

Two Thrusts against Scientism

By Charles Upton

I: Letter to Stephen Hawking

For Wolfgang Smith

Dear Professor Hawking:

Greetings! If the universe is all there is—a statement you would seem to agree with—then this “all” must include space. But if so, how then can the universe expand if there is no space *outside* it for it to expand into? Expansion or contraction can only be seen from, and measured against, some frame of reference that is “stationary” in relation to the object it is measuring. But if the universe is all there is, then no such outside frame of reference could exist, consequently the cosmos cannot be determined to be expanding. The redshift is usually interpreted as indicating that the galaxies are flying apart from each other—but flying apart into what? Into something beyond the boundaries of the universe? Into something beyond all that is?

This is one of the many insoluble paradoxes that modern physics seems careful to avoid, but is nonetheless always posing. When we speak of the “size” or “expansion” or “age” of the universe, we always imagine it as existing as an object *within* our familiar dimensions of space and time. But the universe does *not* exist within space and time; it *is* space and time. If it is all the space there is, then it cannot expand *into* space; if it is all the time there is, then it cannot have begun *in* time, because

there could have been no time “before” it existed for it to begin in. In other words, if the universe is all there is, it cannot be viewed and measured as if it were a discrete material object. And if you answer that it can be so viewed by virtue of “thought experiments” constructed by human beings, then you are positing the human intellect as something that transcends the universe—just as God is said to do. Meister Eckhart would certainly agree.

Answer this if you can; meanwhile, I’ll propose you a second conundrum:

Modern physics has totally dispensed with the notion of uniform space, since space is warped by gravitational fields, and also with the notion of uniform time, since time expands or contracts based on the acceleration or deceleration of the observer. But if this is so, how then can you speak of what must have happened “three minutes” or “three seconds” after the Big Bang? If, as you claim, space has been expanding since then (though into what I can’t imagine), if all material particles—as soon as there were such things—have been flying apart from each other at (the last I heard) an ever-accelerating rate, then space-time must have had a radically different quality in the early universe, such that the measurements we call “minutes, seconds” could in no way be applied to it. A minute or a second is a specific fraction of some standard of periodic motion, such as the turning of the earth on its axis (itself variable) or the orbit of the earth around the sun (also variable)—or else some specific multiple of a higher-frequency type of periodic motion, such as the vibration of a quartz crystal or an atom of cesium. But immediately after the Big Bang, and for quite a while after that apparently, there were no such things as planets to turn on their axes, or stars to be orbited by planets, or any sorts of crystals, or any sorts of atoms. And so—given that modern physics has annihilated the concept of uniform time—how can you apply such measurements as “minutes, seconds” to conditions of the early universe? Certainly no-one can prove you wrong, since any potential critic would need to return to the early universe to take the necessary measurements—but then, by the same token, you would need to make such an impossible journey yourself to prove your own theories. How convenient for us (for you especially) that we now have authoritative pronouncements, said to be based on “the scientific method”, that can neither be the subject of

actual measurements of the conditions we feel at liberty to pronounce upon, nor in any way be subjected to “repeatable experiments”, those sacred operations upon which the whole scientific method is said to be based! So: How can you apply to the early universe various (relatively) uniform units of measurement that can only be derived from a much later universe, especially in the absence of any uniform flow of time that could adjust the measure to the thing measured?

My third and last challenge is as follows:

If, according to Richard Feynman, “a system has not just one history, but every possible history”—and if, according to you, “M-theory [*Prof. Hawking’s ultimate material explanation for everything*] is not a theory in the usual sense [but] a whole family of different theories, each of which is a good description of observations only in some range of physical situations”—then might it not also be true to say that “M-theory is not just one theory, but every possible theory”? And is a conglomeration of all possible theories really any kind of theory at all? If every physical system is made up of every one of its possible histories, then, in order to deal with this complexity, would we not be forced to also allow that every *mental* system, every explanation, is necessarily made up of every one of its possible conceptual variations? The essence and use of a theory is that it is a *single* concept that unifies many facts, many possibilities, many measurements. But if we are forced to define a theory as the set of all its possible variations—which your notion of M-theory seems to imply—then it is no longer a theory in the proper sense, no longer an *explanation*. It is merely a series of *ad hoc* conceptual responses to an indeterminate set of probable measurements. So you would seem to be the patron and agent not only of a postmodern deconstruction of physical reality, but also of a postmodern deconstruction of the very notion of an intelligible physical theory capable of dealing with that reality, neatly disguised under your “M-theory” notion. Thus, to paraphrase the Hindu scriptures, “Materialistic science, the destroyer, ends by destroying itself.”

I would be delighted to receive and ponder any responses you might wish to make.

Sincerely,
Charles Upton

II: Darwinian Evolution vs. Aristotle's Four Causes

For Daniel Schwindt

We need to make a distinction between “evolution” as a description of the changes undergone by life over time, and “evolution” as a causal explanation of how and why those changes have taken place. As anyone who can think clearly must have realized by now, the “natural selection of random mutations” is an absurd explanation for the appearance and development of life; at best it can explain minor variations in life as it already exists, like the variations in the beaks of finches that Darwin initially based his theory upon. Life doesn't produce a pseudopod, a bone, a gland, an eye etc. at random, and then when an animal that is all bone or all eye can't reproduce, decides to try all over again, once again at random. The development of life is obviously a *telos*; it is purposeful; in Aristotelian/Thomistic terms it is a movement from Potency to Act. That's what the word “evolution” means: an “unwinding” or “turning out” into manifestation and actualization of what was already there in potential, as an oak tree already exists within an acorn, potentially but not yet actually. Life has an idea of where it wants to go before it starts out—and “Life”, remember, is a “Name of God”. Again in Aristotelian terms, the Darwinian theory of evolution recognizes *material* causality and *efficient* causality, but not *formal* causality or *final* causality. In other words, it recognizes only material conditions and the forces operating on them. Beyond that, it sees formal causes and final causes not as causes but as effects: simply as the present and future results of material and efficient causes. Creationism, on the other hand, sees a thing's form as its eternal prototype in the mind of God, without which it could have never have come into existence in time because there was/is no form there in eternity capable of entering time. And it sees a thing's final cause as the most complete possible manifestation of its eternal form in the realm of time, space, matter and energy. So the indisputable fact that living forms change over time has no necessary relationship whatsoever with the notion of the natural selection of random mutations as the prime cause of that change. The archetype or *forma* of a particular life-form descends into time, “vertically” from eternity, and gathers to itself the material and biological *materia* it

needs to live and move in time; then, when—and as—the archetype is withdrawn, when it re-ascends to its Source, the life-form in question dwindles and/or degenerates, until it finally disappears. In terms of *materia*, there is a horizontal continuity of life with troughs and peaks to it, representing the obscure beginnings and the full flowerings of a particular species; in terms of *forma*, the various species are entirely discrete; a fish doesn't turn into a butterfly; a monkey doesn't turn into a man. And as for what it would be like to actually witness the birth of a new species, the possible extremes seem to be: it appears from nowhere in a flash or light, or an entirely monkey mother gives birth to an entirely human child. Both of these seem rather unlikely. But I do hold that species appear more rapidly than we have tended to believe—much more rapidly than the natural selection of random mutations could possibly explain; this is what evolutionists describe as “punctuated equilibrium”, though they do not draw the same conclusions from this phenomenon that I do. In terms of eternal, *vertical* causality, an eternal form enters time; in terms of the temporal, *horizontal* reflection of eternal causality, life presses forward to actualize, in the future, a form that is already latent within it. And a point must necessarily exist, analogous to the fertilization of an egg, when the entire potential for the development of a new life-form fully incarnates in this world, before any outwardly-visible signs of the new life-form are yet manifest. It is from this “fertilized egg” that the new life-form *evolves*; it does not “evolve” (in this case the word is a misnomer) by some slow, laborious transformation of one species into another. A new species may resemble an earlier species in many ways, but the fact remains that one species cannot reproduce with another; in that sense, species are entirely discontinuous.

Interestingly enough, the debunked Lamarckian theory of “the inheritance of acquired characteristics” has recently made a comeback in the theory of “transgenerational epigenetic inheritance”; for example, it is believed that mice subjected to particular stresses pass along their physiological responses to such stress to later generations via altered DNA. This is certainly an example of Aristotle's efficient cause, but while it retains the Darwinian notion that life-forms change to adapt to environmental conditions, it unhooks this fact from the natural selection of *random* mutations, converting it instead into the natural selection of *purposeful* mutations—a big blow to Darwin right there. But the

very concept of a *purposeful* mutation introduces as well the notion of a *final* cause. And if we define a final cause as a *telos*, in the sense of the temporal actualization of an eternal form, then we can't discern a final cause without some notion of a *formal* cause. Imagine this: A formal cause enters time from eternity, and unites with a material cause (cf. *Genesis* 1:2). This union begets or unveils a *telos*, a purpose, a final cause, toward which life presses by means of various efficient causes, both internal and external. This leads one to ask: Could the incarnation of an eternal form, its descent from eternity into time, alter the DNA in the biological entity that acts as its material cause, thereby begetting a final cause and calling into play efficient causes? I believe the answer is "yes". *Miracles* of many kinds are exhaustively documented, and miracles are examples of vertical causality. An agent with no temporal antecedents effects a visible and measurable material change. I myself, for example, witnessed, and personally experienced, the powers of the Philippine "psychic surgeons", who can open parts of the human body with their bare hands by a process of partial dematerialization, remove diseased substances, and then close the "incision" again with very little bleeding and almost no pain. The power they manifest derives from no material source; it arrives "vertically" from some unseen dimension. And if that is possible, then the "spontaneous" transformation of DNA so as to give rise to a new living species should be equally possible. As C.S. Lewis observed, miracles do not "violate" natural law because they arrive from a dimension beyond natural law; as soon as they enter the world where natural law holds sway, they perfectly obey it. That's why the operation of vertical causality cannot be proved from the fossil record: natural law operates in time, and the fossil record is the chronicle of time. Yet events *suggestive* of vertical causality can be discerned not only in the fossil record (in the form of punctuated equilibrium), but in the geological record as well. It appears, for example, that the dinosaurs were already in the midst of a major extinction event when the asteroid that hit Earth near what is today the Yucatan all but finished them off (though some still survived). It is as if God willed that the dinosaurs should disappear to make room for the mammals. There is of course no way that this can be proved by material observation or experiment—yet it does seem to involve a massive *coincidence* of the type that Carl Jung called a "synchronicity," in which two events with no discernible causal

connection between them exhibit a tremendous connection on the plane of *significance*. Synchronicities, in my view—like miracles—are the product of vertical causality. Time, horizontal material causality, *karma*, flows onward—intersected at every point, and at certain pivotal points intersected very powerfully, by vertical causality—*dharmā*—Grace. This, I believe, is how life was born, and changed over time, on this planet.