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Editors

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Science

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The world that has come of age is more godless, and perhaps for that very reason nearer to God, than the world before its coming of age.
—Dietrich Bonhoeffer

In “five theses” concerning the future of radical theology, Jeff Robbins and Clayton Crockett trace its origins to the last few years of World War II. “Radical theology was born,” they assert, “with Dietrich Bonhoeffer’s prison cell writings when he issued the challenge to live in the world without the working hypothesis of God.” This “godless” theology escalated in intensity and detail as the months wore on and Bonhoeffer began to suspect he might not survive the war. In the midst of air raids, oppressive heat, poor nutrition, and constant interruption, Bonhoeffer struggled to articulate for future generations what he came to call a “religionless Christianity,” one that would privilege responsibility over belief, sacrifice over salvation, and this world over the afterlife.

Using the term “working hypothesis” interchangeably with “stop-gap” and “deus ex machina,” Bonhoeffer assails the kind of “religious” thinking that invokes God only as a last resort. As he explains to his confidant and former student Eberhard Bethge:

religious people speak of God when human knowledge (perhaps simply because they are too lazy to think) is at an end, or when human resources fail—in fact it is always the deus ex machina that they bring on to the scene, either for the apparent solution of insoluble problems, or as strength in human failure—always, that is to say, exploiting human weakness or human boundaries. Of necessity, that can

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only go on till people can by their own strength push these boundaries somewhat further out, so that God becomes superfluous as a deus ex machina.\(^1\)

The boundary-pusher that Bonhoeffer has most clearly in mind is modern science; specifically, its progressive ability from Copernicus to Newton to Darwin to Bohr to explain more and more of the natural world without any reference to a supernatural God. Then as now, Christian apologists tried in response to sniff out the increasingly small "gaps" in these scientific theories—the "inexplicable" complexity of the eye’s synaptic vesicles, for example, or the majority of the bacterial flagellum—and to declare with baffling triumphalism that *this miniscule space* is the indubitable locus of an intelligent and loving God. But why on earth, we might ask with Bonhoeffer, would we want to confine God to the bacterial flagellum?

Bonhoeffer’s critique of this panicked, defensive, and frankly absurd theological strategy takes shape while he is reading Carl Friedrich von Weizsäcker’s *Zum Weltbild der Physik* (1943). This philosophical reflection on the demise of classical physics in the face of general relativity and quantum mechanics most likely made it to Tegel prison through the efforts of Dietrich’s older brother, the physical chemist and avowed atheist Karl-Friedrich.\(^4\) On May 29, 1944, Bonhoeffer writes to Bethge:

> Weizsäcker’s book *The World-View of Physics* is still keeping me very busy. It has again brought home to me quite clearly how wrong it is to use God as a stop-gap for the incompleteness of our knowledge. If in fact the frontiers of knowledge are being pushed further and further back (and that is bound to be the case), then God is being pushed back with them, and is therefore continually in retreat.\(^5\)

In the midst of the “world come of age” modern science had produced, Bonhoeffer realized that Christianity was in danger of fleeing with its stop-gap God to the margins of human relevance. The only honest and responsible alternative, he insisted, was to embrace creation’s adulthood, living and acting in the world “without recourse” to some extra-scientific Superbeing who might fix our unsolved problems and answer our unanswered questions.\(^6\)

Even as Bonhoeffer proclaimed the death of the God outside the world, however, he also proclaimed God’s omnipresence within it. Ethically, such omnipresence amounted for Bonhoeffer to seeing Christ—God incarnate—in every human being, especially those who suffer. Epistemologically and even ontologically, it meant seeking God “in what we know, not in what we don’t know; God wants us to realize his presence, not in unsolved problems but in those that are solved.”\(^7\) In the manifold mechanisms of evolution, for example, rather than in some tiny synapse it can’t yet explain.

On one hand, then, Bonhoeffer’s prison theology announces that modern science has killed “God” by attributing all his old jobs to physical processes. (In one fascinating, parenthetical musing, Bonhoeffer traces this scientific decide to Nicholas of Cusa [1401–1464] and Giordano Bruno [1548–1600], who declared both before and after Copernicus that the universe was infinite, thereby rendering the metaphysical God irrelevant.\(^8\)) “An infinite universe,” Bonhoeffer writes, “is self-subsisting, *estis deus non datur* as if there were no God.”\(^9\) But on the other hand, Bonhoeffer is entreating us to seek God *within* the very grown-up, scientific universe that kills off God: “he is the centre of life,” Bonhoeffer writes, “and he certainly didn’t ‘come’ to answer our unsolved problems.”\(^10\) It is a fascinating theological two-step: by abandoning the God-behind-the-world, Bonhoeffer entreats us to see the God *within* it.

To date, there is not a great deal of literature that explicitly treats the intersections of the natural sciences with the radical theology that grows out of Bonhoeffer’s prison writings (some major exceptions include the work of Clayton Crockett, Jeffrey Robbins, and Mark C. Taylor).\(^11\) As it continues to grow in ecological, new materialist, quantum, and cosmological scope, I would therefore like to suggest that radical theology intensifies the double movement we have just glimpsed in Bonhoeffer. In short, a radical theology of natural science would kill off the metaphysical God wherever he [sic] continues to raise his kingly head and instead seek those traits we associate with divinity—creativity, sustenance, renewal, and transformation—in the manifold, self-subsisting processes of this natural world.

The “god of the gaps” theology that Bonhoeffer assailed is perhaps better known as “intelligent design theory.” Before Darwin, such ideas found their last great gasp in the work of the English natural philosopher William Paley, whose *Natural Theology* (1802) investigates in excruciating detail the structure of a dizzying array of living and nonliving things to show that each of them must be the product of divine handiwork. The evidence is that each creature’s “means” perfectly supports its “ends”: a camel has a hump to retain water in the desert but a fish does not; a bee has a designated honey-stomach but a goat does not, and so on. Through nearly 600 pages of examples, Paley insists that each of these “contrivances” demonstrates definitively that “there is a God; a perceiving, intelligent, designing Being, at the head of creation, and from whom will it proceed.”\(^12\) There is simply no other way to account for such wondrous, creaturely fine-tunings.

And then 50 years later, Charles Darwin found another way. Having read Paley’s work as an undergraduate at Christ’s College Cambridge (perhaps even living in the same room Paley had occupied as a student),\(^13\) Darwin embarked on his famous *Beagle* journey convinced that an intelligent, transcendent God was the only explanation for “the origin of species—that mystery of mysteries.”\(^14\) What he eventually discovered, of course, was that the immanent, physical processes of random variation and natural selection could do all these godly jobs on their own. Crudely stated, the reason camels have humps is that the ones who developed them survived, while the ones without them did not; no God necessary.\(^15\)

This divine redundancy was intensified in Darwin’s *Descent of Man* (1871), which showed that, far from having been created in the image of God, human beings developed from “lower” animal life forms. While Darwin himself insisted on the compatibility of evolutionary and theological interpretations,\(^16\) there is clearly no longer any need for God in this schema. Evolutionary biology functions, as Bonhoeffer realized, *estis deus non datur*—as if there were no God.
Hence the increasingly convulsive attempts on the part of Christian apologists—then as now—as either to seek holes in evolutionary theory that they might fill with “God” (this is the strategy of intelligent design) or to deny evolution altogether (this is the view of young-earth creationism). Unfortunately for the apologists, the scientific assault on God seems to be coming from more and more directions as the decades wear on. Neuroscience is proclaiming “God” to be a cognitive remnant of an obsolete primitive adaptation; climate science is revealing “acts of God” to be acts of strictly earthly—including human—processes; and the standard big bang model accounts for every stage of cosmic development back to the Big Bang. And the moment a theology of the gaps races into to squeeze God into that hundredth of a second, inflationary cosmology comes along to close even that gap. As Bonhoeffer envisioned, “God becomes superfluous [even] as a Deus ex machina” when we hear that our entire universe is just one of an infinite number both like and unlike it, eternally generated and destroyed by strictly physical processes. As an explanation for the origins of the universe itself, this “multiverse” hypothesis cosmizes the evolutionary insult. In the words of Stephen Hawking and his collaborator Leonard Mlodinow,

Just as Darwin … explained how the apparently miraculous design of living forms could appear without intervention by a supreme being, the multiverse concept can explain the fine-tuning of physical laws without the need for a benevolent creator who made the universe for our benefit.

As Hawking, Mlodinow, and numerous other popularizers are fond of proclaiming, then, modern science does away with God completely. In response, of course, the most brazen theologies attempt to do away with science. The irony, however, is that those who oppose and attack are mirror images of one another. Both of them proclaim with untrammeled certainty the existence or non-existence of the extra-cosmic Father God whom Bonhoeffer and subsequent generations of radical, feminist, process, and ecolotheologians abandoned long ago. In this particular sense, the outlandishly atheist brand of science is still playing the game that Western religion set out for it in the seventeenth century: as Friedrich Nietzsche famously claims, scientists are still “religious” because “they still have faith in truth.”

What Nietzsche means by “truth” is an objective, eternal, unperspectival reality, purportedly “out there,” back behind the natural world. Insofar as science purports not to create truth but to discover it, insofar as it sets forth obsessive disciplines to subject itself to that truth, and insofar as that truth is said to be singular, modern science can in fact be seen as “the latest and noblest form” of monotheism. In short, this sort of science may think it has destroyed God once and for all; it may think itself “free, very free” of the old man in the sky; but it has unwittingly swapped him out for an equally metaphysical character, whether this character be called “no-God,” “truth,” or an ever-elusive “theory of everything.” As cosmologist Marcelo Gleiser has argued, in its perennial quest for the single truth of the whole universe, science remains “monotheistic,” still “under the mythic spell of the One.”

To the extent that they find themselves locked in useless debates over a metaphysical deity (“God exists; no, he doesn’t; yes, he does!”), “science” and “religion” can both be seen as refusing to face up to the death of God. Taken seriously, such death would mean the end, not just of the super-person who used to constitute the Eternal Truth of the universe, but of the very position he occupied. Facing the death of God would mean abandoning the quest for any timeless, unchanging real—whether religious, scientific, or either of them in the guise of the other.

That having been said, abandoning the quest for a transcendental Truth does not mean that “anything goes,” or that young-earth creation and evolution are “both just theories.” Rather, it means that, like Bonhoeffer’s divinity, truths can only be found within the contingent, perspectival processes of growth, reciprocity, decay, measurement, and description that continually produce and remake the world. As it seeks to make sense of the perplexing entanglement of religion and science, I would therefore like to suggest that radical theology revisit Bonhoeffer’s constructively-critical two-step: declaring—even administering—the death of the metaphysical God and then finding a radically different divinity within the godless world.

In its first movement as a critical discipline, a “radical theology of science” would embrace William Hamilton’s deicidal imperative in the face of an uncannily self-resurrecting patriarch. It would in this vein seek out and intervene in those places the dead God keeps reappearing—not only in right-wing theologies but also in the purportedly atheistic discourses of modern science. Such scientific revivals would of course include those aforementioned, hypermasculine-metaphysical proclamations of religion’s stupidity and irrelevance, which comically and tragically remain caught within the hypermasculine-metaphysical theology they delight in detesting. But they would also include the manifold scientific efforts to uncover an unmediated truth: for example, in neuroscientific efforts to find the physical “correlates of consciousness” that would locate a mental (or religious) real once and for all; or in the Many-Worlds Interpretation of quantum mechanics, which posits an actual compendium of all possible worlds to escape the problem of indeterminacy; or in the neo-Arthurian quest to find the one particle that will unify all of physics (and by extension, all of chemistry, biology, and the “softer” sciences). In each of these endeavors, “facts” are taken to be independent of the specific scientific processes that help to constitute those facts; as Bruno Latour has recently argued, modern science makes-and-then-believes-in facts the way it accuses “premodern” religions of making-and-then-believing-in fictitious. Just as it is the task of radical theology to uncover the human processes that make the gods, then, it would be the task of a radical theology of science to unravel the tangle of human, mechanical, bacterial, technological, ideological, and elemental processes that act together to make any particular truth; a production Latour calls a factiti.
In the process, the critical theology I am imagining would morph into a second, constructive movement of finding those places in which modern science is implicitly, but powerfully, redefining what is meant by "God." Rather than asking whether any given natural process is compatible with yet another resurrection of the dead Father God (the short answer is "yes, this God can always be installed back behind any physical process") ... but that does not mean it is intellectually honest, ethically supportable, or theologically interesting to keep doing so), a radical theology of science would look out for more immanent, less anthropomorphic principles of creation, sustenance, transformation, and destruction at work in the natural sciences themselves. And for those who have eyes to see, such immanent divinities can be found at nearly every level of the scientific enterprise.

One might investigate, for example, Lynn Margulis’s theories of "autopoiesis," and "symbiogenesis," according to which organisms are "interwoven" with other organisms as well as their "environments" to create the very conditions they need to live, thrive, and produce new forms of life. Or one might turn to emergence and complexity theories, which find the origins of unanticipated life forms neither in a fundamental God nor a fundamental theory, but within the unpredictable interactions of open systems on the "edge of chaos." Or one might travel into the realm of open system thermodynamics, which finds that the interactions of "nonequilibrium" systems transform old forms of energy into new material structures. Or one might find such traditionally defined functions at work in neuroplasticity; or in the "intra-actions" of quantum particles, environments, and interpretations; or in the birth and death of universes out of "parent" universes or a primordially entangling quantum "bath." In each of these complexly resonant discourses, divinity would be not-other than the natural processes that perform the continual creation, destruction, and transformation of the intra-active world. These are sciences for a world come of age, which has no need for a transcendent God to get it going, fix its bugs, fill its gaps, or to play its perennial boogyman. Nor do such sciences claim any approval to a view from nowhere, an absolute fundament, or a truth independent of the complex, earthly means of its production. Or insofar as they do, it is the task of a radical theology of science to hold them to their own standards of immanent critique and this-worldly explanation.

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As Bonhoeffer sat or stood uncomfortably in his cell with Weizsäcker’s World-View of Physics, he grew increasingly intrigued by the notion of an infinite universe. As we have seen, Bonhoeffer reasoned that a universe unbounded in space, time, or both has no need for an infinite God; as Cusa and Bruno realized, divinity in an infinite universe would be complexly folded into the autopoietic world itself. For his part, Weizsäcker thought there were three possible responses to the possibility of an infinite universe. One was "disenchanted," another was unconditional scientific exploitation, and the third was an undischanted, unexploitative "pantheism," for which "this world which we love is a world of paradox ... therefore ... the divinity of the world we love contains a mystery and an infinite task." Once mentioning it, however, Weizsäcker does not explore this pantheist possibility any further. And as "this-worldly" as his theology might have been, it is a good bet that Bonhoeffer too would have bristled at the term.

Clearly, it exceeds the scope of this short chapter to debate pantheism's various merits, demerits, and possible reconfigurations. But for the sake of thinking into the possibility Bonhoeffer both did and didn’t entertain, perhaps it will suffice to take the term as broadly as possible to mean "divinity within the immanent order." If radical theologians can agree to this broadest constructive proposal, then the task ahead is nothing less than to discover what "immanent" means.

Does "immanence" signify a closed, given, and determinate totality? In that case, we can rest with the God of the ancient Greek Stoics, who was the finite, perfect, and fatalist world. A straightforward pantheism for an unchanging cosmos.

Or does "immanence" rather name an open, complex, and indeterminate terrain of intra-active systems, constantly creating newness from the old? And in that case, what would our cosmic deity look like? What, in fact (if it is), do we want our divine world to be, as we participate so modestly in its vast self-becoming? Such would be the operative questions of a radical (pan)theology of science.

NOTES

4. See Karl-Friedrich's offer to retrieve books for Dietrich from the university library in his letter of 30 August 1943 (Bonhoeffer, 97–98). I am grateful to Charles Marsh for his thoughts on the possible source of this book.
5. Ibid., 311.
6. Ibid., 325.
7. Ibid., 311.
8. Technically, Nicholas of Cusa did not call the universe "infinite"; he called it "boundless," precisely to avoid the theological conclusions both Bruno and Bonhoeffer draw here. See Mary-Jane Rubenstein, Worlds without End (New York: Columbia UP, 2014), 80.
10. Ibid., 312.
15. Darwin (1859, p. 5): “As many more individuals of each species are born than can possibly survive; and as, consequently, there is a frequently recurring struggle for existence, it follows that any being, if it vary however slightly in any manner profitable to itself, under the complex and sometimes varying conditions of life, will have a better chance of surviving, and thus be naturally selected. From the strong principle of inheritance, any selected variety will tend to propagate its new and modified form.”
16. Toward the end of the book, Darwin concedes that “the conclusions arrived at in this work will be denounced by some as highly irrigulent; but he who denounces them is bound to shew why it is more irrigulent to explain the origin of man as a distinct species by descent from some lower form, through the laws of variation and natural selection, than to explain the birth of the individual through the laws of ordinary reproduction. The birth both of the species and of the individual are equally parts of that grand sequence of events, which our minds refuse to accept as the result of blind chance” (Darwin, The Descent of Man, 2 vols. [New York: Appleton, 1871], 431). Stated succinctly, it is no more difficult to reconcile divine creation with evolution than with sexual reproduction, to which Darwin’s audience is presumably more accustomed. Both processes attribute creativity to created agents, who presumably receive these gifts from the designer of the whole “grand sequence.”
17. “Theology ... has taken up arms—in vain—against Darwinism, etc.” (Bonhoeffer, 341).
24. Ibid., §8.23, emph. in orig.
26. Just as Bonhoeffer accused Karl Barth of adhering to a “positivism of revelation” that stopped short of a full critique of Christianity by asserting ahead of time to Christian doctrine (the virgin birth, the Trinity, original sin, etc.), the radical theology I am imagining here would depart from Bonhoeffer’s own retention of specifically Christian discipleship, however emptied of its metaphysical content. See Bonhoeffer, 268, 80.
27. In the throes of the conservative evangelical revival of the American 1970s and 1980s, William Hamilton proclaimed this God “too male, too dangerous, too violent to be allowed to live” (William Hamilton, *Reading Moby-Dick and Other Essays* [New York: Peter Lang, 1989], 177–178).
28. See n. 21, above.
Theopoetics

J. Blake Huggins and L. Callid Keefe-Perry

A conversation with Callid Keefe-Perry and Blake Huggins

Callid: [To Blake] So, Jordan and Chris think that there's somewhere in the neighborhood of 4000 words that we can find to make connections between theopoetics and radical theology. I think I agree, but it isn't as if all the theopoetics conversation going has to do with radical theology and I don't want to misconstrue anyone's position...

Jordan: [Editorially, from the wings] Actually, before you get going, the piece could use a paragraph introducing the conversation. It might help to simply name the idea of theopoetics as a conversation and how this essay is going to be a performance of that content, not just a description of it.

Callid: [Laughs] Well, in that case...

The way that I use the term theopoetics is fairly broad. Theopoetics is shorthand for conversations that have (1) an emphasis, style, or positive concern for the intersection of theology and spirituality with imagination, aesthetics, and the arts, especially as (2) it takes shape in ways that engender community-affirming dialogue that is (3) transformative in effect and (4) explicit about embodiment's importance. Also, I suppose it is important to say that while there are some who position theo-poetics as an explicit opposition to theologies, I tend to think more along the lines of emphasis and inertia within theological reflection rather than something countering it.

In this vein, the theopoetics conversation includes quite a breadth of methods and theological positions, including traditional scholarship that has aesthetic content as its focus as well as people who are pushing the boundaries of...