



A Physicist, a Philologist, and the Meaning of Life

Do We Have a Home in the Vast Cosmos?

STEPHEN L. TALBOTT

“A reality completely independent of the mind which conceives it, sees or feels it, is an impossibility.”

— HENRI POINCARÉ

“Man knows himself only to the extent that he knows the world; he becomes aware of himself only within the world, and aware of the world only within himself.”

— JOHANN WOLFGANG VON GOETHE

THE CELEBRATED PHYSICIST RICHARD FEYNMAN, skeptical of religious or mythic creation stories that focus upon humans and the meaning of their lives, once explained his doubt with arresting simplicity: “The stage is too big for the drama” (Gleick 1992, p. 372). It was a wonderfully succinct way to make his point, and suggests that Feynman had a bit of the poet in him.

The improbably large stage, which he found unsuited to our parochial origin myths, is, of course, the boundless frontier explored by cosmologists, whose probing, high-tech sensors have mapped inter-galactic dimensions of space and time so far beyond our immediate experience that we humans can scarcely hope to comprehend them.

We have all heard many times about our own nondescript place upon this vast stage. We are situated in an unremarkable galaxy among billions of others. Our solar system occupies a scarcely noticeable patch of real estate

well out into this galaxy’s hinterlands. And, following the Copernican revolution, we earthlings lost even the circling attention of our neighboring sun and planets.

Still, we reigned unchallenged on our own planet, where we imagined ourselves the possessors of a special destiny, above all other creatures. But then, as a final insult, Darwin re-told our local creation story as a wearily long series of accidents, after which we found ourselves to be “trouserred apes.”

Oh, the ignominy of it! Or, at least, that seems the usual point of the story. And, to be sure, it stings. The entire account can feel like a soul-crushing blow, rendering coarse or absurd all our higher aspirations, our ideals, our loves.

Photo: NASA, ESA, the Hubble Heritage Team (STSCI/AURA), A. Nota (ESA/STSCI), and the Westerlund 2 Science team

As a new creation myth, the story is compelling. Like any good myth, it pervades our culture. No one is surprised when a student of ancient Greek philosophy is given space in the *New York Times* to tell us why “The Universe Doesn’t Care About Your ‘Purpose.’” With no slightest flicker of troubling doubt, Joseph Carter shares with us his conviction that “the laws of physics are inherently mechanistic ... Eventually everything ends in heat death. The universe certainly started with a bang, but it likely ends with a fizzle. What’s the purpose in that, though? There isn’t one ... In the grand scheme of things, you and I are enormously insignificant” (Carter 2017).

This confession of meaninglessness may have been given its most quotable form by physicist Steven Weinberg: “The more the universe seems comprehensible, the more it also seems pointless” (Weinberg 1993, p. 154).

Given this (in some ways admirable) spirit of self-abnegation, one might have expected the confession to include a humble lament about the severe and fundamental limits to current human understanding. Of course, this might have overshadowed the odd and unusually bright self-confidence evident in many of the abnegators, so its omission is understandable. But equally odd, as I will try to show, is their inattention to the remarkable significance of the understanding we do have. And most puzzling of all — this will be the main burden of my discussion — is their failure to reckon with the historical and evolutionary record bearing on their claim that the world is alien, or at least indifferent, to human meaning, value, and purpose.

The sobering weight of our ignorance

As children of the scientific revolution, we have securely vested our sense of knowing in quantitative precision and unambiguous, machine-like causation (Talbot 2004). Science becomes technology, where the aim is to construct instruments that respond exactly and predictably to carefully specified conditions. The cockpit of every jet airliner, the technical apparatus of a typical research laboratory, and the cell phones in the hands of nearly all of us proclaim how wonderfully well we have succeeded.

And surely our technological prowess does reflect a practical knowledge of the world. But the pleasure and wonder of it easily blinds us to the fact that we remain infants in fundamental understanding. How often do we remind ourselves that the nature of matter is a mystery to us, or that, when we speak of “the physical,” it is difficult to indicate even roughly what we mean? When we get down to the sub-microscopic specifics, we find nothing there, no *thing* of any recognizable sort. We identify reliable mathematical rela-

tions suggesting particular structure, but we do not know, the structure of *what*.

Joseph Carter, in the article cited above, finds it natural to say, “As a materialist, I think ...” — as if “material” and “matter” were perfectly routine concepts. Yet I doubt whether any philosopher of science today would be so rash as to venture a confident definition of “matter.” Certainly our technological know-how does little to lend it content.

Much the same can be said of the terms often considered basic to science, such as *energy*, *space*, *force*, and *time*. Feynman himself once remarked, “we have no knowledge of what energy *is*” (Feynman, Leighton, and Sands 1963, p. 4-2.) Anyone who senses the disquieting shadow of the unknown enveloping our science will hardly pronounce upon the true nature of the “material” world. To do so might only suggest a tendency toward insecure bluster and a habit of uncritical thinking.

Things get no better when we turn to the problem of consciousness, which we might well think of as fundamental to all other perplexities we confront in thought and experience. The late Jerry Fodor, an eminent philosopher who spent much of a lifetime working in and around this problem, was convinced that “Nobody has the slightest idea how anything material could be conscious. Nobody even knows what it would be like to have the slightest idea about how anything material could be conscious” (Fodor 1992).

It’s almost as if cognitive scientists today have been competing to profess their bafflement in the most colorful terms, as when British philosopher Colin McGinn says, “The brain is just the wrong kind of thing to give birth to consciousness. You might as well assert that numbers emerge from biscuits or ethics from rhubarb” (McGinn 1993, p. 160). The entire field of consciousness studies remains in ferment, with no evident prospects for breakthrough discoveries.

While this degree of honesty is refreshing, we should keep in mind just how dramatic are the implications of our ignorance. The confessions we have just heard amount to saying that our science altogether lacks support at the deepest level. I mean the level at which we try to understand what, if anything, our scientific thoughts tell us about reality — or even how we can distinguish between “the world,” on one hand, and the conscious processes through which alone the world exists for us, on the other.

The only science we have is a science of experience

But perhaps more remarkable than the sobering darkness of the unknown is the refreshing light of our apparent understanding. Albert Einstein once claimed that “The eternal

mystery of the world is its comprehensibility,” adding: “the fact that it is comprehensible is a miracle” (Einstein 1936). This comprehensibility, which presents us with a puzzle logically prior to the particular nature of matter, energy, space, and all the rest, may be far the most fundamental fact of our own, and the world’s, existence.

Einstein meant, of course, comprehensible *for us*. It is obvious enough that we have no science and no knowledge of the world except by means of our own experience. If we could not reliably start with our experience, we could not *know* anything. The only world we can investigate is the one that takes form within our understanding minds.

In slightly different words, the content of our science is always mediated by human consciousness. We can conceive the world only by *conceiving* it. Reality, whatever else we may say about it, must share in the character of thought; otherwise we would not be able to embrace it with our thinking. We can have no idea of things that, in their own nature, are entirely non-ideational.

I don’t suppose there could be a more startling disconnect than when a knowledge seeker aims to *articulate a conceptual understanding of a world he considers inherently meaningless*. A conceptual articulation, after all, is nothing other than the working out of a pattern of interwoven meanings. A truly meaningless world would offer no purchase for this effort. We cannot understand what, in and of itself, doesn’t make sense.

If we believe that an empirical (experience-based) science — a science grounded in the conceptual ordering of sensible appearances — really does give us a genuine knowledge of the world, then the reasonable conclusion is that this world is, *by nature*, a realm of conceptually ordered appearances possessing the qualities of sense. It asserts its existence and character in the terms of conscious, thought- and sense-derived experience.

In our own day, such a view is bound to seem strange. We are shielded from it by the historically eccentric conviction of the past few hundred years that our thought and experience, so thoroughly bound up with qualities, are merely subjective. The qualities are “in our heads,” not “out there in the world.” We have done our best to rid science of these supposed phantoms of subjectivity by turning to the rewards of quantitative analysis.

But, as anyone can verify with a moment’s reflection: subtracting all the qualities from our picture of the material world erases the entire picture. There is no content — nothing but a blank — without the qualities of experience. Mathematics alone, without the qualities of actual things, is not *about* anything material. And we should not forget that mathematics itself is a content of *thought*. This thought is not merely “in our heads”; it is also in the world, which

is why we so readily discover our mathematical ideas in physical phenomena. Our inner experience and the material world are not mutually alienated.

Having done their best to deprive themselves of the qualities that alone can give them a sensible world, and therefore being left with a mathematics disciplined only by the demands of technological workability, many physicists have long considered it disreputable even to discuss the reality their science refers to. By the middle of the last century — so say two accomplished physicists — “any nontenured faculty member in a physics department would endanger his or her career by showing interest in the implications of quantum theory” (Rosenblum and Kuttner 2006, p. 13).

And so the question, “What sort of world do we live in?” came to be more or less excluded from our science of knowing precisely at the point where this science was thought to be most fundamental! The result is that we have a physics of light and color framed as far as possible in language suitable for those who cannot see, and a science of acoustics gauged for those who cannot hear.

The loss of qualities — which is to say, the loss of the world of experience — has meant that physicists, so far as they venture at all beyond their equations and well-designed instruments, find themselves participating in a Wild West of speculation, illustrated by the “many worlds” theories so prominently heralded today. This is high-flying conjecture that puts to shame those medieval doctors whose soaring intellectual acrobatics were precisely what the pioneers of the Scientific Revolution so badly wanted to bring down to earth, where ideas could be tested within human experience.

The instincts of those pioneers were sound. A science of human experience is the only science of reality we can have. And what seemed to startle Einstein into an invocation of the “miraculous” was the fact that we *can* have it.

The world’s speech resounds in us

According to the evolutionary story that most of us have forcibly absorbed from a young age, humankind somehow raised itself above the beastly, mindless, material substrate of its origin so as to achieve, step by step, the mystifying wonders of language and poetry, music and art, politics and science, and all the other sublimations of high culture. The sea of meaning within which we now swim — without which we would have nothing we could recognize as human life — *somehow* bubbled up from *somewhere*, if only as an illusion, and overflowed the bedrock meaninglessness of brute matter.

“Somehow,” I say, since the meaning at issue, and the question how it could have emerged from an eternal silence

of Unmeaning, is so great an enigma for conventional thinking that it has received no fundamental elucidation. Biologists, despite proclaiming the centrality of evolution for our understanding of life, have not often looked at the historical record to see how meaning, language, and consciousness have *in fact* evolved over the period available for inspection.

Doubtless, however, many have been willing to make easy assumptions, as when they fantasize that our ancestors *somehow* — starting with crude grunts and gestures, and eventually employing such devices as metaphor and intellectual speculation about causes — laboriously invented the linguistic, cultural, and proto-scientific meanings that would lend profound structure and significance to human life. But (although the fact is almost universally overlooked) this tells us nothing about the *origin* of meaning and language in an inherently meaningless world. Our apprehension of the meaning of a grunt or gesture (say, the pointing of a finger) depends on our ability to recognize the pointing *as* a pointing, which means we are already caught up in the play of meaning. The imagined leap from unmeaning to meaning never occurs except via circular reasoning, whereby elements of meaning are brought in through the back door.

But we can leave the question of origins aside, for the usual assumptions are belied by everything we know from history. As we look further and further back in the direction of our “material” roots, we find something like the opposite of the conventional picture. It is a commonplace among students of language that, as the nineteenth-century English poet Percy Bysshe Shelley wrote, “In the infancy of society every author is necessarily a poet, because language itself is poetry.” And it was the whole business of this poetry to apprehend the “true,” the “beautiful,” and the “good” (Shelley 1840).

We do not, that is, discover the more ancient productions of language to be impoverished relative to the multi-layered richness of meaning we expect in a later literature reflecting millennia of literate cultural accretion. It is more like the reverse of this: we still debate today whether, for example, the Homeric epics — composed orally before the development of writing in ancient Greece — have ever been surpassed for psychological depth, dramatic power, and human interest.

Likewise, the earliest “history” was not a record of cave-men going on adventures with clubs. It was more like a spiritual and a *cosmic* history. Humans — their gaze riveted by fascinating goings-on in what we today would probably consider supernatural realms, but which they experienced simply as *nature* — did not narrate their own histories. Rather, as is still echoed in Hesiod’s *Theogony* long after the primary age of myth, they told the story of the genesis of

gods and nature spirits. Only with time did history become more human-centered and prosaic.

And, again: “The farther back language as a whole is traced, the more poetical and animated do its sources appear, until it seems at last to dissolve into a kind of mist of myth. The beneficence or malignance — what may be called the soul-qualities — of natural phenomena, such as clouds or plants or animals, make a more vivid impression at this time than their outer shapes and appearances. Words themselves are felt to be alive and to exert a magical influence” (Barfield 1967, pp. 87-8).

A Primordial Unity of Inner and Outer Meaning. That last remark was from the British philologist and semantic historian, Owen Barfield. His death in 1997 deprived us of a rare authority on language and meaning who actually *looked* at the evolution of consciousness. The meanings of words, he showed us with wonderful subtlety in a series of works spanning much of the twentieth century, “are flashing, iridescent shapes like flames — ever-flickering vestiges of the slowly evolving consciousness beneath them” (Barfield 1973, p. 75).

If Barfield made one thing inescapably clear, it was that the “enchanted” landscape of mythic consciousness could not have been one of conscious invention, unrestrained metaphor, or causal speculation. The earliest ancestors of which we can form any picture at all could only observe nature as it was given to them. Their meanings did not arise from anything like modern reflection or theorizing.

This truth has been disguised from us by what Barfield referred to as “logomorphism” — the projection of modern thought processes upon “that luckless dustbin” of the primitive mind. “The remoter ancestors of Homer, we are given to understand, observing that it was darker in winter than in summer, immediately decided that there must be some ‘cause’ for this ‘phenomenon,’ and had no difficulty in tossing off the ‘theory’ of, say, Demeter and Persephone, to account for it” (Barfield 1973, pp. 74, 90).

But we see no evidence that the mythic mind had any concern with such explanation, if only because the conditions for it did not yet exist. For one thing, explanation requires distinct ideas — something to be explained, on one hand, and an explanation for it, on the other. But the inner and outer aspects of the unity that our ancestors experienced — which theorists today want to dualize into material fact and fanciful, immaterial explanation — were not separable in that sort of way. The mythically enchanted landscape was an unanalyzable interfusion of outer and inner, of sense perceptions and soul content.

For example, “Helios” could hardly have originated as an animistic effort to account for a material sun, given that

neither the history of language nor what we know of mythic consciousness affords any evidence that a purely material sun (from which one could infer — against all logic — the idea of a divine being) had yet been conceived. The sun's glory, its light and warmth, were simply experienced as ensouled realities.

We still find remnants of such indivisible meaning in the *New Testament*, where we read:

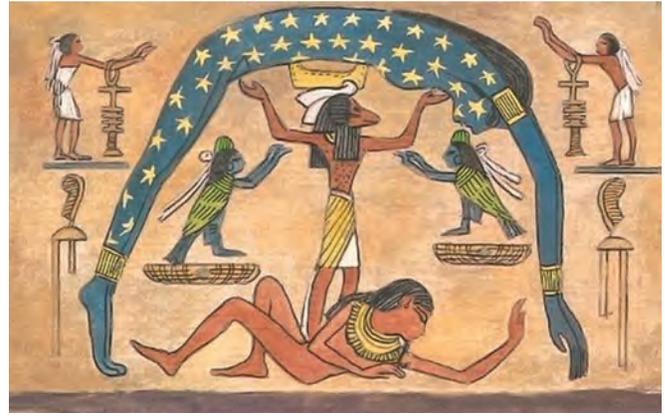
Truly, truly I say to you, unless one is born of water and the spirit, he cannot enter into the kingdom of God ... The wind blows where it wishes and you hear the sound of it, but do not know where it comes from and where it is going; so is every one who is born of the spirit. (John 3:5-8)

The translator has been forced by modern English to use two different words, “spirit” and “wind” (in other texts “breath” is required) where the original Greek has a single word, “pneuma”. “We must, therefore, imagine a time,” Barfield noted, “when [Latin] ‘spiritus’ or [Greek] ‘pneuma’, or older words from which these had descended, meant neither *breath*, nor *wind*, nor *spirit*, nor yet all three of these things, but when they simply had *their own old peculiar meaning*, which has since, in the course of the evolution of consciousness, crystallized into the three meanings specified” (Barfield 1973, pp. 79-81).

“Nor yet all three of these things” — not the addition of one distinct meaning to another, but a single unity of wind, breath, and spirit. Today's disconnected meanings simply weren't there yet in human experience. Grasping this truth is a great difficulty for us today, whose language forces a dichotomous choice between the terms of outward, sensible reference and those drawn from our interior life. To take one further example:

As far back as we can trace them, the Sanskrit word “*dyaus*”, the Greek “*zeus*” (accusative “*dia*”), and the Teutonic “*tiu*” were all used in contexts where we should use the word *sky*; but the same words were also used to mean *God*, the Supreme Being, the Father of all the other gods ... If we are to judge from language, we must assume that when our earliest ancestors looked up to the blue vault they felt that they saw not merely a place, whether heavenly or earthly, but the bodily vesture, as it were, of a living Being. (Barfield 1967, pp. 88-9)

Summing up the historical picture, the nineteenth-century American transcendentalist, Ralph Waldo Emerson, wrote in 1849: “As we go back in history, language becomes more picturesque, until its infancy, when it is all poetry; or all spiritual facts are represented



by natural symbols.” And again: “It is not words only that are emblematic; it is things which are emblematic” (Emerson 1849, chapter 4).

So the entire direction of the evolution of language and meaning is, so far as we can discern from the historical record, the very opposite of the widely assumed “ascent from brute materiality.” Before humans could speak in their own individuated voices, or could even conceive of devising theories or telling their own stories in a modern biographical sense, the natural world spoke to and through them. It was a time (as the rhythm and meter of early language testifies) “when men were conscious, not merely in their heads, but in the beating of their hearts and the pulsing of their blood — when thinking was not merely *of* Nature, but was Nature herself” (Barfield 1973, pp. 146-7).

Nature's ‘Speech’ Gave Us Our Meanings. Historically, then, nature presented us with exteriors whose inner significances were, so to speak, written on their faces. Phenomena constituted a living language, rather as, still for us today, the sense-perceptible human face can scarcely be distinguished from its expressive eloquence — that is, can scarcely be distinguished from the meaning it communicates. Similarly, it was from the evocative countenances of nature that our forbears discovered, in a living unity, the profound potentials of meaning that eventually yielded our current, analytically refined language.

As it happens, virtually *all* language traces back one way or another to the kind of inner/outer unity evidenced in the Greek “*pneuma*”. We see this in two broad classes of words:

- Some words — those now bearing immaterial meaning in the form of high abstraction, or else referring to our interior life — were once inseparable from sensible experience. “Right” meant *straight*; “wrong” meant *twisted*. To “conceive” something was to *grasp* it, as with the hand. Only with time did words such as “right”, “wrong”, and “conceive” become detached from sense perception. More-

over, as Barfield reminds us, the general rule that abstract and immaterial terms originated in connection with sense-perceptible phenomena is one from which “high-sounding ‘scientific’ terms” such as *cause*, *reference*, and *stimulus*, are not miraculously exempt (Barfield 1973, p. 134).

- The other group of words, now referring to material, sense-perceptible phenomena, once also connoted sentience or inwardness. We have already seen how words for “sky” originated in conjunction with *divine being*. “Matter” itself traces back to Latin *mater*, “mother”. And “physical” derives from the Greek *phyein*, “grow”. So the Greek *ta physika* — “natural things” or “things of external nature” — was rooted in living activity.

In this way virtually all our language testifies to the primeval experience of nature as a material/immaterial, inner/outer unity. But none of this is to say we should look to etymology for current meanings. Who will claim today that when we say someone is “wrong,” we mean he is bent like a stick, or that to “grasp something with a hand” means to “conceive” it? Nevertheless, the history of meaning raises its own questions.

How did the meanings of our ancestors gain their immaterial aspects if the sense-based images (a bent stick, the hand’s grasp) did not, out of their own nature, lend themselves to the expression of those aspects? If the relation between sensible image and immaterial meaning were arbitrarily invented by early speakers and were not inherent in the phenomena themselves — if things were not, as we heard from Emerson, *emblematic* — how would anyone have understood the speakers’ invented, immaterial meanings? (For a treatment of this and related questions, see Barfield’s remarkable essay, “The Meaning of ‘Literal’” in *The Rediscovery of Meaning and Other Essays*. Perhaps equally valuable is his essay on “The Nature of Meaning.”)

In today’s terms: *we* may not mean “wrong” when we say “bent like a stick,” but who can deny that the physical image of a bent object carries within it a potential for such inner meaning? (Actually, one aspect of that potential is fully realized in the English “bent”, which can mean “strongly inclined, resolved, or determined.”)

The original emblematic, or symbolic, meanings of things were not inventions. In the mythic consciousness, Barfield showed us, thinking was “at the same time perceiving — a picture-thinking, a figurative, or imaginative consciousness, which we can only grasp today by true analogy with the imagery of our poets, and, to some extent, with our own dreams” (Barfield 1973, pp. 206-7).

This picture-thinking was *given* by nature. The thinking element — the expressive content — was already experienced in perception, and was not added to it by a reflective

or theorizing perceiver. Things meant something *on their face*. Our ancestors were, in a sense, spectators entranced by an ensouled drama staged by the phenomena themselves.

What the historical record shows is that those progenitors recognized, in whatever was expressed through natural phenomena, a speaking agency akin to themselves. “Whether it is called ‘mana’ [wrote Barfield], or by the names of many gods and demons, or God the Father, or the spirit world, it is of the same nature as the perceiving self, inasmuch as it is not mechanical and accidental, but psychic and voluntary” (1965, p. 42).

We can make of all this what we will today, when our evolutionary trajectory, as Barfield traces it (and as I cannot here), has brought us to a vastly different place. But whatever case we choose to argue, we will necessarily invoke sublime, hard-won meanings that are available to us only because the world first put those meanings on display, enabling them to light up in nascent human minds.

At the same time, we will need to acknowledge that, so far as the historical record testifies, our evolutionary trajectory has not accorded with the usual assumptions. There is no evidence that we slowly ascended from a crude life of material Unmeaning to a humanly invented realm of meaning, value, culture, and spirituality. Our life today, with its materialistic convictions about the meaninglessness of nature, has required a long descent from the living, ensouled landscape upon which our ancestors were nurtured.

Our Cartesian heritage has taught us well to insist upon a radical separation of the inner and outer dimensions of our experience, which once formed so compelling a unity. And then, under the further influence of materialist thought, we have learned to regard the inner dimension as “merely subjective” or somehow less than fully real. This suggests that, instead of projecting our current mental processes upon the “ignorant” ancients, we might want to consider how a Cartesian and materialist heritage has concreted in our own deepest, most unyielding, and largely unconscious habits of thought and experience.

Through such reflection, perhaps we would gain the freedom within ourselves at least to inquire in all seriousness whether we today are the ones who lack ready access to much of the world’s reality.

Why make our lives a drama too small for the stage?

We have seen that a great unknown presses in upon us from all sides. In particular, the origin of things is hidden from us and, despite all our technological successes,

the fundamental terms of our science remain seemingly impenetrable mysteries. What one physicist wrote in 1985 is no less true today: “As yet no physicist can tell you what sort of world we happen to live in” (Herbert 1985, p. 146). Humbling as it may seem in an era so arrogantly dismissive of the past, our current physical science gives us no basis for belittling the ancient human experience of living in something rather more like a universe of beings than a universe of things.

But we have also seen that an intelligible world is more intimately near to us than we have dared to imagine. If we understand the world at all — and we are all convinced we do — it can only be because it consists, by nature, of qualitative *appearances* (“phenomena”) available to experience. It readily manifests itself on the stage of our own inner being.

And, finally, by looking at the history of language we have seen that the expressive face of the world presented itself to our ancestors as a kind of speech, and it was from this presentation that our own powers of speech derived. Like language, every natural phenomenon was an exterior through which there shone interior significances. The essential elements of nature were not mute, expressionless things, but images symbolizing meanings.

We return, then, to Feynman’s statement. When he said the stage is too big for the drama, he must already have concluded that the drama is sadly insignificant. Otherwise, what told him the stage is too big? Further, he was assuming a vast cosmic expanse indifferently related to the human story. But this assumption is the whole point at issue.

It is not at all clear how a universe of *appearing things* — things declaring themselves *to us* and bearing the sources of our language and thought within them — could possibly be alien to our own story. Not only have we drawn our interior life from the world’s meanings, both sublime and awful, but we live in a world whose very nature is to be encompassed within our consciousness — to live within us. Far from finding ourselves strangers in an alien universe, we embrace with our imagination and understanding the most distant galaxies, bearing witness to the significances of their light.

The universe’s appeal to our inner being runs deeper than intellect alone. For one thing — and what mystery could be more profound? — it yields itself gracefully to the choreography of our purposeful action. And, for another, it is the source of endless inspiration and encouragement. J. R. R. Tolkien reminds us of this when, in *The Lord of the Rings*, Frodo catches a momentary glimpse of a single star on high, penetrating the gloom of Mordor:

The beauty of it smote his heart, as he looked up out of the forsaken land, and hope returned to him. For like a shaft,

clear and cold, the thought pierced him that in the end the Shadow was only a small and passing thing. There was light and high beauty forever beyond its reach.

Perhaps the truth is nearly the reverse of Feynman’s saying. What is to prevent us from thinking that our receptive, respectful, and attentive consciousness is the stage, or one stage, upon which the material universe is itself realized — upon which it comes to its essential appearance? The question then is whether we have made *this* stage too small to accommodate nature’s eloquence — the qualitative and full-throated eloquence that, for all we know, desperately needs our own consciousness, conscience, and voice for its own most profound expression.

We are, of course, free to shrink the stage of our consciousness until it can present us only with a pitiful, mechanistic reduction of the natural world’s performance. But we can reasonably hope that the cosmos that so patiently brought us forth — a cosmos whose expressive material is woven through our own being — will tolerate a few hundred years’ momentary foolishness during which, like adolescents leaving home to establish their own independent life, we struggle against the “tyranny” of our upbringing. It is, in its way, a noble as well as a necessary struggle. And if it has yielded, among other things, Richard Feynman’s devotion to disciplined truth within the sphere of his own inquiry, this is something always to be cherished.

Yet, as we know so well, merely efficient truth is quite capable of blowing up the planet. A lot may depend on our gaining trust in the meaning and dignity of our own story. And this will prove impossible, I suspect, except so far as we also renew our trust in nature’s meaningful *appearances* — in the beautiful, compelling, sobering, terrifying, and inspiring phenomena it has so freely entrusted to us as the basis, not only for any genuine science, but also for the plenitude of our inner lives.

REFERENCES

- Barfield, Owen (1965). *Saving the Appearances*. New York: Harcourt, Brace and World. Originally published in 1957.
- Barfield, Owen (1967). *History in English Words*. Grand Rapids MI: William B. Eerdmans. Originally published in 1926.
- Barfield, Owen (1971). *What Coleridge Thought*. Middletown CT: Wesleyan University Press.
- Barfield, Owen (1973). *Poetic Diction: A Study in Meaning*. Middletown CT: Wesleyan University Press. Originally published in 1928.
- Barfield, Owen (1977). *The Rediscovery of Meaning, and Other Essays*. Middletown CT: Wesleyan University Press.

- Barfield, Owen (1981). "The Nature of Meaning," *Seven* vol. 2, pp. 32-43.
- Carter, Joseph P. (2017). "The Universe Doesn't Care About Your 'Purpose,'" *New York Times* (July 31). <https://www.nytimes.com/2017/07/31/opinion/the-universe-doesnt-care-about-your-purpose.html>
- Einstein, Albert (1936). "Physik und Realität," *Franklin Institute Journal* (March). For the English translation of the quote, see <http://www.oxfordreference.com/view/10.1093/acref/9780191826719.001.0001/q-oro-ed4-00003988>
- Emerson, Ralph Waldo (1849). *Nature*. Boston: James Munroe and Company. Available at <http://www.gutenberg.org/ebooks/29433>.
- Feynman, Richard, Robert B. Leighton and Matthew Sands (1963). *The Feynman Lectures on Physics*, vol. 1. Reading MA: Addison-Wesley.
- Fodor, Jerry (1992). "The Big Idea: Can There Be a Science of Mind?" *Times Literary Supplement* (July 3), p. 5-7.
- Gleick, James (1992). *Genius: The Life and Science of Richard Feynman*. New York: Random House.
- Goethe, Johann Wolfgang von (1995). *Scientific Studies*, edited by Douglas Miller. Vol. 12 in *Goethe: Collected Works*. Princeton NJ: Princeton University Press.
- Herbert, Nick (1985). *Quantum Reality: Beyond the New Physics*. New York: Doubleday.
- McGinn, Colin (1993). "Consciousness and Cosmology: Hyperdualism Ventilated." In *Consciousness: Psychological and Philosophical Essays*, edited by M. Davies and G. W. Humphreys. Oxford: Blackwell, pp. 155-77.
- Poincaré, Henri (1907). *The Value of Science*, translated by George Bruce Halsted. Available at <https://ebooks.adelaide.edu.au/p/poincare/henri/value-of-science/>
- Rosenblum, Bruce and Fred Kuttner (2006). *Quantum Enigma: Physics Encounters Consciousness*. Oxford: Oxford University Press.
- Seamon, David and Arthur Zajonc (1998). *Goethe's Way of Science: A Phenomenology of Nature*. Albany NY: State University of New York Press.
- Shelley, Percy Bysshe (1840). "A Defence of Poetry," in *Essays, Letters from Abroad, Translations and Fragments*, by Percy Bysshe Shelley, edited by Mary Wollstonecraft Shelley. London: Edward Moxon. "A Defence of Poetry" was originally written in 1821 and published posthumously. Text is available at <http://www.gutenberg.org/ebooks/5428>.
- Talbott, Stephen L. (2004). "The Reduction Complex." <http://natureinstitute.org/txt/st/mqual/ch04.htm>
- Weinberg, Steven (1993). *The First Three Minutes*, second edition. New York: Basic Books.