The Comforting Cosmos: Astrobiology and the Book of Job

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How (on earth) does a biblical scholar become interested in astrobiology? Perhaps to be able to "boldly go where no biblical scholar has gone before!" But truth be told, I am no different from most of my biblical colleagues who are continually pushing the boundaries of their hermeneutical horizons as they eagerly delve into interdisciplinary study. Indeed, biblical studies has itself undergone a revolution of sorts, not unlike physics.

In Scene 1, Act II of the play *Legacy of Light* by Karen Zacarías, Dr. Olivia Hasting Brown addresses a group of Girl Scouts about her profession as an astrophysicist. She concludes with Einstein's discovery of relativity and what it reveals about the universe: "Suddenly you have a more chaotic, volatile universe; not a Puritan on a bicycle, but a Hells Angel on a Harley. Throw in the fact that the universe is still expanding and you have a complex, interconnected universe gunning on all cylinders and making one hell of a wheelie while barely respecting the dynamics of physical law."[1] This riveting description of a dynamic, accelerating universe applies also to the contemporary world of biblical interpretation. Biblical interpretation too has become more volatile and increasingly complex, gunning on all cylinders and roaring forth in all directions.

Although it has taken them awhile, biblical scholars (myself included) are finally able to admit that the biblical text can never be read objectively, for there is no such thing as a detached reader, just as there is no such thing as a detached observer of, say, the quantum realm. It is precisely the interaction between readers and texts that produces the text's meaning, that results in the construction of its meaning. A reader is required for the text to be meaningful.

So there is nothing in principle to stop a reader who reads the biblical text through a particular lens, even the lens of astrobiology, as outlandish as that may sound. Indeed, I have come to discover that astrobiology itself holds a strong interest in hermeneutics, and more fundamentally, epistemology. This emerging field of science is concerned with how to "read" life meaningfully, particularly life "as we do *not* know it,"[2] life in all its possible permutations. Biblical interpretation, in turn, is all about accounting for the "life" of the text in all its permutations and contexts, in all its meanings that we have yet to grasp. So on some admittedly vague methodological level, I see some generative parallels between biblical exegesis and astrobiological investigation.

Astrobiologists, for example, wonder whether they have the appropriate tools to recognize alien life. Exegetes, too, wonder self-critically whether their methods and reading strategies are adequate to account for the plethora of a text's meanings, for all that the text has done and does before readers. Werner Heisenberg, famous for his "Uncertainty Principle," has also developed what I call his "hermeneutical principle," and it applies not only to science: "What we observe is not nature in itself, but nature exposed to our method of questioning."[3] The same can be said of the biblical text: what we read or interpret is never the text itself, but the text aligned to our method of

questioning, the text filtered through our particular lenses and tools of investigation. Another way to put it: the text is always more than what we think it is, more than what we see, hear, read in it.

Astrobiology may prove to be the ultimate demonstration of Heisenberg's principle as applied to science. Are we open enough, agile enough, discerning enough to recognize life as we *don't* know it, life so alien that we won't notice it? It is often said that astrobiology is the only scientific discipline that is still in search of its subject matter. (Some would say that about theology as well.) But it must also be said that the search for life in the universe has all to do with understanding life here on earth: what defines it, how it originated, what conditions allow for its possibility, and what its future might be on Earth and beyond.

Although it may be unique among the sciences, astrobiology is not an unprecedented discipline; it builds on the progress of various scientific fields: astronomy, geology, chemistry, biochemistry, and biology, to name a few. It is the ultimate multidisciplinary scientific discipline. Thanks to astronomy, we have come to see the cosmos as a very strange place. The universe—its inconceivable magnitude, bewildering diversity, and dynamic complexity—simply boggles the mind. Ask any planetary scientist, and she will tell you of the wonderfully odd array of planets so far discovered beyond our solar system. Ask an astrophysicist, and he will tell you of the increasing acceleration of the universe's expansion, due to mysterious dark energy. Beginning with Copernicus in the sixteenth century, we have discovered our planetary home to be far from central, a mere speck in a vast, center-less expanse populated by solar systems and galaxies too numerous to imagine.

Thanks to science, we not only see the universe differently, but we see ourselves in a new light. Beginning with Darwin, we have discovered our species to be far from genetically unique. Ask any biologist, and she will share with you how wonderfully interconnected life is amid all its marvelous diversity. The scientific revolutions launched by modern astronomy and evolutionary biology have effectively de-centered humanity's place in the cosmos as well as connected our distinctive species indelibly with all life as we know it, from bananas trees and bees to manatees and fleas (sorry). For all its order and elegance, "our" world is proving to be exceedingly strange and diverse. As the great evolutionary biologist J. B. S. Haldane once remarked, "My own suspicion is that the Universe is not only queerer than we suppose, but queerer than we can suppose."[4]

Another scientific revolution may be afoot that would further confirm Haldane's words: the discovery of life beyond Earth. The emerging field of astrobiology proposes a new Copernican shift. It invites us to hold together, simultaneously, both the macro and the micro, the cosmic and the molecular, the changing structure of the universe and the biological constituents of life. Moreover, to prepare for the discovery of life beyond Earth, astrobiology invites us to consider possible alternative pathways to life. Call them biological "thought experiments." Can there be such a thing as silicon-based life? (All we know is carbon based.) Can liquid methane serve as a medium for life as liquid water is for life on Earth? What might life look like in such strange settings? How weird or alien can life get and still be recognizable as life? Given its wide-ranging interdisciplinary scope and speculative nature, astrobiology could be considered the new "queen of the sciences," a title that, yes, theology once proudly held centuries ago. Perhaps there is a parallel. As theology is sometimes focused on

the *deus absconditus* ("hidden God"), astrobiology is in search of the *vita abscondita* ("hidden life"). My physicist friend Paul Wallace likes to say, "There is no scientific project more obviously religious than the search of extraterrestrial intelligence."[5] Of course, that depends on what you mean by "religious." In any case, astrobiology is committed to seeking a particular kind of presence, a special presence, namely the presence of life as we do *not* know it. Astrobiology, in short, is in search of otherness, the strange.

And that marks my desperate segue to the Bible. As a biblical scholar, whenever I engage in interdisciplinary study, I always have in view the "strange new world within the Bible" (to quote Karl Barth). If the astrobiologist asks what life might look like, specifically life with which we are not at all familiar, then I ask what might the biblical text look like, some of whose meanings we may have yet to grasp, in light of astrobiology? Specifically, how does one read the biblical creation traditions knowing that the Earth is not the center of the universe, that creation extends far beyond our purview, that the cosmos is as much a process as an expanse, that life on Earth may not be unique, and that the universe, in any case, is far "queerer than we can suppose"?

First and foremost, I can say that astrobiology directs my attention to particular biblical texts that stress the cosmic extent of creation and the cosmic scope of divine activity. God, the creator of all, is cosmic (Gen 1:1-31). Christ, in whom all things were made, is cosmic (Col. 1:15-20). The Spirit, which hovered over "the face of the deep," is cosmic (Gen. 1:2). Now with the help of the natural sciences, we can talk of the God of deep time, deep space, and deep diversity, the God of possibly multiple geneses, the God of galactic gardens. We might even be able to talk of God's preferential option for *life* itself! And so I ask, is there a text in the Bible that comes close to adopting such a cosmically sublime perspective?

The book of Job is itself something of a thought experiment. Job is filled with "What if?" questions about human integrity, divine intention, and the nature of the universe. *What if* the paragon of righteousness were to fall into unimaginable ruin? *What if* piety is something other than the basis for reward and blessing? *What if* God is no protector of the righteous? *What if* the universe is utterly indifferent to human plight? *What if* humanity is not the greatest act of God? The book of Job is filled with such wonderings.

As the climax to this tale of trauma, God's speeches present the most panoramic and poetic view of creation in all of the Hebrew Bible. Therein, God unveils the unfathomable depth and bewildering diversity of creation (Job 38-41). God's answer does more than simply put Job in his place, decentering him into *seeming* insignificance. God unveils the wonders of the cosmic world, revealing the unfathomable depth and diversity of creation. Through the power of poetry, God transports Job to a world (or worlds?) far beyond his ken: the earth's foundations, the singing stars, the swaddled sea, the gates of deep darkness, the storehouses of hail, the dwelling place of light, flowing channels in the desert, all beyond human control and experience. In so doing, God turns Job's world not so much inside-out as outside-in. God brings the extremities of creation within Job's own perceptual range. A central text in God's speech to Job that illustrates well the limitations of human experience vis-à-vis God's work in creation is 38:25-27.

Who has cut a channel for the downpours,
and a way for the thunderbolts
to bring rain upon a no-man's land,
upon an uninhabitable desert,
to satisfy the desolate wasteland,
and to bring forth grass growth?

For more astronomically oriented readers, God could have added these words:

Who has made the comet's gaseous tail,
and cut a way for the watery plumes of Enceladus
to provide an icy ring for Saturn?
Who brings the rains of liquid methane
to fill Titan's lakes and deltas?
Who keeps Europa's ocean warm and active, swaddled under its icy surface,
preserving the threshold of life?

So one can imagine. God's answer to Job begins with the earth's foundations, and it ends, climactically, with a litany of God's wild kingdom, a carnival of animals culminating with Leviathan, whose abode is none other than the watery abyss. As the final entry in God's taxonomy of the wild, Leviathan is deemed the crown of creation, bearing a distinctly regal demeanor: "It surveys everything that is lofty; it is king over all that are proud," God declares (41:34 [26]). What Job has deemed chaos down under, God has elevated to the status of highest royalty—creation for Job is turned upside down, and it is all "fearfully and wonderfully made." The 2nd century early Church Father Irenaeus boldly claimed that "the glory of God is a human person fully alive" (*Against Heresies* IV. 20.7). The book of Job would expand that to claim that the glory of God is *all* creation fully alive, everywhere and anywhere, with each (alien) creature in God's cosmic kingdom endowed with inalienable dignity. All creation, in other words, is made in God's image (cf. Gen. 1:26-28).[6]

As for Job the human being, he suffers displacement of the most unimaginable kind. Already an outcast in his community, Job is now a castaway in the cosmos. God turns creation into something "wholly other" (*ganz Andere*, à la Rudolf Otto), a *mysterium* that verges on the monstrous, thanks to Behemoth and Leviathan, the two mythic creatures that conclude God's answer. Job's response is twofold:

I spoke of things I did not understand,
things too wonderful for me too know. 42:3

Job is gripped by an experience of wonder that explodes his all too familiar world. While such a response seems entirely understandable, Job's second response may strike one as remarkably counterintuitive.

I had heard you by the hearing of the ear,
but now my eye sees you;
Therefore, I relent[7] and am comforted (*wĕniḥamtî*)

over dust and ashes.[8] 42:6 (contra NRSV; see CEB)

Job's concluding words respond to what he sees, namely God, whom Job addresses in the second person. But what Job sees of God, as God's answer makes abundantly clear, is bound up with what God has said. And what God has said has all to do with re-describing creation to Job in all its height, depth, and diversity. What Job sees, in other words, is God *vis-à-vis* creation as revealed in God's answer. Job's words, in other words, serve as a direct response to God's answer, specifically to what Job *sees* in God's answer, namely all creation made, dare I say it again, in the "image of God" in so far that creation reflects God's magnitude, munificence, and wisdom (see also Psalm 104:24).

This is the crux of the entire book of Job: before the sublime sweep of the cosmos and life's alien diversity, Job has somehow found solace in his desolation, comfort in his state of "dust and ashes." How so? The solution is not obvious. God's answer leaves Job's suffering unaddressed. Nevertheless, Job has found in God's response something more than "cold comfort." What, then, could be the connection between Job's professed state of comfort and the God of the cosmos he has directly encountered? The God Job has encountered is the creator of a universe that is vast, chaotic, wild, and fundamentally indifferent to his plight, a cosmos that exists in all its bewildering otherness. God's answer revels in the "unnatural" nature of nature.

Perhaps such a creation has that same kind of other-worldly, sublime enchantment that Edward Abbey says about the Southwest desert, namely that "it doesn't give a shit."[9] Is this what Job finds "comforting" about the universe, a vast cosmos that renders his anxious concerns, yes, comfortingly trivial? Such a universe might offer him the "gift of blessed indifference," to quote the mystic Reformed theologian Belden Lane.[10] While the cosmos provides Job no answer, no response to his protest of pain, it does give him the opportunity to be drawn outside of himself. Job's experience of the cosmos, one could say, is an exercise in apophatic wonder, one that elicits a self-negation of sorts, a kenosis of the ego.

But is that all? Self-kenotic comfort might be all there is to assuage Job's anguish if the cosmos were characterized only by its sheer vastness or magnitude. But the universe is far from empty or barren in the book of Job. According to God's answer, there are these denizens at the margins of Job's world, in inaccessible mountains and desert wastelands, gracing creation with wild and alien diversity. Although he is ignored by the cosmos, de-centered as he is, Job is not ignored by God. At one point in God's creation litany, Job is given the benefit of a poetic reference, brief as it is. Introducing the mighty Behemoth, God proclaims in 40:15, "Behold Behemoth, which I made with you (*'immāk*)!" As the "first of the great acts of God" (v. 19a), Behemoth seems to be from another world altogether, and yet God tells Job that he bears some sort of "genetic" connection with this monster. From an astrobiological perspective, it seems only incidental that these creatures described in such loving detail by God are all Earth-bound. From Job's perspective, they could easily pass as aliens on another planet. If, according to E. O. Wilson, "each species is a small universe in itself,"[11] then the earth, our planetary home, is revealed to be its own multiverse. In any case, God presents the world as richly pluriform, replete with the parallel yet interconnected "universes" of life on Earth, species that either had remained hidden to Job or had drawn his contempt.[12] But they are all, he discovers, connected to him

in the common exercise of life, in the common bond of creature-hood.

So where does Job find his comfort? He does not find it among his friends, who sit with him throughout their tortured dialogues. God, admittedly, does not sit with Job in his travail. God does not even declare "I am with you," the kind of divine pronouncement that one might find at the heart of a salvation oracle. The God of the whirlwind remains the God of the whirlwind. So if Job does not find his "comfort" from a solicitous God who meets his every need, then where does he find it? It can only be in the kind of world that God has revealed to Job. It is a world, cosmically queer and seductively sublime, that is made *with* him. Job has found comfort in a creation that ironically takes him out of his comfort zone, out of his terrestrial cocoon, away from his mesophilic life, into a world of extremes, a world of wholly otherness, a world of terror, awe, and when all is said and done, a world of new-found connection and comfort.

The biologist and religious naturalist Ursula Goodenough tells of her experience viewing the night sky on a camping trip in Colorado after having taken a physics class: "Before I could look around for Orion and the Big Dipper, I was overwhelmed with terror.... The night sky was ruined....I wallowed in its poignant nihilism. A bleak emptiness overtook me whenever I thought about what was really going on out in the cosmos."[13]

So after spending several months immersed in the field of astrobiology considering what could possibly be "going on out in the cosmos," it would be fair to ask whether I look at the night sky any differently. I admit that when I look upon the stars, I do not feel a tremor of terror so much as a wave of wonder, sometimes a crashing, pounding wave. Life may be flourishing elsewhere, life in unimaginable forms yet all struggling and thriving, competing and cooperating, learning and loving, adapting and evolving, rising and dying. Just like life here on Earth. It is a cause for a Joban kind of wonder—a bone-chilling, jaw-dropping, ultimately exhilarating and empowering kind of wonder that covers the gamut between terror and consolation, all rooted in the profound awareness that God is the creator of all life.

And there is one more thing: through the *mysterium tremendum* of the cosmos I arrive at a place of gratitude, gratitude for the life I have been given, gratitude for the lives of countless others, gratitude for the life that graces this fragile, vibrant, colorful planet in so many ways. "O LORD, how manifold are your works! In wisdom you have made them all; the earth is full of your creatures" (Ps 104:24). The day may come when we can say that the cosmos, too, is full of God's creatures.

Notes

1 Karen Zacarías, *Legacy of Light* (A Play Commissioned by Arena Stage; New York: Graham Agency, 2007), 65. In her play, Zacarías juxtaposes the story of Émilie du Châtelet, a scientist and lover of the eighteenth-century philosopher Voltaire, who became unexpectedly pregnant at 42, and that of a twenty-first-century astrophysicist desperately trying to conceive a child.

2 Lucas Mix, *Life in Space: Astrobiology for Everyone* (Cambridge, MA: Harvard University Press, 2009), 3, 65, 68. Astrobiologist Lucas Mix raises the concern of bias, including anthropic bias, in the search for life in the universe.

3 Werner Heisenberg, *Physics and Philosophy: The Revolution of Modern Science* (New York: Harper & Row, 1962), 26.

4 J. B. S. Haldane, *Possible Worlds* (New Brunswick, NJ: Transaction Publishers, 2002 [1927]), 286.

5 Paul Wallace, *Stars Beneath Us: Finding God in the Evolving Cosmos* (Minneapolis, MN: Fortress, 2016), 139.

6 I am convinced that the Joban poet was intimately aware of other Hebraic creation traditions, which he twists for his own rhetorical ends. Compare Job 3:4 with Gen. 1:3; Job 7:17-18 with Psalm 8:4; Job 10:9-12 with Psalm 139:13-16. Creation according to God in Job effectively turns anthropology on its head and in so doing expands the *imago Dei* to include all of creation, culminating not with humanity but with Leviathan, whose dominion on earth is unrivaled (41:34).

7 Here Job declares his intention to relinquish his case against God. I take the verb in the sense of "reject (my cause)," similar to Job 31:13 ("If I rejected the cause [*mišpat* of my servant"), the last time Job uses the verb. That the verb lacks an object in 42:6b presents no problem for this meaning, as one finds also in Job 34:33 and 36:5 (Elihu). The resulting ellipsis in 42:6b was missed in the Masoretic pointing. An alternative translation of the verb is found in 7:5 and possibly 7:16, with the sense of "waste away," which takes the verb as a by-form of *mss*. But this makes less sense within the context of Job's discourse as a whole.

8 The translation of the last clause ("comforted") draws primarily from the argument made by Thomas Krüger, "Did Job Repent?" in *Das Buch Hiob und seine Interpretationen: Beiträge zum Hiob-Symposium auf dem Monte Verità*, eds. T. Krüger et al. (ATANT 88; Zürich: Theologischer Verlag Zürich, 2007), 217-29. See also the similar conclusion reached in J. Gerald Janzen, *At the Scent of Water: The Ground of Hope in the Book of Job* (Grand Rapids, MI: Wm. B. Eerdmans, 2009), 108-109.

9 Quoted in Belden C. Lane, *The Solace of Fierce Landscapes: Exploring Desert and Mountain Spirituality* (Oxford: Oxford University Press, 1998), 117.

10 Ibid., 57.

11 E. O. Wilson, *The Creation: An Appeal to Save Life on Earth* (New York: W. W. Norton, 2006), 123.

12 Cf. Job 24:5-8; 30:3-8, 29.

13 Ursula Goodenough, *The Sacred Depths of Nature* (Oxford: Oxford University Press, 1998), 9-10.