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Feature-length Summary Critique: **JAF6396**

WHAT STANDS BEHIND THE ADJECTIVE *POETIC* THAT YOU MAY NOT WANT TO SEE

by Paul Nelson

A Summary Critique of:

The Big Picture: On the Origins of Life,

Meaning, and the Universe Itself

by Sean Carroll

(Dutton, 2016)

This article first appeared in the CHRISTIAN RESEARCH JOURNAL, volume **39**, number **06** (**2016**). For further information or to subscribe to the CHRISTIAN RESEARCH JOURNAL, go to: http://www.equip.org/christian-research-journal/.

Sean Carroll is hard to dislike. A theoretical physicist at Caltech with a winning persona who contributes to the public understanding of physics and cosmology through his lectures, blogs, and popular books, Carroll gives a humane and kindly face to abstruse science. He also gives a friendly face to naturalism, which is not science, of course, but rather the ancient philosophical worldview that physical nature (the particles, fields, and the void) constitutes ultimate reality. No gods, no spirits, nothing transcendent. Carroll tucks the adjective *poetic* in front of *naturalism*, a naming strategy of more than passing significance, especially because, if you are so inclined, you can declare *poetic naturalism* on Facebook *as your religion.*

Seriously; without a trace of irony, Carroll himself announces this "poetic naturalism as religion" Facebook option on his webpage. If we think of religion as the sphere of one's deepest values — those bedrock truths and commitments for which we would willingly offer ourselves, and by which we try to order our daily lives — then it

is clear that poetic naturalism means far more to Carroll than a clever atheistic philosophy with debating tricks to throw naïve theists off balance. He intends for poetic naturalism to provide a trustworthy guide for living, and his most recent book, *The Big Picture: On the Origins of Life, Meaning, and the Universe Itself* (hereafter, *Big Picture*), is a six-part, 467-page treatise to that end, complete with "Ten Considerations" to replace the traditional Ten Commandments.

Now, why the adjective *poetic* is standing there in front of *naturalism* is an important question we shall consider shortly. First, however, I should note that Carroll is a physicist, and I am not. My academic fields are the philosophy of science and evolutionary biology. Thus, when Carroll asserts that "the laws of physics underlying everyday life are completely known" (p. 178), the "audacious claim" (his description) for which Carroll is arguably best known, my lowly status as a physics tyro compels me to answer, with a polite nod, "Well, if you say so, Sean."

For the sake of argument, let us grant this point to Carroll. Repeat after me: *the laws of physics underlying everyday life are completely known*. For ease of reference, I'll call this claim *complete physics*, with the caveat that by *complete physics*, Carroll means only those aspects of physical law that bear on (for instance) flying in airplanes, mountain erosion, cell biology, the behavior of roulette wheels, or why your mobile phone grows warm after long use. Carroll is not claiming, therefore, "that all the laws of physics are known, only a restricted set that suffices to describe what happens at the level underlying everyday life" (179).

The Incompleteness of Complete Physics. But what follows from complete physics? Carroll thinks a great deal; from my reading of *Big Picture*, however, I have to say — almost nothing. Not strictly nothing, to be sure; indeed, quite the opposite: the hard-won body of scientific knowledge that comprises our current understanding of physics makes possible technologies that would have seemed frankly magical to our great-grandparents, not to mention anyone who lived before them. That warm cell phone in your hand, on which you are texting with a friend thousands of miles away, is the prodigious child of highly reliable physical knowledge, painstakingly coaxed from nature herself over centuries, when that knowledge is mated with human creativity.

But Carroll thinks complete physics tells us that our consciousness "emerges from the collective behavior of particles and forces" (158), that "there is no life after death" (218), that "there is no overarching purpose to human lives" (220), and that the origin of life is "a matter of solving puzzles within the known laws of nature, not calling for help from outside of them" (270). These conclusions, however, are not supported by a bridge of sturdy argument, starting with complete physics, which would enable us to

walk alongside Carroll, as he signals back to our location from the other side of the philosophical chasm where he is presently standing. Put another way, we can *agree* with complete physics — we just did so, in fact, two paragraphs ago — and yet wonder how Carroll knows that his own consciousness emerges from particles and forces, or that the origin of life occurred by the known laws of nature. How exactly did Carroll get over there, to poetic naturalism, where he is waving for us to join him? We started with him on the premise of complete physics, but we are still standing where we began — whereas Carroll now claims to know a whole lot of other stuff as well.

A Poetic Problem. Suppose you own a precious metals mining company, and are looking for new sites to develop. I come to you with what I claim is a valuable lead for gold ore — a lead worth many millions of dollars, actually. So we draw up a contract, and on the appointed day, in your office, with a smile and a whisper, I triumphantly reveal what I know: "The crust of the Earth contains many atoms of gold." Then I hold out my hand for your check.

Should you pay me? After all, what I said is perfectly true. It is also perfectly useless. Dig somewhere on this planet. You knew that.

Complete physics may be true, but after we accept its truth, we are no better off — with respect to solving the problem of the origin of life, or consciousness, for example, using only known physical laws — than we were before we accepted it. The uncompromising details of what cells need to exist, such as their incredibly specific instructions for building hundreds of different proteins, are nowhere contained in complete physics. If those details *were* there, Carroll could turn the gears of current physical theory, show how cells arose from nonliving chemical constituents, and win himself at least a couple of Nobel prizes. Carroll's chapters on the origin of life in *Big Picture* don't do that, and it would have been flat-out miraculous if they did.

The scientific details for understanding the origin of life aren't there in complete physics, and they never will be, because the latter is the wrong level of scientific description and explanation. A cell is an *organism*, and the rules and principles that govern organisms simply have no counterparts down among the nuts and bolts of electromagnetism or atomic theory. You don't expect the guy who fixes your car to know about quantum field theory, although way, *way* down in the atomic lattice of the metal alloys composing the engine block and pistons, that theory applies. You want the mechanic to know how a fuel injector works. Starting down at the bottom, however, with quantum field theory alone, or even complete physics, one could never derive, or deduce, the existence of a fuel injector. It would be madness to try.

Carroll knows this, because he discusses the issue at length in *Big Picture* — and now we come to his adjective of choice: *poetic*. Plain old naturalism claims "that there is just one world, the natural world" (3–4), and God does not exist. *Poetic* is tucked in front of *naturalism* as a modifier to remind us "that there is more than one way of talking about the world" (4). But don't kid yourself, Carroll would add — gently, but with total conviction — that our different ways of talking correspond to reality. Ultimate reality is physics, and only physics.

From one critical perspective, we could say that *poetic* is thus pastel-colored bubble wrap surrounding the icy and brutal truth of naturalism. Eventually the bubble wrap must come off, as it did for Matthew Arnold in the last stanza of his heartbreaking poem "Dover Beach" (1867):

> Ah, love, let us be true
>
> To one another! for the world, which seems
>
> To lie before us like a land of dreams,
>
> So various, so beautiful, so new,
>
> Hath really neither joy, nor love, nor light,
>
> Nor certitude, nor peace, nor help for pain;
>
> And we are here as on a darkling plain
>
> Swept with confused alarms of struggle and flight,
>
> Where ignorant armies clash by night.

Richard Dawkins strips away the Victorian elegance of Arnold's poem while keeping its bleak message. "The universe we observe," he writes, "has precisely the properties we should expect if there is, at bottom, no design, no purpose, no evil, and no good, nothing but blind, pitiless indifference."[1]

But brutal truths cannot be ignored simply because they are brutal. We have to deal with them, no matter how discomforting they may be.

Reality and Philosophy. Rather, I take another critical perspective on Carroll's "poetic" bubble wrap. He spends many pages extolling the virtues — indeed, the necessity — of different "ways of talking" about the world, and warning about the dangerous

incoherence that inevitably ensues when we mix up the different vocabularies and concepts of separate discourses: "Rather than acknowledging that there is one way of talking about the world in terms of quantum fields…and another way in terms of electrochemical signals traveling between cells, and yet another way in terms of human agents with desires and mental states, we fall into the trap of using multiple vocabularies at the same time" (374).

But why should using multiple vocabularies simultaneously be a trap, if there is only one reality — namely, the physical? Surely we can learn to describe and explain human moral categories, for instance, without the pesky verbiage of concepts such as "right" and "wrong"?

Or maybe not. Maybe "different ways of talking" is little more than a rhetorical sleight of hand for acknowledging that reality is *not* unitary — that is, *not* strictly physical — without having to pay the price of surrendering a naturalistic ontology. (Ontology is the branch of philosophy dealing with *what there is* — what entities really exist in the universe. Carroll's naturalistic ontology asserts that physics, not mind or spirit, comprises the whole of what there is.) We *have* to use different vocabularies to describe and explain the world because reality itself contains multiple, irreducible levels. Those levels interact, but none suffices to capture the whole of what we wish to know or understand. While physics is a wonderful thing — love those cell phones and magnetic resonance imaging devices — physics isn't the whole show, not by a long shot. From an agnostic stance, it is at least possible that organisms exist as irreducible entities, as may moral categories, as may God Himself.

Consider that fuel injector again, but this time, from the perspective of a world-class particle physicist who never bothered to learn how his car worked. The engine is malfunctioning, so the physicist has the car towed to his local mechanic — who happens to know that the physicist is a hard-core reductionist. The mechanic is feeling mischievous that afternoon, so he brings the physicist into the repair bay. "You should be able to fix this engine yourself," he tells him. "Just start with physics, and build up. Here are my tools. Roll up your sleeves. I'm going for coffee."

The mechanic would return to find the physicist sneaking a look at the engine repair manual, with the physics textbooks still in the trunk of the car.

One last critical perspective: look at the date of Matthew Arnold's poem — it's 1867, although the poem was probably written well before its publication date. The current theories of physics that Carroll extols could not have been imagined by Arnold, or any of his contemporaries, but in the mid-nineteenth century, naturalism was flourishing as a worldview. The philosophy, poetic or not, has been around for a long time, indeed. One can find all of its major claims in antiquity, in the writings of the

Greek atomists, hundreds of years before the birth of Christ. Naturalism does not need, and never has required, the support of physics, because naturalism is not a scientific proposition at all. Any connection to genuine science is secondary and incidental — like red dye in the cake batter, or air freshener sprayed last night that lingers in the corners of the room.

And that explains how Carroll can go from complete physics — we let him have that, remember? — to "there is no life after death" (218) and "there is no overarching purpose to human lives" (220). Complete physics did not tell him that. It can't.

Science will not tell us what only philosophy can, and philosophies — true, false, coherent, incoherent — need to be engaged on a different playing field. Carroll could have saved himself about 450 pages. I learned some physics from reading this book, and I am thankful for that, but naturalism can be learned *in its entirety* from the four stanzas and 37 lines of "Dover Beach." —*Paul Nelson*

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NOTES

1 Richard Dawkins, *River Out of Eden* (New York: Basic Books, 1995), 133.