Author version: please cite published version.

Originally published as:
"The Fault in Us: Ethics, Infinity, and Celestial Bodies." *Zygon* 51(3) September 2016: 783-796.

Published version available here:
http://onlinelibrary.wiley.com/doi/10.1111/zygo.12276/full

A contribution to "Catherine Keller's *Cloud of the Impossible*: A Symposium." *Zygon* 51(3), September 2016. With:

- Kirk Wegter-McNelly, "Religious Hypotheses and the Apophatic, Relational Theology of Catherine Keller"
- Carol Wayne White, "Aporetic Possibilities in Catherine Keller's Cloud of the Impossible"
- Donovan O. Schaefer, "The Fault in Us: Ethics, Infinity, and Celestial Bodies"
- Colleen Mary Carpenter, "Enfolding Violence, Unfolding Hope: Emerging Clouds of Possibility for Women in Roman Catholicism"
- Catherine Keller, "Theology, Science, and Cloud of the Impossible."

The Fault in Us: Ethics, Infinity, and Celestial Bodies

Donovan O. Schaefer

University of Oxford

Catherine Keller's *The Cloud of the Impossible* knits together process theology and relational ontology with quantum mechanics. In quantum physics, she finds a new resource for undoing the architecture of classical metaphysics and its location of autonomous human subjects as the primary gears of ethical agency. Keller swarms theology with the quantum perspective, focusing, in particular on the phenomenon of quantum entanglement, by which quantum particles are

found to remain influential over each other long after they have been physically separated—what Albert Einstein and his collaborators recklessly dismissed as "spooky action at a distance." This spooky action, Keller suggests, reroutes process thought—classically concerned with flux—to a new concern with intransigence—particularly the intransigence of the ethical relationship. Attending to the ethical urgency of the Other, she leaves process theology in a position of susceptibility to the moral imperative posed by the marginalized, the victimized, and the oppressed.

This essay argues that although the ontological work of Keller's book productively integrates quantum physics into process theology, the ethical dimension of relationality is left cold in the quantum field. This is because, contra the ethical framework of contemporary deconstruction, which, following Emmanuel Levinas, sees ethical relationships as emerging out of a dynamic of infinite distance, moral connection has nothing to do with the remote reaches of the quantum scale or the macro-scale limits of space—nothing to do with "infinity" at all. Ethics emerges out of a much messier landscape—the evolved dynamic of fleshy, finite, material bodies. Rather than seeing ethical labor as a matter of physics, my contention (and here I think I am arguing with, rather than against Keller) is that interdisciplinary undertakings like *Cloud of the Impossible* are ethical disciplinary practices, re-acquainting us with the non-sovereignty of the self in order to open up new habits of relating, rather than spotlighting ethical imperatives.

From Cusa to Quanta

In Keller's previous monograph, *Face of the Deep*, she comprehensively explored the theological and ethical implications of a repudiation of theologies of *creatio ex nihilo*. Reattending to the Genesis narrative of the Torah, she retrieved the notion of the pluripotent

tehom that was the stuff of creation. This shifted the locus of theological reflection from the omnipotent, hyper-masculine creator God to the dynamic of possibility embedded in creation. *The Cloud of the Impossible* is even more ambitious—a nexus book, designed to pull together a series of dialogical channels into a single conversation. These channels include Keller's own tradition of feminist process theology, the late medieval/early modern Christian natural philosophy of Nicholas of Cusa and Giordano Bruno, and contemporary quantum physics. Braiding these strands together, Keller orchestrates an ensemble of motifs that leads readers to the ethically robust cosmology at the heart of her theological project.

Already in *Face of the Deep*, Keller noted the resonances between the *tehom*ic perspective and contemporary developments in the physical sciences such as chaos theory (Keller 2003, 5) Perhaps stemming from this tantalizing insight, *The Cloud of the Impossible* develops a rich, expansive plane of contact between theology and the physical sciences. Returning to the motif of *tehom* as a depthless field of possibility, she begins with Nicholas of Cusa's "nickname" for God, "*posse ipsum*, possibility itself." (Keller 2015, 2) For Cusa, both an apophatic theologian and a cosmologist at a time when the modern grid separating science, theology, and philosophy had not yet been invented (Harrison 2015), this field of possibility was also a pulsing dynamic of relationality. "Entangling us in whatever we do know and much of what we don't," Keller writes, "the cloud of our relations—or is it a crowd?—seems to offer itself as the condition of our every possibility. We know nothing beyond our relations." (Keller 2015, 3) For Cusa, the opening of pure possibility is the shrouding of the cosmos in a shadow of unknowing impenetrable to limited human cognition, but also the adhesion of everything to every other thing, the folds of the infinite *complicatio* manifesting as *explicatio*, the sprawling circuit of interdependence of the "all in all and each in each." (Keller 2015, 48)

This cloud of possibility that is also interconnection is the tissue linking apophatic theology to quantum physics. In quantum physics, we find the same patterns of cloud-thought, the coalescence of the themes of pure possibility and radical indeterminacy. (Keller 2015, 132) Quantum physics considers the mechanics of the constituent particles of atoms. Whereas atoms operate according to Einsteinian templates of velocity and positionality that are predictable by the formulas of general and special relativity, sub-atomic particles operate according to a completely different set of dynamics that are fundamentally random from the perspective of human-scale intelligence. (Al-Khalili 2003, 59)

Keller is interested in two such quantum mechanisms in particular. First, quantum mechanics propose that the influence of an electron is distributed over space rather than localized like a classical particle. It does not exist as an entity but as a "smear" of possibility. But when a quantum particle is "measured," it takes on a set of properties that make it operate like a classical particle. This means that a particle can never be understood in and of itself, but only according to the bias introduced by an "observer." This is physicist Werner Heisenberg's "uncertainty principle"—the fundamental shroudedness of the quantum world in a sea of connective tissue, never coming to light independently. "The common division of the world into subject and object," Heisenberg wrote, into "inner world and outer world, body and soul is no longer adequate." (in: Keller 2015, 137) These divisions are actually connections, what Keller's collaborator, Karen Barad, calls the field of "intra-action." For Barad, developing an ontology based on the work of physicist Niels Bohr, intra-actions make the world through a series of connections. Barad proposes that "matter is substance in its intra-active becoming—not a thing, but a doing, a congealing of agency." (Barad 2008, 139) The thematics of connectivity and possibility that Keller draws out of Cusa are on prominent display here. (Keller 2015, 140)

Second, Keller examines a peculiar feature of quantum particles that remains one of the most active research projects in quantum mechanics, the phenomenon of "quantum entanglement." Entanglement refers to the "nonlocality" of certain causal relationships between quantum particles. When one such particular is manipulated, its entangled counterpart moves, as well. This phenomenon, dismissed by Einstein as "spooky action at a distance" but now accepted by physicists as an observable, if not explainable fact, can manifest otherwise impossible effects like faster than lightspeed movement. Keller quotes Shimon Malin as exploring one hypothesis for how quantum entanglement manifests: "Even when the events take place very far apart they seem to be 'entangled,' they seem to 'feel' each other. It has been suggested that such a connection takes place because *both events form a single creative act, a single 'actual entity,' arising out of a common field of potentialities*." (in: Keller 2015, 150) For Keller, these dimensions of quantum physics loop it back into conversation with theologies of possibility. The quantum field becomes the maximally interconnected *tehom*: "the ontology of the waves recirculates and crystallizes as the perspective of the cloud." (Keller 2015, 152) Entanglement reiterates the relationality of the quantum possibility field.

As in *Face of the Deep*, the perspective of infinite flux assumed in *Cloud of the Impossible* materializes as an ensemble of politico-ethical relations. Whereas *Face of the Deep* unlocks the ethical potential inherent in the critique of the "dominology" of God as creator *ex nihilo*, arguing that the ethical is advanced by "the healing of the systemic repression that [Keller calls] tehomophobia," *Cloud of the Impossible* assumes a different tack. (Keller 2003, 7) Insisting that apophasis "is not a wrecking ball," Keller plugs the relational cosmology of the quantum field into a particular mode of deconstructive ethics emerging from the "ethics as first philosophy" of Emmanuel Levinas. (Keller 2015, 18) "Some care," she writes, "some fidelity

holds me accountable to that other, that Other trying to name its singularity through so much theory, so much ethics." (Keller 2015, 216) The ethical force of *Cloud of the Impossible* emerges, then, when we take the crowd that is the cloud of quantum reality as a field of Wholly Others expressing their ethical claim upon us.

Quantum Ethics

Keller doesn't imagine that the template of quantum relationality is a switch that flicks on moral responsivity: "relationality, she writes. "remains in itself vastly amoral, that is, ontological: relations are neutral, good, ill, ambiguous. But *mindfulness* of our own entanglement," she continues, "forfeits moral neutrality." (Keller 2015, 287) And yet, the philosophy of relationality is where I want to express a measure of hesitation. The ontological relationality that is disclosed by quantum mechanisms needs to be deployed carefully when we attempt to assemble it into ethical frameworks. This is because the ontological relationality of quantum entanglement does not, in my view, carry moral significance. It relates things to things at a level so far upstream of what we might recognize as moral agency that it doesn't connect to moral intuitions.

Keller's model for ethical relating is heavily indebted to Levinas, though this may be a debt carried over from Jacques Derrida (who helps set the stage within a few pages of the book's opening chapter) or Judith Butler (the subject of the book's pivotal seventh chapter, on relationality), philosophers who take their ethical cues from Levinas's framework. For Levinas, the ethical relation is activated by the encounter with the infinitely distant "Other." Feminist philosopher Stella Sandford sees in this Levinas's fascination with a certain species of Platonism, "that thread in Western philosophy committed to the idea of transcendence." (Sandford 2000, 7)

This transcendent gulf between bodies is articulated most pointedly in Levinas's *Totality and Infinity*. In the preface to this text, he suggests that philosophy be reconceived according to the nature of the "metaphysical" relation between human bodies. Levinas articulates this in terms of the distinction between "totality"—a self-contained, self-satisfied system—and "infinity"—the exteriority of that system, the space outside of being and beings. For Levinas, totality, the zone of being, is best represented by war—"the pure experience of pure being." (Levinas 1969, 21) Determined by being, we are, for Levinas, insular systems incapable of ethical relation with others.

Levinas suggests that this determination by being is counteracted by the confrontation of totality with infinity, the *exteriority* of the totalized system that extracts us from ourselves and opens us up to something else. (Levinas 1969, 22f) This opening is named by Levinas as the opening onto ethics, the act of welcoming the Other exterior to the totalized system of the same. (Levinas 1969, 27) What Levinas calls "metaphysics" is indicated by this non-totalizability of self and other. "The metaphysician," he writes, "is absolutely separated." (Levinas 1969, 35) Levinas's determination of "ethics as first philosophy" comes out of this notion of the passage from totality to infinity as the ground of subjectivity, language, and ontology.

The trigger for this transcendent summons, Levinas says, is the face. The face indicates the vulnerability of the Other by whom we are called to ethically respond. The face is not merely an inert, plastic form, however—it pulls us into transcendence by "signifying," through its capacity to "express," through *language*. Levinas writes that the way "of undoing the form adequate to the same so as to present oneself by signifying is to speak." (Levinas 1969, 66) It is only through language, Levinas suggests, that the Other can be phenomenologically encountered and yet "maintained and confirmed in his heterogeneity." (Levinas 1969, 69) For Levinas,

language indicates the irreducibility of the Other to the same, the infinite difference between beings. It is this index of transcendence that actives the radical responsibility of ethics. (Levinas 1969, 195)

Keller absorbs this vocabulary into the "cloud perspective" taken by her book. This approach "locates each face, with its own point of view, within the penumbra of its planetary sociality. The face of the neighbor, the beggar, the stranger may at any moment ethically stand forth." (Keller 2015, 217) The cloud is a crowd—a plenary continuum of others that is nonetheless riven by radical difference, giving rise to a pluripotent field of ethical relations. Quantum entanglement, for Keller, becomes a connective tissue between renovated Levinasian subjects that thrums with moral potential.

This alignment is possible precisely because, in the abstract, there is a coalescence between Levinas's metaphysics and quantum physics. The contradiction between Einstein's theory of general relativity and quantum mechanics comes down to the question of whether the cosmos can best be understood as a single, massive, inter-locking space-time continuum governed by a set of majestically expansive cosmological laws (relativity) or a cloudy vale torn by essentially mysterious and unknowable events (quantum physics). Einstein, like his philosophical hero, Spinoza, was a monist. Drawing on a Jewish religious repertoire, he interpreted the *Shema Israel* of Deuteronomy 6:4 as a cosmological map, identifying the unity of God with the unity of the universe, with space and time tied together in a cosmic game of cat's cradle. (Jammer 1999, 57) Einstein's caustic insistence that "God does not play dice" reflected his wariness towards the interruption of this monist cosmos by the zones of unpredictability, uncertainty, and randomness indicated by quantum physics. (in: Hawking 1999)

Levinas, by contrast, drawing on a different strand of Jewish thought, is the philosopher of transcendence, an anti-Spinozist, anti-monist who sees the world as most meaningful precisely where its undifferentiated continuity is disrupted. In *Otherwise than Being*, Levinas extends his discussion of the transcendental orientation of ethics, redescribing the infinite exterior to totality as "passing over to being's *other*, otherwise than being." (Levinas 1998, 3) Being, the totality, is now relabeled with Spinoza's term *conatus,* the field of "egoisms" that struggle against each other. Through the infinity responsibility emerging in the relationship with the Other we find "the defecting of the ego beyond every defeat, going countercurrent to a *conatus*." (Levinas 1998, 18) For Levinas, the rivenness of the world by events—encounters with irreducibly infinite Others—is what makes ethical relationality possible. In this sense, Levinas's challenge to Spinozism maps onto the quantum challenge to relativity, and this is where the possibility of an ethics of infinitude emerging out of the quantum domain surfaces.

But whereas a century's worth of research in advanced physics has resulted in a favorable ruling for quantum mechanics (Einstein's initial skepticism notwithstanding), attempts to correlate quantum physics to human-scale phenomena such as consciousness and ethics—including Levinas's ethics of the event—have been less successful. This detour through Levinas has shown us why: quantum physics doesn't deliver us faces. The warping, fluctuating assemblages of lines and points that are spotlighted by quantum physics are antithetical to the Platonic metaphysics that informs Levinasian ethics. A cloud is not a crowd. Or rather, the crowd that emerges from the cloud is too diffuse to register at the level of meaningful macrofaunal structures—ethical bodies.

Infinite Love without Fulfillment

Ultimately, this error is owed to Levinas's own limitations in thinking through the complexity of ethical subjectivity. His infamous stumbles in trying to comprehend the possibility of ethical relationships with animals Atterton 2004; Derrida 2008; Diehm 2000; Levinas 2004) and the Palestinian "enemies" of Israel (Caro 2005) are only the most obvious frontiers of this problem. More fundamentally, Levinas's suggestion that infinity activates ethical relationality channels infinity into a narrow scope of worldly things—human bodies. The really interesting ethical questions opened by the consideration of infinity massively outstrip Levinas's framework. Why, for instance, would we assume that an encounter with infinite possibility/alterity would leave meaningful ethical subjects intact? Does the assumption of the perspective of infinity risk washing out ethical relating altogether, connecting our responsivity to a realm that eludes any sort of finite moral intelligence? For Levinas, infinity is conformable to the contours of human consciousness and only elicits an ethical relationship among humans. As Jacques Derrida points out in his critique of Levinas in *The Animal that Therefore I Am*, Levinas is part of a ring of philosophers who seek to push back against the "Darwinian trauma" that links humans to other lifeforms (and nonlife) by insisting on the radical separateness of human life: "even when their insistence, their humanism is elaborated against metaphysical humanism, it also represents the gesture of taking an ethico-political position vis-à-vis all discourses or forms of biologism that risk threatening the culture within which they speak." (Derrida 2008, 144) Levinas and other philosophers who refuse the gaze of the animal use this narrow, domesticated version of infinity as a crown to establish human separateness, closing off the far richer questions that a correlation of infinity to ethics actually yields.

The fact that the perspective of infinity crashes Levinas's framework can also be seen when we consider the use of infinity in quantum physics. If, for instance, we accept the Many-

Worlds Interpretation of quantum mechanics, in which a new universe is created every time a quantum particle "decides" where to be through the dynamic of "observation," we are confronted with another robust set of ethical problems emerging in the folds of infinity. (Rubenstein 2014, 6) Do we have an ethical responsibility to other universes? What precludes the possibility of an infinite number of universes, some suffused with pain? If God's intentions are so inscrutable that God allows the catastrophe of the colonization of the Americas or the Atlantic Passage or the Holocaust, why would we assume that we have seen the worst? Are there universes of unimaginable pain to which we must find a way to respond? Does the fact that they even exist shape our ethical responsibilities in this world? Levinas's location of infinity in the dynamic of human alterity, then, succumbs to the anthropocentric philosophy that Levinas thought he was slipping away from. Philosophical and theological considerations of quantum scales illuminate how impoverished Levinas's understanding was, delivering us to far more profound, far more radical questions than he even imagined.

Keller, of course, knows far better than Levinas that the other need not only be the human Other. She is terrifically well-versed in Derrida's critique of Levinas as presuming "the animal outside of the ethical circuit." (Derrida 2008, 106) Derrida chides Levinas for collapsing the remit of alterity to include only human others, asking "isn't the animal more other still, more radically other, if I might put it that way, than the other in whom I recognize my brother, than the other in whom I identify my fellow or my neighbor?" (Derrida 2008, 107) Fusing this with a New Materialist concern for the consideration of other formations of agency, Keller remains alert to the ways that "[a]n ethics of interdependence opens into the lives of untold human populations without then drawing the line at the nonhumans." (Keller 2015, 235) She sees quantum thought as a mechanism to "retain, clarify, intensify" the "democratizing forcefield" of relational

ontologies. (Keller 2015, 4) Precisely by degrading the integrity of the classical philosophical hierarchy of beings and affirming "indeterminate becomings of our interlinked materialities," Cusanic apophasis, process theology, and quantum ontologies open onto a new field of maximal relationality. (Keller 2015, 6)

But this is where the thematics of infinity as a resource for ethical relationality trips—in both Levinas and quantum ontology. By democratizing the network of relationality, the possibility of meaningful ethical action towards any one being (or becoming) is washed out. Infinity illuminates no manifest responsibility to any one being or becoming. Why choose any one fold—from all the materialities, possibilities, and prehensions—as a moral option? (Keller 2015, 168) The crowd that emerges from the quantum-Cusan cloud is not a ring of faces, but a hurricane of droplets. The starscape, the domain of infinite space, infinite distance, and infinite possibility, is ultimately not adequate for furnishing our ethical understanding: the fault lies in us.

A new attention to animal others is a major part of this. Why, from the perspective of infinite possibility, do we have any special moral responsibility to the macro-organisms that are the writer and readers of this essay than we would to the massive explosion of microbial, fungal, and insect others that would flourish in our death? Shall we continue in death, that the microbiome might abound? Could we be even more relational, like the Jain saints who cover their mouths as they walk in order to avoid inhaling insects—or who cease movement altogether? Do we have moral responsibilities to organisms that were wiped out in previous mass extinction events in earth's history, such as the non-avian dinosaurs demolished by the after-effects of the Chicxulub asteroid—a little star smashing into earth and prompting a mass die-off, but making room for us? If we accept Giordano Bruno's affirmation that the unity of God is

"unity to which neither otherness nor plurality nor multiplicity is opposed," we are left not only with a democratized relational field, but with an undifferentiated one. (in: Rubenstein 2014, 85) The perspective of infinite potential and infinite interconnectivity—whether quantum or Levinasian—is too plastic to shape moral intuitions.

Bodies with Moral Sentiments

This is not, however, a call for a return to a conservative reading of Levinas that restricts the domain of alterity to human others. Instead, it's an argument for getting the philosophical or scientific concept of infinity out of the field of moral decisioning altogether. Any attempt to harness infinity for human purposes presupposes that infinity meshes nicely with human bodies, rather than dissolving them into droplets that run far upstream of what gets called "consciousness." My alternative suggestion, which I will only point to here, is to think of ethical relationality not as transacting with the quantum field, but the Darwinian field.

Although popular misconceptions of evolutionary biology (and Levinas's unfortunate caricature of it) understand Darwinism as the biologization of the principle of selfishness, contemporary biologists and zoologists now see moral relationality as an evolved mechanism that predisposes *bodies* to ethical interactions with others. (Levinas 2004, 50) Theorists in the emerging field of evolutionary ethics have pointed out that concern for others is, in fact, highly adaptive—a valuable resource for bodies as they navigate the world. Primatologist Frans de Waal calls this the paradox of ethics: "genetic self-advancement at the expense of others—which is the basic thrust of evolution—has given rise to profound capacities for caring and sympathy." (de Waal 1996, 5)

Contrary to Levinas' assertion that the Darwinian world is driven only by self-interest, natural selection actually *favors* the development of compassionate responses. What Darwin calls the "struggle for existence" produced kindness and compassion by making sociality and ethicality helpful for bodily survival and reproduction. Individuals that can succeed in groups have the power to help themselves by helping others. For de Waal, the capacity of concern for others to *motivate* us is not a byproduct of a dynamic of infinity, but our decidedly non-quantum, quotidianly Newtonian "bodies with moral sentiments." (de Waal 2005, 170) Just like sex, eating, and other instincts, our ethicality comes with an embodied feeling tone. (de Waal 1996, 87) If there is a deep ethical dimension to flesh or faciality (which will almost certainly run rampant across species, contra Levinas), it emerges out of this eminently finite dynamic of material processes conducting evolutionary trajectories to specific organisms, specific bodies, specific worldings. (Keller 2015, 295) The infinite need not apply.

The same complex of finite ethical relations could equally apply to non-animal, perhaps even inorganic landscapes, ecosystems, or organisms. Sociobiologist E.O. Wilson has speculated that humans and other animals may have evolved predispositions to favor certain ecosystem configurations—"a deep genetic memory of mankind's optimal environment" (Wilson 1984, 112) "People," he notes, "react more quickly and fully to organisms than to machines. They will walk into nature to explore, hunt, and garden, if given the chance. They prefer entities that are complicated, growing, and sufficiently unpredictable to be interesting." (Wilson 1984, 116) We are keyed, in our bodies, to respond not just to folds, but to species-specific forms. When Keller writes that we may grieve "whole environments" of nonhuman beings, she is indicating the way that our bodies are tuned to particular ecologies, not an abstract response to perpetual perishing. (Keller 2015, 235) We are morally horrified by a burning rainforest more

than we are by an imploding star. Because of the specific folds of our finitude, we have an embodied responsibility to this world that exceeds our responsibility to the rubble to come, should we succeed in boiling all the life on this planet away. But neither fold would have priority from the perspective of infinity, which reduces all of our embodied particulars to zero.

Theos/Ethos

To repeat, Keller knows all of this. Much as Einstein insisted that discoveries in physics have no intrinsic religious implication, (Jammer 1999, 155) Keller explicitly indicates that the quantum field doesn't translate into ethical responsibility, only that it eliminates neutrality. (Keller 2015, 287) But even though Levinas ultimately offers little in the way of enhancing our understanding of the ethical dimensions of quantum physics, Keller's work points us in the direction of what I consider a far more valuable ethical practice: this is ethics understood in Michel Foucault's sense, not as a first philosophy of transcendent moral demands, but as a "technology of the self," the work "that one performs on oneself, not only in order to bring one's conduct into compliance with a given rule, but to attempt to transform oneself into the ethical subject of one's behavior." (Foucault 1990, 27)

In *Face of the Deep*, Keller puts forward some of her most focused statements on how she understands theology as a method. In an elegant manifesto in the preface to the book, she asks: "beyond the nostalgia for a premodern grandeur or the doomed utopias of modern reason, what is the actual work of theology—but an incantation at the edge of uncertainty? … [R]eligious discourse as a spiritual and social practice offers a unique depth of history and future; but only inasmuch as we face our own grades and varieties of chaos." (Keller 2003, xviii) Theology as an incantation, as a practice that reshapes us by confronting us with the churning

chaos within and without, is not a map of moral coordinates, but an ethical practice in Foucault's sense.

In *Cloud of the Impossible*, Keller frequently frames theology in similar terms, rephrasing Bertrand Russell to suggest that theology is a mode of "teach[ing] how to live without certainty, and yet without being paralyzed by hesitation." (in: Keller 2015, 26) Sidestepping both the grumpy certitude of various self-indulgent orthodox theologies as well as the "opposing apparatus of atheist unquestionability," theology for Keller is a practice that allows the cultivation of a body that knows its own limits, frailties, and impossibilities. (Keller 2015, 26) This is why Keller is fascinated with Cusa's productive notion of *docta ignorantia*, "the 'knowing ignorance' that negates the certainty of any theological, human, and so finite perspective." (Keller 2015, 17) *Docta ignorantia* is not simply *theos*, but *ethos*. It charts the currents of chaos unraveling subjects.

Peter Harrison, in his extraordinary history of the intertwined categories of "science" and "religion," has pointed out that the modern conception of science and religion as containers containing beliefs is only a few centuries old. For the medieval philosopher Thomas Aquinas, for instance, science, *scientia*, was "a habit of mind or an 'intellectual virtue.'" (Harrison 2015, 11) As a virtue it was not presumed to accumulate and assemble facts, but as a "'habit' that perfects the powers that individuals possess." (Harrison 2015, 12) In acquainting knowing subjects with the organic teleological lines structuring the cosmos, *scientia* nurtured what Aristotle saw as the innate human desire to pursue knowledge. The locus of this operation was not progressive enlightenment, but individual self-development, transformation, and fulfillment. Religion, Harrison notes, was viewed in much the same terms by pre-moderns—as a disposition that could be cultivated rather than a set of beliefs. (Harrison 2015, 16) Keller's work aligns with this

characterization: both science and theology can be understand as technologies of the self that rearrange our dispositions.

Is the *ethos* of quantum theology ethical? For Keller, the encounter with one's own intrinsic multiplicity—finding oneself "replete with others"—is an avenue to new ethical bonds. (Keller 2015, 228) She suggests that "theology breaks into an indigenous multiplicity: an internal, indeed self-implicating resistance to the 'Logic of the One' that Laurel Schneider finds colonizing the world." (Keller 2015, 24) She proposes that "in activating our nonseparable differences, the darkness begins to glow. This connectivity at one level simply iterates and amplifies the golden rule." (Keller 2015, 36) Riven by infinity, we find ourselves in native solidarity with others: "Together, in any event." (Keller 2015, 179)

But can we say with any confidence that the "apophatic affects" Keller sings out lead us to ethical correspondences with others? Einstein, in an essay published in the *New York Times Magazine* around the time of his 1930 trip to the US, wrote that religion proceeds through three developmental stages. In the first stage, religions emerge as a pure reaction to human fear of the unpredictable wildness of the natural world. Only later do these primitive religious moods (which Einstein is careful to remind us are manifestly present in putatively "civilized" societies) graduate to the second stage—what Einstein calls the "moral" religions designed to pattern communities according to a set of ethical ligaments.

But both of these stages are ultimately succeeded by what Einstein identifies as the highest and rarest form of religion, which he terms "the cosmic religious feeling." Swept up by this acutely religious mood, "[t]he individual feels the futility of human desires and aims and the sublimity and marvelous order which reveal themselves both in nature and in the world of thought." (Einstein 1930) For Einstein, this cosmic religious feeling is the pure substance of *both*

scientific and religious innovation. Much as energy is tied to matter and time is tied to space, scientific creativity and religious passion are one and the same substance, neither of which is intrinsically oriented toward moral intelligence.

Is the cosmic religious feeling the same as what Keller calls the apophatic affect? If so, how does it discipline us? What sort of subject is produced by being immersed in the revelation of our own cloudiness? All these gaps, all this darkness, all these intransigent, changeful ways making up what has seemed for so many centuries to be one—what are we left with when they are etched on the surface of our self-understanding? Or are Keller's apophatic affect and Einstein's cosmic religious feeling meaningfully *different* affective profiles, leading to different virtues, different technologies of self-formation, different disciplinary outcomes? Does one or both lead directly to moral engagement, or do they shape us in other ways? Perhaps, again, we should allow ourselves to be pulled back into the darker deep, not even with Levinas' confidence that we will find the faces of Others shining forth there as beacons guiding us through the clouds, but countenancing the risk that those faces and ours might dissolve into droplets. Maybe the apophatic affect, ultimately, is nothing more than a resource that lets us traverse irreducible ambiguities without clinging to the confidence of metaphysical certainties: "*to love*," Keller writes in *Face of the Deep*, "*is to bear with the chaos*. Not to like it or to foster it but to recognize there the unformed future." (Keller 2003, 29)

Conclusion

> In her critique of Levinas's ethics of infinity, Stella Sandford writes
>
> "the more basic point is that the future of a twenty-first century feminist politics never was going to be found in a metaphysics of transcendence. Such a

> metaphysics remains fundamentally incompatible with a feminist theoretical project which aims to help transform society through the location of the origin of meanings—including that of 'the feminine'—in the finite structures of the world." (Sandford 2000, 139f)

The same could be said of quantum potentiality, the ontology of God as a pure possibility. Although the theological potential of this merger is fascinating, its interlock with moral philosophy will always be fraught. The explosion of droplets emerging out of the cloudburst of possibility can't quite congeal into the faces of a crowd. Quantum mechanics lie deeper than ecology or even alterity, let alone faciality.

It is not enough to simply champion alterity, to rhapsodize difference, in a process universe that is nothing but a continuum of irreducible differences and infinite connectivity. Alterity in its specificity, in its species, is not an abstract principle of difference but a constituted *anatomy* of difference. This means not only seeing the other—bodily—but specifying our own bodies. To be more ethical, we need to think not about transcendence, but about bodies, learning what Donna Haraway calls the material conditions of flourishing of our fellow creatures. (Haraway 2003, 81) And we need to closely understand our own ethical responses to *specific* bodies, dismantling the layers of prejudice and association that warp our ethical response. We need to think about skin colour and facial symmetry, height and hair texture, clothing and posture, the timbre of the voice, oxytocin and adrenaline. We need to inventory our affects. (Schaefer 2015) This is where Keller's synthesis of quantum immateriality with ethical relationality is so urgent. Not because, following Butler or Levinas, it conducts us to a plenum of infinitude that activates a new network of ethical subjects who can command us—those faces

dissolve in the quantum waves, just like our own. But by confronting ourselves with our own breakable souls, we can whisk away the lies of millennia of metaphysics and come to a better understanding of the internal landscape of fissures, pulls, and crashing waves that make up our ethical matterings.

The quantum-process conversation takes us away from the obsolete metaphysical armatures (including Levinasian metaphysics) that obstruct our self-understanding—and therefore our ethical development. A different iteration of the Jewish philosophical tradition is more apt here. Leonard Cohen, in his 1967 track "Stories of the Street," sings,

> "We are so small between the stars
> So large against the sky,
> And lost among the subway crowds
> I try to catch your eye." (Cohen 1967)

The rediscovery of our ethical bodies emerges out of this theopoetic meditation on the dynamic of humility and self-confidence, of cosmic irrelevance and unbreakable passion. The power of infinity lies in its ability to pulverize our pretensions and reconnect us with prehensions. But this is an ethics in the sense of a technology of the self, not a moral imperative. Ultimately, infinity cannot provide moral answers: the ethical imperative lies not in our stars, but in our finite, flawed, straining selves.

Bibliography

Al-Khalili, Jim. *Quantum: A Guide for the Perplexed*. London: Weidenfeld & Nicolson, 2003.

Atterton, Peter. "Ethical Cynicism." In: *Animal Philosophy: Ethics and Identity*. Atterton, Peter, and Matthew Calarco, eds. New York: Continuum, 2004.

Barad, Karen. "Posthumanist Performativity: Toward an Understanding of How Matter Comes to Matter." In: Alaimo, Stacy, and Susan Hekman, eds. *Material Feminisms*. Bloomington and Indianapolis: Indiana University Press, 2008 120-154.

Calarco, Matthew. "Faced by Animals." In: Atterton, Peter, and Matthew Calarco, eds. *Radicalizing Levinas*. Albany, NY: SUNY Press, 2010 113-133.

Caro, Jason. "Levinas and the Palestinians." *Philosophy and Social Criticism* 39 (2005): 671-685.

Cohen, Leonard. "Stories of the Street." *Songs of Leonard Cohen*. Columbia Records, 1967.

De Waal, Frans. *Good Natured: The Origins of Right and Wrong in Humans and Other Animals*. Cambridge: Harvard University Press, 1996.

-------. *Our Inner Ape: A Leading Primatologist Explains Why We Are Who We Are*. New York: Riverhead Books, 2005.

Derrida, Jacques. *The Animal That Therefore I Am*. David Wills, trans. New York: Fordham, 2008.

Diehm, Christian. "Facing Nature: Levinas Beyond the Human." *Philosophy Today*. Spring 2000 44(1): 51-59.

Einstein, Albert. "Religion and Science." *New York Times Magazine*. November 9, 1930 1-4.

Foucault, Michel. *The History of Sexuality: Volume Two*. Vintage Books, 1990b.

Haraway, Donna. *The Companion Species Manifesto.* Chicago: Prickly Paradigm Press, 2003.

Harrison, Peter. *The Territories of Science and Religion*. Chicago and London: The University of Chicago Press, 2015.

Hawking, Steven. "Does God Play Dice?" 1999. Available at: http://www.hawking.org.uk/does-god-play-dice.html. Accessed January 4, 2016.

Jammer, Max. *Einstein and Religion*. Princeton: Princeton University Press, 1999.

Keller, Catherine. *Cloud of the Impossible: Negative Theology and Planetary Entanglement*. New York: Columbia University Press, 2015.

-------. *Face of the Deep: A Theology of Becoming*. London and New York: Routledge, 2003.

Levinas, Emmanuel. “The Name of a Dog, or Natural Rights.” In: Calarco, Matthew, and Peter Atterton, eds. *Animal Philosophy: Essential Readings in Continental Thought*. London & New York: Continuum, 2004: 47-50.

-------. *Otherwise than Being, Or Beyond Essence.* Alphonso Lingis, trans. Pittsburgh: Duquesne University Press, 1981.

-------. *Totality and Infinity.* Alphonso Lingis, trans. Pittsburgh: Duquesne University Press, 1969.

Rubenstein, Mary-Jane. *Worlds without End: The Many Lives of the Multiverse*. New York: Columbia University Press, 2014.

Sandford, Stella. *The Metaphysics of Love*. London and New Brunswick, NJ: Athlone Press, 2000.

Schaefer, Donovan O. *Religious Affects: Animality, Evolution, and Power*. Durham: Duke University Press, 2015.

Wilson, Edward O. *Biophilia: The Human Bond with Other Species*. Cambridge, MA, and London, England: Harvard University Press, 1984.