merely to maintain
Their body's balanced state inside against
Conditions ever-changing by constraint
Of the environment outside its fence.
But as the arms race of competing life
Would ratchet up the vital need to choose
Among an option menu growing rife,
Those brains whose niche allowed it grew to use
Discriminations ever more refined,
Enabling them, through memory, to plan
Tomorrow with but yesterday in mind,
Where conscious, focused agency began.
But all along this slowly-curving path
Of learning (well *below* this conscious thought)
We've thus acquired strengths that helped such tasks
Once key to what our ancestors had sought.
Now, many of said things we don't still need
Yet nonetheless still seek because we're now
Equipped to do so. Take the taste for sweet
Our forebears had acquired that endowed

Them with more chance to last through bleakest times.
We have inherited this appetite,
Though not the lesser menu that had primed
It, and today indulge in sweets *despite*
The lack in most of us to really need
Them. So, in short, *the byproducts of change*
Are who we are today; what worked to feed
Survival once becomes our comfort range
In better times. And what is crucial here
Is how the same dynamics of our brain's
Vast legacy predicts results in spheres
Of life quite unrelated. This explains,
For instance, why the networking of nerves
That help us to hallucinate a self
Amid some cockpit in our skull, now serves
At certain times, like trauma or poor health,
To make us feel that this same entity
Has left the very body it's been made
By, and is part of, to transcend quite free
Of any laws the body had obeyed.
Now, such experiences *are* profound;
They *have* changed lives and should not be dismissed.
There's no sense holding forth that they can't sound,
Look, feel as they're described—as they exist—

Just not for reasons that are proffered by
Most folks who've undergone them (and who hope
These prove that our deep essence cannot die
And will live on within some timeless scope).
But evidence abounds to demonstrate
Just how this out-of-body sense becomes
Experienced. One needs but activate
Some certain neurons (where the juncture runs
Between two certain lobes) whose job it is
To integrate perspectives of inside [890]
And out (the *I* with *other*, *mine* with *his*),
Thus throwing our vestibular off stride.
Experiences of this special type
Can be *predictably induced* by means
Of some disturbance to this zone to swipe
Away, pro tem, this weighing of what seems
The difference between *in*side looking out
And vice versa as it's reckoned by
This tiny bit of brain. To go about
Achieving this disturbance one can ply [900]
A probe into that very spot, or else
Magnetic stimulation, or just starve
It of the oxygen within its cells,
Such as the reach of death in its slow carve.

Instinctively we're biased to resist
This mechanistic view, of course, because
It jars with that whole notion of some gist
Of life released from out its husk (while laws
Of physics molder in convenient haste)
To but return to "purest consciousness," [910]
Which, we have heard (and craved) might soon be traced
Right back to the beginning: Nothing less
Than *fundamental* to the universe—
Yes, that from which the physical *derives*,
We've read—to be rejoined with those dispersed
Before us (with exceptions, like ex-wives)
For all eternity as part of one
Undying being, pure and clear as air
That's lit forever by a deathless sun....
[A long pause here to let our minds repair.... [920]
O.K., Sam. May we have the lights back on?]
To those who *liked* how this last bit commenced
And wished *the rest* had been as finely drawn,
I say: *You missed the point! It made no sense!*
The problem I was getting at was HOPE.
Now, nothing wrong in wanting what feels good,
But holding out for it when you can't cope
With inconvenient truths is understood

To be delusion, which can't help but numb
You to this world we're living in and paste [930]
A happy face on fears you have succumbed
To rather than engaged with. What a waste!
To squander this brief spurt of time on earth
Endured as just some deadly-boring queue
In which to wait and trade it for rebirth
Without your brain is profligate, if true.
Far better would it be to live life *now,*
While still you have your brain intact, and not
Postpone enjoyment till you won't know how
To hold a spoon, albeit it, *stir the pot!* [940]
How is a life lived once you're dead—without
A hippocampus—any different than
Attempts to taste your cake without a mouth?
The body is where *everything* began:
Sensation, action, metaphor—the whole
Of *anything* we can experience.
So, seeing it as some mere husk a "soul"
Then sheds and leaves behind makes no damned sense,
As this ignores the way things came to be.
From that first living cell to that first meme [950]
That could be shared among the most elite
Of complex brains had run a steadfast scheme—

An algorithm where near clones compete
To test their fitness in a certain niche.
And this same fundamental process can't
Be just left out, as if it were unleashed
From what it had produced, so we might then
Pretend the latter came to be by fate,
Top-down design by God, or, once again,
Divorced from how such processes create. [960]
So, let's exult in the reality
That each of us have played a vital part
In this great chain of being that we see
All round us stemming from this simple start.
The merest fact, statistically, that we
Exist at all, among such massive chance
That we might not, should by itself cut free
From us that morbid fear of death's advance.
Yes, death is saner viewed as that excuse
To live *the more intensely* here and now [970]
Because there is no life awaiting use
As us once we, our bodies, die. Let's bow
Our heads in gratitude—not to some god
We've dreamed up to explain it all, but to
This gorgeous *mindless* process that, by odds
So vast, included us among the few

Who can appreciate it as the gift
It is. Yet, such a bounteous legacy
As this is not required to exist
As something given *from* one entity [980]
Or other *to* another, as this sense
Depends upon a teleology
In which there's underlying "reason" whence
It's come or gone. And such necessity
Is but irrelevant to any laws
Describing what life is, how it began,
Or even what it means—all this because,
As *process*, it has being *since it can*.
In other words, life needn't be a part
Of something larger, with a certain goal [990]
Intended, like perfection or the start
Of some trajectory toward what some "soul"
Might find as outcome of behaving such
Or such a way. We have no parent in
The sky; just lots of planets, stars, and much,
Much more that cannot care about what sins
Or virtues we read into life. For, these
Are but the constructs of embodied brains,
Which have evolved by fleshly means and, by degrees,
Created, *through desire*, all each one attains. [1,000]

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