

The Limits of Materialism:  
Auspicious for Teleological Explanation?

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## Abstract

The idea that scientific explanation runs up against certain inherent limits beyond which the field is open for other kinds of explanation is based on flawed assumptions. Modern physical knowledge, as I read it, does contain at least one important implication for theology having to do with how “Creation” is understood, if indeed the term remains usable and suitable.

There has been much interest in whether and how the intriguing results of modern physics, or certain aspects thereof, can be incorporated into a religious worldview. I wish to call attention to an important line of consideration in this regard that arises out of my own work on problems about nature.

Physics entered a new era as it was forced to adapt to the limitations of the materialist-mechanist conception of physical reality. "Creation" in the context of the mechanistic worldview meant the mysterious bringing-about of a self-governing material whole. As I will explain, the demise of the mechanist ontology profoundly affects the multifarious topic of the explanation of nature, from experimental phenomena to that relatively new topic of science, the origin of the universe.

Behind quantum indeterminism lies a broader, less trumpeted development: the abandonment of efforts to describe and explain electromagnetic "waves," fields of force, or the constituents of the atom using models of invisible matter in motion. So far this has meant the official demise of an entire class of explanatory *questions* once engaged in and promoted by outstanding scientists such as Faraday and Maxwell.

It is widely assumed that here science encounters a limit to the scope of possible understanding along the line of physical or causal explanations. This has long encouraged those who would suggest metaphysical and/or theological explanations to take up where science breaks off. But does science in fact confront a hard limit to its approach? At a minimum it would seem that matter, as with the field-influence propagating in apparently empty space, has a physical constitution or causal make-up which is not itself material (despite the convenient term "particle") but would have to be understood "in some other way" (Merleau-Ponty, 1963, p. 151). So far, a purely negative result. But there is already a philosophical upside: the impulse

to explain how matter as such is constituted no longer confronts the problem of an infinite regress. Instead of a diminishing continuum of parts themselves material, the make-up of matter turns out to be a colorful spectrum of increasingly subtle “particles”—and it is important to realize that these are actually not anything distinct ontologically from “field,” “radiation,” etc., i. e., they involve dispersed as well as localized aspects or phases, and are inherently “processive” and wavelike in character, not like inert, occupying material—vanishing into featureless and boundless “vacuum energy.” At the same time, inasmuch as no post-materialist ontological concept is envisioned, there is no expectation that detailed physical-causal accounts could be given (of, say, photon-atom interactions, or the propagative action of the [post-ether] light “wave”). (Whether this abandonment of expectations is actually inescapable and permanent is a question I have treated extensively in my writings [Athearn, 1994, Chapter 8; 1997, 2003, 2005, 2011].)

But there is progress in understanding simply in that the ultimate constitutive factors are disclosed, identified, and sorted out as the enigmatic, pre-material entities they are, which is enough to show that matter *has a fundamental (i.e., non-regressive) physical constitution*. The topic of the explanation of matter per se is thus established as a possibility (philosophically speaking) within the purview of physical science. This tends to undermine the notion of a division of roles in which science describes *what* there is while the “whys” and “hows” fall to theology and/or metaphysics.

Meanwhile explanations (along the line of “brute,” unguided processes [Merleau-Ponty, 1963, p. 166]) continue to advance in biology, geology, and astrophysics. Even what appears to be a physical account of the co-origination of everything—matter, space, and time—comes to be generally accepted; though one may view critically the “Big Bang” theory as currently conceptualized (Athearn, 1994, pp. 231-32; 1997, p. 564; 2003, Chapter 4), or even reject it

altogether, it nonetheless appears that this topic also has been commandeered by science.

Nevertheless, the prevailing notion today seems to be that scientific understanding can only go so far. For instance, it is claimed that despite appearances the Big Bang theory describes only what happened *after* “time zero” (Greene, 2004, p. 272). Religion might well take heart at this; on the other hand it might (if correct) mean that there is or was no “time zero” just as there is no physical state of zero energy. In any case, the idea of limits to science fosters the division of roles referred to above. A case in point is the modern form of “argument from design”: The world as it is, with living things and humans in it, depends on certain exact quantitative properties of fundamental particles; this is evidence that an intelligence set things as they are. A teleological account explains what science merely discovers. But what if the precise properties at issue are successfully treated by naturalistic-evolutionary explanation? Living organisms require precise traits of physiology and behavior to interlock with evolving ecosystems (for whatever it is worth, the subatomic “particle” is evidently a self-replicating system analogous to a standing wave). Perhaps the statement “the world as it is depends on the precise properties of ‘*x*’” itself contains the explanation of the “fine-tuned” properties, namely, the entity came about with those properties because only then could it play its role in the integrity of physical systems along which it evolved in mutual dependence. The new design argument needs to show why the principles invoked for biological becoming cannot be applied to what are called nonliving forms.

How far will naturalistic accounts eventually go toward explaining all natural facts? Will a place remain for teleological explanation? Or does teleology here—that is, applied to the problem of understanding natural phenomena and nature per se—“share the same fate as mechanism” (Merleau-Ponty, 1963, p. 151; 1964, p. 211)? Would universal natural selection achieve naturalistic explanation only by opening a prospect for generalized purposiveness as associated with living things?

Naturally, people home in on seemingly permanent mysteries in quantum physics for possible religious relevance. But the picture changes if, as I argue, the weird quantum phenomena are actually readily explained in naturalistic-causal terms under a certain (otherwise well-supported) physical-ontological strategy (Athearn, 2003 pp. 49-67; 2005; 2011). I argue that discoveries not only here but across physics point “merely” to a revision of the concept of natural or physical being so as to internalize becoming or “process” in the manner articulated by A. N. Whitehead (Whitehead, 1929, p. 23)—not to any kind of ultimate inscrutability or irremovable mysteriousness. What is of interest to religion here is that “becoming as integral to (or constitutive of) being” does not so readily accommodate an external relationship to a source of being on the model of creator and created thing as did the universe pictured as a total aggregate of present and persisting material. This suggests that theology would do well to pursue a course that engages with scientific naturalism—avoiding reliance on the idea of a limit to science—and leaves behind the imagery in which doctrine has traditionally been conveyed (Griffin, 2000).

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