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Cosmic Singularities: On the Nothing and the Sovereign

Mary-Jane Rubenstein*

Until very recently, the creation myth of secular modernity has been the hot big bang hypothesis: the explosion of our single universe out of a single point. Physicists concede that in its traditional form, this story performs an uncanny recapitulation of Christian creation theology: the universe bursts forth suddenly, in a flood of light, out of nothing. As many contemporary thinkers have argued, however, the "nothing" of Christian orthodoxy is neither scripturally nor doctrinally self-evident; rather, it is the product of ontopolitical efforts to secure the sovereignty of God. This article traces the twinned concepts of sovereignty and nothingness through theological and astrophysical sources, arguing that even rabidly atheistic appeals to the *ex nihilo* end up enshrining a figure of absolute power. Ultimately, it suggests that far from supporting an absolute beginning, quantum and multiverse cosmologies undermine the logic of nothingness and sovereignty by means of chaos and entanglement.

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> He is the One-only God for the only reason that He is the sole God, and the sole God for the only reason that nothing existed with Him.
>
> —Tertullian

> If we do discover a complete theory . . . then we would know the mind of God.
>
> —Stephen Hawking

LET THERE BE LIGHT

UNTIL VERY RECENTLY, secular modernity has had a creation myth both thrilling and sturdy in the hot big bang hypothesis. As physicists began to realize in the 1920s and as we have now learned since preschool, the universe in all its dazzling complexity burst forth 13.7 billion years ago from a single point—not a point in space and time, but a point *of* space and time—a point that produced space and time themselves. The nature of this point has been a matter of considerable debate within modern cosmology: was it spatially extended "before" the big bang—an eternal nugget of extraordinary density? Or did it emerge out of nothing at all? These questions remain open because when general relativity traces cosmic expansion back to the beginning, it produces a starting point of *infinite* temperature and density, and the laws of physics break down at infinity. At the momentless "moment" just before time, at *t*-zero, general relativity predicts that the whole universe would have been squeezed into a "point" of no size. Physicists call this point, where the measurements hit infinity and the calculations jam, a "singularity" (Davies 1978: 78).

Although cosmologists spent the second half of the twentieth century debating the nature and necessity of such a singularity, many Christian theologians saw it as a confirmation of orthodox doctrine (Craig 1979, 1992, 1999; Peters 1989; Copan and Craig 2004). In fact, as early as 1951, Pope Pius XII declared that:

> present day science, with one sweep back across the centuries, has succeeded in bearing witness to the august instance of the primordial *Fiat Lux* [let there be light], when along with matter, there burst forth *from nothing* a sea of light and radiation, and the elements split and churned and formed into millions of galaxies. (1952: 190)

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And in its standard form at least, the big bang hypothesis *does* seem an uncanny recapitulation of the Christian creation theology. Just as the church has taught, the universe is not eternal, but had a temporal beginning. Just as the church has taught, it was born in a sudden flash of light. And just as the church has taught, the whole thing seems to have come out of nothing.

The resemblance between modern science and the Christian *mythos* was so strong, and so disturbing, that it prompted the renegade British astronomer Fred Hoyle to look for a different story to tell—preferably, one that did not "aid and abet" religion (1950). As far as Hoyle was concerned, the chief danger of positing an absolute beginning to the universe was that "a 'something' outside physics can then be introduced at $t = 0$"—and an infinite "something" beyond the reach of physics is almost always called "God" (1975: 165). It was Hoyle, in fact, who called his opponent "the big bang" in the first place, meaning to ridicule the theory he ended up baptizing. As an alternative, and with the collaboration of mathematicians Thomas Gold and Herman Bondi, Hoyle posited the "steady-state" model, according to which the universe has been cooling and extending from eternity, continually producing new matter to fill the expanding intergalactic space (Bondi and Gold 1948; Hoyle 1948). This means that if we extrapolate backwards, the cosmic density remains "steady" for eternity, and there is no need for an infinite, incalculable, *godlike* singularity.

Unfortunately for Hoyle and his colleagues, their alternative was ruled out when Arno Penzias and Robert Wilson accidentally discovered the cosmic microwave background (CMB) in 1965 (Penzias and Wilson 1965; Kirshner 2002: 114–135). Often called "the surface of last scattering," the CMB is the sphere of radiation left over from the big bang—more precisely, from 380,000 years after the bang, when electrons and protons had cooled sufficiently to form hydrogen atoms, which allowed light to decouple from matter. As such, the CMB provides a thermal record of the primordial blast, which seems to establish that the world as we know it cannot have been eternal. Rather, all of it had a beginning—and the same, hot-as-hell beginning—in a burst of light, in time. The big bang's mid-century victory therefore seemed to confirm what the astronomer Robert Jastrow calls "a biblical view of the origin of the world." Infamously, Jastrow goes on to attest that "for the scientist who has lived by his faith in the power of reason, the story ends like a bad dream. He has scaled the mountains of ignorance, he is about to conquer the highest peak; as he pulls himself over the final rock, he is greeted by a band of theologians who have been there for centuries" (Jastrow 1978: 116). But where exactly is this "there," and

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how did it manage to become the inheritance of twentieth-century physics? This article explores the "nothing" of Christian orthodoxy as the product of various ontopolitical efforts to secure the sovereignty of God. Tracing the twinned concepts of sovereignty and nothingness through theological and astrophysical sources alike, it argues that even the most atheistic appeals to the *ex nihilo* end up enshrining a figure of absolute power.

SECURING SINGULARITY: *CREATIO EX NIHILO*

Although the Abrahamic traditions have hardly been univocal on these matters, two major convictions support the allegedly biblical cosmology that the big bang reaffirms: first, that there is only one world, and second, that it was created "out of nothing." While these may seem distinct, even unrelated, positions, I would submit that what lies beneath both of them is a concern over divine singularity. The oneness of God is mirrored in the oneness of the world, and is reaffirmed by the absence of any primordial principle other than God. Out of nothing, the one God creates the one world, all by himself.

The first of these principles—the oneness of the world—received little scholarly attention during the twentieth century,[1] but has resurfaced in the last decade and is the main focus of the book I am currently writing. The second—creation out of nothing—has been the subject of continuous and impassioned debate among historians, theologians, and biblical scholars, and is the central concern of this particular article. For reasons that will become clear, the scholars who engage the *ex nihilo* tend to stake powerful claims either with or against the doctrine. Before delving into these positions, however, it might be instructive to point out that even the staunchest proponents of *creatio ex nihilo* agree with its opponents on two crucial points. The first is that the Bible does not explicitly say that God created the world out of nothing. The second is that this teaching affirms the absolute sovereignty of the creator. The positions diverge when scholars consider the meaning of this scriptural silence, and the value of divine sovereignty.

The Scriptural Context of Nothing

The first lines of Genesis have traditionally been translated into English as:

[1]The most important exceptions to this rule are Koyre (1957), Dick (1982), and Guthrie (1990).

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> [1]In the beginning, God created the heaven and the earth. [2]And earth was without form, and void; and darkness was upon the face of the deep. (Genesis 1:1–2a [KJV])

This translation, in which verse 1 is an independent clause, has come to be called the "absolute" rendition of this passage. Verse 1 tells us that God created the heaven and the earth, and verse 2 explains what the nascent earth looked like. Many who affirm the doctrine of *creatio ex nihilo* prefer this translation, since it seems to indicate that God created the world and then organized it. This was the way Augustine of Hippo explained it: first, God brought forth the dark, formless "deep," and then he went on to form the formlessness and light the darkness (2006: 12.22). With this interpretation in mind, theologians such as Paul Copan and William Lane Craig argue that while the biblical text does not say explicitly that God created the world out of nothing, it says as much *implicitly* (2004: 27). These scholars and their colleagues, who tend to hail from Protestant traditions, support their position by means of other scriptural passages that establish God as creator of "all that is" (Psalm 104:6; Proverbs 8:22–26; 2 Maccabees 7:28a; John 1:3; Romans 4:17; Hebrews 11:3b). Taken together, these are said to establish *creatio ex nihilo* as the only "plausible and consistent way to read the biblical text," even though its specific formulation cannot be said to be "in" the Bible (Copan and Craig 2004: 29).

Against this "absolute" translation, other biblical scholars have argued that a more accurate rendition would be:

> [1]In the beginning *when God created the heavens and the earth*, [2]the earth was a formless void and darkness covered the face of the deep. (Genesis 1:1–2a [NRSV]; emphasis added)

This "construct" version gained broad acceptance in the late 1960s, following Ephraim A. Speiser's translation of Genesis for the Anchor Bible (Speiser 1964; Coote and Ord 1991; Friedman 2001). But Speiser did not produce this interpretation *ex nihilo*; rather, he learned it from the eleventh-century Jewish commentator Rashi, who insisted that the first verse be understood as a dependent clause (Rosenbaum and Silberman 1993: Keller 2003:114–115). According to Rashi, Genesis does not give us a linear starting point at all—much less a singular one. Rather than saying that God created the world and then organized it, all the text says is that *while God was creating*, the earth was formless and void. Unlike its "absolute" counterpart, then, Rashi's and Speiser's "construct" translation does not explicitly support the doctrine of

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creatio ex nihilo. In fact, it seems to undermine it, suggesting that God brought the heavens and the earth not out of nothing, but out of *something*: namely those watery depths that were there to begin with—there from eternity, along with God.

This is the reason that most proponents of *creatio ex nihilo* prefer the first, "absolute" translation, with its independent clause. However, there are many "ex nihilists" who have come to accept the "construct" translation, convinced it is a closer rendition of the Hebrew (May 1994; McGrath 2001; Burrell et al. 2010). How, then, do they account for the waters of verse 2? How can they maintain God's creation out of nothing if the waters were there all along? The most common strategy is to follow Gerhard von Rad's claim that the Bible does not provide a full creation story (1966). Janet Soskice, for example, argues that since Genesis was written during the Babylonian exile, it was more concerned with assuring its audience that God could bring order from chaos than it was with describing the origin of the universe (2010: 34). Similarly, Ernan McMullin argues that if the first verses of Genesis seem to indicate that the "deep" was already there, it is because the book is not really offering a cosmogony. As he understands it, Genesis concerns the genesis of humanity, not of the cosmos itself (2010: 11). These and other "construct" ex nihilists hail from predominantly Anglican and Catholic traditions, and so tend to be less focused than their Protestant counterparts on the teachings of "scripture alone." They do mention 2 Maccabees and some Pauline letters as vaguely suggestive of the doctrine, but they admit that none of these texts explicitly or even implicitly articulates it (McMullin 2010: 16; Soskice 2010: 33). Rather than being "in the Bible," the *ex nihilo* is a product of the Holy Spirit's ongoing illumination through tradition—specifically, through the work of the church fathers.[2]

Against these "absolute" and "construct" defenses alike, those who oppose the *ex nihilo* see its lack of scriptural support as a fatal flaw, which neither exegesis nor the church fathers can fix. As Ian Barbour starkly puts it, "*Creation 'out of nothing' is not a biblical concept*" (1966: 384). Catherine Keller echoes this position (and the italics), saying that "there is *no such biblical teaching*: not in Genesis, not elsewhere" (2005: 138). For these predominantly "process," feminist, and ecological thinkers, the notion of *creatio ex nihilo* not only does not appear in scripture—it contradicts it, literally an*nihil*ating the watery deep out of

[2]Ted Peters lists the crucial texts in this lineage as Theophilus, *Autolycus*, II:4, *Shepherd of Hermas*, II:I; Tatian, *Address to the Greeks*, V; Irenaeus, *Against the Heresies* (1992: II:10:4); Justin Martyr, *First Apology*, I:59, and Origen, *On First Principles*, I.iii.3, II.i.4 (1989: 112).

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which God clearly creates the world (Cobb and Griffin 1976; Ruether 1983; Anderson 1987; Levenson 1988; Griffin 2001; Fretheim 2005; Bauman 2009). These scholars suggest of the orthodox more or less what 2 Peter says of the "scoffers" who ignore the promises of God: "They deliberately ignore this fact, that . . . earth was formed by water and by means of water" (2 Peter 3:5). If only because it flatly contradicts Scripture, critics of the *ex nihilo* maintain that Christian creation theology needs to come to terms with the chaos at its beginning. It is in this spirit that Keller offers her adroit retrieval of the waters of Genesis 1:2; for Keller, God creates not *ex nihilo*, but *ex profundis*—along with and by means of *tehom* (2003: 155–258).

Against the "heretical" suggestion that God might create along with *anything*, defenders of the *ex nihilo* counter that while the words "out of nothing" might not appear in scripture, they are far from unscriptural. On the contrary, this formulation is the only way to uphold what they see as the essence of scripture. As Langdon Gilkey argues, the scriptures "amply reveal" that "both Jews and Christians believed that God was the Almighty Lord of every creature, that no aspect of existence escaped His *sovereign rule*, or could long defy His effective power" (1985: 48; emphasis added). Similarly, Copan and Craig assert that "the overwhelming emphasis," particularly in the Hebrew Bible, "is on God's *sovereignty* and the totality of everything under his control" (2004: 66; emphasis added). This, then, is where the *ex nihilo*'s strongest scriptural justification lies: in what its proponents call the Bible's "overwhelming emphasis" on the sovereignty of God.

The Supremacy of Sovereignty

The argument proceeds as follows: if God created the world out of something, then he would be constrained by that something. The demiurge of Plato's *Timaeus*, for example, finds a disorganized primordial substance, and then creates the world in accordance with its limited capacities (2005: 47e–48a). The *biblical* God, by contrast, is limited by nothing. So rather than creating out of preexisting material, this God must make his material out of nothing. A similar argument claims that if God created out of something, then he would depend upon that something. But while creatures are caught in chains of interdependence, the biblical God is totally self-contained. So whereas beings of finite power can only create out of something, the omnipotent God must create out of nothing. Finally and most fundamentally, if God created out of something, then this something would have existed from eternity along with God. And, as Basil of Caesarea worries in the fourth century, "If matter were uncreated, then it would from the very first be

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of a rank equal to that of God and would deserve the same veneration" (Copan and Craig 2004: 15). But of course, there is no equal to Basil's God; as the law and the prophets make perfectly clear, nothing shall be worshipped before, beside, or besides him (Exodus 20:2; Deuteronomy 5:7; Isaiah 44:6). If it is truly the case that God alone is God, then we must say that God alone existed "before" the creation: God and *nothing* else. Tertullian (1956) sets forth this fairly incontrovertible logic in the beginning of the third century:

> The fact of God being the One and only God asserts this rule [creation out of nothing], for He is the One-only God for the only reason that He is the sole God, and the sole God for the only reason that nothing existed with Him. Thus He must also be the First, since all things are posterior to Him; all things are posterior to Him for the reason that all things are by Him; all things are by Him for the reason that they are from nothing . . . for there was no power, no material no nature of another substance which assisted him. (in Gilkey 1985: 52)

In sum, if God can be said to be truly free, omnipotent, and singular—if God is the *absolute sovereign*—then he must create the world out of nothing.

But again, the specific formulation of the *ex nihilo* appears nowhere in the Hebrew Bible or in the New Testament. Nor does it emerge in the work of Hellenistic or Palestinian Jewish thinkers of late antiquity, or in the work of the earliest church fathers, all of whom taught that the God of Moses created out of a preexisting substance (May 1994: 74–75).[3] Historical theologian Gerhard May attributes this absence of the *ex nihilo* to the philosophical surroundings of late antiquity. As he sees it, it just took a few centuries for the church fathers to separate themselves from their pagan contexts and "take in the biblical idea of creation in its full implications" (1994: 132). This separation finally occurred during the second century CE, as church theologians struggled to counteract the teachings of Platonists on the one hand and the so-called Gnostics on the other (King 2003: 1–19).

We have already seen the primary difference between the God of Christian orthodoxy and the demiurge of Plato's *Timaeus*. Rather than finding chaos and mixing it into a world, a truly sovereign God would have to make his materials in the first place. Against the Platonic

[3]Although Philo of Alexandria is often cited in support of the *ex nihilo* (Soskice 2010), Philo clearly affirms in *On the Eternity of the World* that "nothing is generated out of nothing" (Philo 2004: 2.5).

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doctrine of world-formation, then, the church theologians insisted that nothing existed eternally with God—not the Ideas, not *khôra*, and certainly not some disordered mess of materials. In this manner, they flatly contradicted the Greek conviction that ran from the Ionians through the Atomists, Platonists, and Stoics that "nothing comes from nothing" (Adams 2008: 11). To the contrary, the fathers declared that *everything* comes from nothing. Everything, that is, apart from the God without whom everything is nothing.

If the Platonic demiurge was the theologians' Scylla, the Gnostic demiurge was their Charybdis. With the crucial exception of Basilides (Quispel 1968), most second-century teachers assembled under the category of "Gnostic" maintained that the creator of the material world was not the "real" God (Gospel of Truth 2007). Rather, the creator was an inferior, confused, in some cases diabolical "archon," who shaped the visible universe out of the unformed matter his mother Sophia (an "aeon," or emanation of divine light) had "hysterically" produced ("Secret Book of John" 2007). Oblivious to the superior powers above him, the lowly creator-God would stomp around in his lowly heaven, shouting "I alone am God, and there is no other but me," an obvious parody of the One God of the Israelites ("On the Origin of the World" 2007: 206; cf., "Secret Book of John" 2007: 117). "When he said this," we read in an unnamed tractate, "he sinned against all the immortals who speak forth, and they watched him carefully" ("On the Origin of the World" 2007: 206). So whereas the Platonists posited a plurality of first principles (the demiurge, the Ideas, *khôra*, and chaos), the Gnostics posited a plurality of *gods*—a swarm of divinities that jockey for power over the universe.

For Gerhard May, it was this "open Gnostic crisis" of the second century that prompted the would-be "orthodox" to assert as forcefully as possible the oneness and supremacy of God (1994: 31). And it was the emphasis on God's singularity that finally led the orthodox to posit creation out of nothing. Against the subordinate creator of the Gnostics and the constrained creator of the Platonists, the church fathers hammered out the *ex nihilo* in order "to do justice to the absolute sovereignty and unlimited freedom of the biblical God acting in history" (1994: vii).

From the other end of the theological spectrum, critics of the *ex nihilo* agree that the doctrine expresses God's absolute sovereignty. But they argue that such sovereignty is neither a "latent biblical logic," nor a reflection of divine being (Keller 2003: 43). Rather, it is a thoroughly human projection, motivated by a thoroughly human will to power. In a theological system in which "men" are made "in the image of God,"

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human power can be said to mirror divine power, and vice versa. Opponents of the *ex nihilo* therefore argue that far from being a timeless truth discerned through gradual illumination, the doctrine of divine sovereignty is an all-too-human product of social and political struggles. Whether against empire or in its service, Jewish and Christian thinkers gradually shored up God's sovereignty in order to shore up their own.

In *Beyond Monotheism*, Laurel Schneider traces the roots of this will-toward-sovereignty to the anticolonial battles of Jewish antiquity (2008: 27–38). By now it is a matter of scholarly consensus that before the seventh century BCE, Jewish communities were "monolatrous" but not monotheistic; they worshipped one God, but admitted the existence of numerous local deities (Halperin 1987; Smith 1990, 2001; Mach 1999). According to Schneider, this divine plurality underwent a gradual consolidation beginning with the reign of King Josiah (640–609 BCE), who proclaimed the Oneness of God in order to unite Israel and Judah against the twin terrors of the Assyrian and Babylonian empires (2008: 28–29). Because they worshipped the same God, the two besieged Jewish kingdoms could consider themselves one. Furthermore, this nascent mono-theology shored up the king's own power as the sole God's sole representative. Just as the people will be more powerful if they are one, the king will be more powerful if he is one—and these communal and individual axes of sovereignty are best underwritten by a God who is one.

If the establishment of divine singularity began during Josiah's reign, it was completed during his people's exile in Babylon. Before the exile, Yahweh was an immensely powerful yet *local* God, tied to the land and worshipped in the temple. Now, with the land defeated and the temple destroyed, Schneider suggests that the Israelites had two options. They could either admit that their God was defeated, inaccessible, or dead, or they could revise their conception of God (2008: 37). And so in response to the psalmist's cry, "how can we sing the Lord's song in a foreign land," exilic theologians began to explain that we can sing his song *everywhere*—because *God* is everywhere. Yahweh is not a local god, confined to the defeated land or the ruined temple. Yahweh is not a weak god, destroyed by the deities of Babylon. Yahweh is, in fact, the only God. This consolidation leaps off the pages of second Isaiah, where Yahweh repeatedly, almost obsessively declares, "I am the Lord, and there is no other"; "I am the Lord, your Holy One"; "I, I am He"; "I am the Lord, and there is no other" (Isaiah 43:11–45:22). For Schneider, this Isaianic insistence amounts to nothing less than a theological coup—a staggering act of anticolonial resistance in which "the

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hitherto local god of a small, defeated people declares himself ruler of the universe" (2008: 32).

All of this is to say that divine sovereignty is neither biblically self-evident nor transcendently "true"; rather, it is the product of concrete human yearning. The Israelites' increasing cry for freedom, power, and unity was reflected in their talk of an increasingly free, powerful, and singular God. Unfortunately, such divine sanction for human sovereignty has not been limited to the historically colonized; it has girded the loins of the colonizers, as well. Christian theology's own complicity with empire is commonly traced back to the reign of Constantine, who sought to consolidate the new Religion of the Empire into a single system suitable to his unilateral rule (Yoder 1985: 135–150; Hauerwas 1991; Murray 2004; Wright 2005; Brock and Parker 2008). But as Catherine Keller has argued, this imperial theology rests on a "dominology" already consolidated two centuries earlier, in the form of the *ex nihilo*.

We will recall that, especially if the first verse is translated as a dependent clause, Genesis seems to say that God created the universe out of a formless earth and darksome deep. Scholars who maintain that God *really* created the world out of nothing are therefore in the position either of contesting the translation or of saying Genesis is not really cosmogonic. Keller sees both these strategies as outright contortions. She suggests that if Genesis 1 seems to say something is eternal with God, it is because its author believed that something was eternal with God: "The authors of Genesis, like virtually the entire ancient world, assumed that the universe was created from a primal chaos: something uncreated, something Other, something that a creator could mold, form, or call to order" (2003: xvii). In carving out the *ex nihilo*, the fathers transformed this something into nothing, insisting that there could be no "other" to vitiate the Sameness of the Lord. But for Keller, this doctrine was hardly a matter of theological necessity. Rather, it was a product of the fathers' effort to defeat their rivals with the most powerful, singular, *masculine* God imaginable.

Central to Keller's argument is the mythological context of Genesis—in particular, its contested resonances with the Ancient Near Eastern *Enuma Elish* (Gunkel 2006: 3–129; Tsumura 2009: 45–52). In this Babylonian cosmogony, a warrior named Marduk slaughters the oceanic chaos-monster Tiamat, and then forms the cosmos out of her dismembered body (Epic of Creation 2008). Tiamat, not so incidentally, is Marduk's grandmother. As Keller points out, this text's cosmogonic matricide marks a radical departure from earlier myths of the ancient Near East, many of which attribute the birth of the world to divine

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procreation (2003: 28). Rather than making the world *with* a female counterpart, Marduk makes it by destroying her: "he shot an arrow which pierced [Tiamat's] belly,/Split her down the middle and slit her heart,/Vanquished her and extinguished her life./He threw down her corpse and stood on top of her" ("The Epic of Creation" 2008: 253). Standing on top of the conquered chaos, Marduk is celebrated as "the Lord," "the mighty one," and *Lugal-dimmer-ankia*, which translates as "King of the gods of heaven and earth" (259). Perhaps unsurprisingly, King Marduk's agent on earth was the king of Babylon, his absolute authority underwritten by a warrior God of limitless power.

This story is relevant to the biblical creation narrative because the Akkadian "Tiamat" is said to be linked etymologically to the Hebrew *tehom*—the "deep" of Genesis 1:2. Strengthening this tie, Keller points out that while it is given "no personality," *tehom* is indeed a feminine noun, which always appears in the singular and without an article, "as though it is still a proper name" (2003: 28). In this light, *tehom* can be read as a remnant of her Near Eastern prototype—a vestige in the Hebrew Bible of the primal goddess of chaos. And just as Tiamat is murdered by her offspring, *tehom* is systematically destroyed by her own. First, she is reduced from a Babylonian goddess of love and wrath into the Hebrew Bible's silent "deep," devoid of all character and squeezed between more magisterial verses. Then, she is reduced to "nothing" (*nihil*) by the church fathers in the second century—a move eerily reminiscent of Marduk's annihilation of Tiamat. In both cases, the sacrifice of a primordial, feminine principle establishes the unrivalled power of a male creator-God. For Keller, the debate over creation therefore boils down to "a drama of gender" (2003: 44).

The drama intensifies when we consider the specific cosmologies that prompted *tehom*'s annihilation during the patristic period—those Gnostic teachings declared "heretical" by the self-proclaimed orthodox. We have already seen that for most Gnostics, the creator of the visible world was neither the only god nor the most powerful one; rather, he was a lowly demiurge confined to molding the universe out of a shapeless muck of materials. His mother Sophia dwelled in an invisible heaven of pure light, calling down from time to time to chastise the "blind god" for his narcissism ("On the Origin of the World" 2007: 204–206). While Sophia is often said to be the lowest of the aeons, numerous other female beings are said to occupy different ranks of the Gnostic pleroma, depending on the text. In a few sources, the origin of all that is described as primarily female; in others, it is a male–female dyad, triad, or pentad; and in others still, the highest divinity calls itself both androgynous and bisexual—or neither of these

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(Perkins 1988: 103–105; King 1988: 161; "Secret Book of John" 2007; "Three Forms of First Thought" 2007; "Thunder" 2007).

Moreover, these plural and many-gendered conceptions of Gnostic divinity are often said to have underwritten a comparatively fluid and inclusive social structure. Elaine Pagels has famously argued that even among those sects that maintained the maleness of God, gnostic women could prophesy, heal, and preach in the church, whereas their orthodox counterparts were silenced from the year 200 onwards (1979: 60; cf. Scopello 1988). Although other scholars have cautioned against deducing a proto-feminist social structure from the wildly conflicting sources grouped under the Gnostic rubric (King 1988; Wisse 1998), what is important for our purposes are the roles that women were *said* to have had in the antignostic literature of the second century. Tertullian, for example, marvels at the "audacity" of "these heretical women": "they have no modesty; they are bold enough to teach, to engage in argument, to enact exorcisms, to undertake cures, and, it may be, even to baptize!" (in Pagels 1979: 60). Likewise, Irenaeus is baffled by the throngs of "foolish women" who have defected from his own congregation to the Marcionites, ridiculing the sect not only for their alleged gender equity, but also for their allegedly rotating power structure. He explains that since each initiated member was thought to be inspired by the Holy Spirit, the Marcionites had no fixed ecclesial hierarchy. Rather, the members drew lots to determine who would preach, read from scripture, and administer the sacraments that day (in Pagels 1979: 42).

In sum, the battle for the *ex nihilo* was never simply theological; it was theo-socio-political from the start. It was not the Gnostics' plurality of gods *tout court* that horrified the patristic writers; it was the diffuse and women-ridden power structure that this plurality was said to underwrite. Pagels notes Tertullian's disgust at the chaos of gnostic communities—at the way their confusion of the ranks of priests, bishops, and laity recapitulated their confusion of men and women (1979: 42–43). It was against all of this plurality and gender insubordination, on the human and divine planes alike, that the church theologians came to assert the absolute sovereignty of God, whose maleness and singularity was reflected in the maleness and singularity of the bishop. Standing "in the place of God," the orthodox bishop presided over a static hierarchy of men that mirrored God's dominion over the ranks of angels (Pagels 1979: 35). Insofar as the gnostics rejected this model of divine dominion—right to the point of rejecting the authority of the demiurge—they were refusing the ecclesiastical dominion that followed from it. But for better or worse, this refusal was silenced by a

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barrage of antiheretical treatises throughout the second century—treatises that eventually secured the sovereignty of the orthodox by securing the sovereignty of their God.

"Man Constructs According to an Archetype"

As we have seen in the political and ecclesiastical spheres alike, the sovereignty of God establishes the sovereignty of his earthly representatives. This resemblance allows the high-ranking human to *imitate* God, and for feminist and eco-theologians, there is no more disastrous model for human imitation than *creatio ex nihilo*. This is not only because the doctrine bestows omnipotence upon the representatives of this God, but also because the doctrine reduces everything and everyone else to nothing—just emptiness to be filled with the conquering power. It is in this vein that eco-theologian Whitney Bauman has argued that "imperial Christianity has been re-creating the world—as if *ex nihilo*—for the past 1500 years" (2007: 353).

In order to understand the stakes and contours of this claim, we might do well to recall the work of Mircea Eliade, who interprets a society's rituals as repetitions of its creation myth (2005: 57). Eliade cites as a prime example the Babylonian New Year, during which the community gathers to recite the *Enuma Elish* and to "reactualize" the battle between Marduk and Tiamat. In the work of this ritual, Eliade argues that the society itself is restored to chaos and then re-cosmicized, so that the creation of the world takes place every year. As Eliade makes clear, however, societies do not merely repeat this gesture internally; they also perform their creation narrative when they look to appropriate new lands. When a territory is claimed, "that is, when its exploitation begins—rites are performed that symbolically repeat the act of Creation: the uncultivated zone is first 'cosmicized,' then inhabited" (Eliade 2005: 10). And so the Scandinavians in Iceland cultivated the "desert soil" before colonizing it; Vedic warriors in India built altars to Agni; and Iberian conquistadores planted a cross in the Americas. For the Spanish and Portuguese, Eliade explains, "The setting up of the Cross was equivalent to a justification and to the consecration of the new country, to a 'new birth,' . . . thus repeating [the] act of Creation. In their turn the English navigators took possession of conquered countries in the name of the king of England, new Cosmocrator" (2005: 11).

It is in this sense that Bauman, following Keller, connects Christianity's imperialism to its doctrine of creation (Bauman 2007, 2009; Keller 2003: 6, 2005: 98). If seizing new territory is a repetition of the cosmogonic act, then it is no surprise that Christian explorers declared lands from Australia to the Americas to be "uninhabited" in

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order to claim them. This is the doctrine of *terra nullius*, or "empty land," and just as the cosmic nothing secures the sovereignty of God, this terrestrial nothing secured the sovereignty of the invading powers. As Swiss political philosopher Emmerich de Vattel explained in *The Law of Nations*, "When a nation takes possession of a country to which no prior owner can lay claim, it is considered as acquiring the empire or *sovereignty* of it" (in Bauman 2007: 364; emphasis added). Foreign lands could justifiably be seized and re-created in the image of the conqueror, provided that there was "nothing" there before. But of course, there was never "nothing there before." The doctrine of *terra nullius* was invented for the sole purpose of establishing European rule, and so it required the colonizers both rhetorically and physically to *erase* the manifold inhabitants of "discovered" lands. By now, this erasure should be a familiar strategy: just as the church fathers annihilated the primordial chaos, their early-modern and Enlightened European heirs set at "nothing" the multitude of others who were already there (Bauman 2007: 361). Out of this nothing, Christian Europe established its singular supremacy, *in imitatio Dei*.[4]

BACK TO THE BANG

Considering Eliade's conviction that communities are constantly replaying their creation narratives, it is perhaps not surprising that the purportedly de-Christianized, modern-scientific West produced a cosmogony that sits in such surprising accord with Christian theology. We will recall that the point of this contested connection lies in the notion of a "singularity": a timeless, immaterial, and infinite power that creates space and time out of nothing at all. It was the persistent resemblance of this initial infinity to the "God of power and might" that prompted physicists over the decades that followed to find an alternative model—preferably a model that might rid itself of this "singularity" and its weighty theological baggage.

As we have seen, the first of these alternatives was Fred Hoyle's "steady-state" theory, but the discovery of the CMB in 1965 established that the universe had, in fact, been squeezed into the same explosive spot once upon a time. With the big bang hypothesis firmly established,

[4]A contemporary theologian with a commitment to orthodoxy might respond at this point that the horrific abuses of the Age of Discovery and colonial periods were (and are) the product of idolatry—of humans pretending to be the Almighty God who transcends them. In response to such musings, however, Keller asks "does the idolatry lie in our emulation of a divine superpower or in our confusion of God with omnipotence in the first place?" (Keller 2005: 29).

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some physicists posited an "oscillating" universe as a new way around the singularity (Dicke 1965; Peebles 1967; Misner et al. 1970; Patton and Wheeler 1975). According to this model, the amount of matter in the universe is large enough to allow gravity to counteract the initial outward thrust, eventually drawing the universe back into an increasingly smaller, denser state—until it collapses into what some have called a "big crunch" and others a "gnab gib" ("big bang" backwards). At the moment of tightest compression, the cosmos "bounces" and explodes again, producing another rush of radiation and primary particles, and the cycles repeat eternally.

By making the "big bang" a mere moment in a succession of other bangs and crunches, the oscillating model avoided the unsavory notion that anything—let alone the whole universe—might be created out of nothing. In the very gesture of circumventing Christian cosmology, however, the oscillating model collided head-on with *Hindu* cosmology. This, for many theorists, was a far more welcome collision—perhaps even a tacit confirmation of the cyclical model's transhistorical, cross-cultural truth. The most enthusiastic of these theorists was arguably Carl Sagan, who traveled all the way to India to explain the oscillating universe on his television show *Cosmos*. Footage of women braiding flowers into their hair, men bathing cows, and lotus flowers floating peacefully on water—all in 1979—purportedly illustrates the wisdom of "the Ancient Hindus," who knew all along that the cosmos was cyclical. Walking through temples he does not name, Sagan explains, "The Hindu religion is the only one of the world's great faiths dedicated to the idea that the cosmos itself undergoes an immense, indeed infinite, number of deaths and rebirths. It is the only religion in which the time scales correspond . . . to those of modern scientific cosmology." Of course, Sagan adds, this correspondence is "no doubt by accident" (Sagan 1980).

As it turned out, however, the oscillating model was even shorter-lived than the steady-state model had been.[5] For in the words of Steven Weinberg, while the cyclical universe "nicely avoids the problem of Genesis," it runs aground on the problem of entropy (Weinberg 1977: 153, 1972). According to the second law of thermodynamics, the entropy of a closed system will always increase. This means that each universe that bangs will begin with a higher measure of entropy than the one that crunched before it. More entropy amounts to more

[5]The best-known recent resurrection of the cyclical model is the "ekpyrotic scenario" (Steinhardt and Turok 2008; Rubenstein 2011).

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radiation, and more radiation means a longer period of expansion before the cosmos contracts again (Tolman 1934: 331–444; Clegg 2009: 189). In other words, each cosmos would last longer than its predecessor. If the lives of universes get longer into the future, then one can only conclude that they were shorter in the past. Tracing back these shortened universes, we eventually come to a universe of no length at all. In other words, the oscillating model leads us just as inexorably as the big bang hypothesis to an absolute beginning, when the cycles must have started (Greene 2005: 406). So much for avoiding the singularity.

Although cyclical cosmologists tried to sidestep the entropy critique, the definitive demise of their model came in the late 1970s with the wide acceptance of Stephen Hawking's and Roger Penrose's "singularity theorems" (Hawking and Ellis 1973). Applying Penrose's work on black holes to the universe itself, Hawking demonstrated that general relativity can *only* lead us back to a starting point of infinite temperature and density. And so the physics community reluctantly but fairly unanimously gave way to the singularity it had spent decades combatting; as Hawking recounted in 1988, "in the end our work became generally accepted and nowadays nearly everyone assumes the universe started with a big bang singularity" (1998: 53).

But then Hawking changed his mind. A decade after he had convinced "nearly everyone" to embrace the existence of a singularity, he found a new way around it by switching calculative frameworks. As Hawking still explains it, general relativity alone does indeed run physicists up against a singularity. But general relativity operates at the level of large-scale structures such as planets and stars, or apples and heads. It fails at the level of subatomic particles, which behave according to the dizzying laws of quantum mechanics. If, toward the beginning of things, the universe was *itself* the size of a subatomic particle, then this means the earliest moments of the universe must be considered in terms of quantum theory, and quantum theory violates nearly all our commonsense notions of the way matter ought to behave (Hawking 1998: 38).

According to the uncertainty principle, a particle's position and momentum cannot be determined simultaneously; rather, its "position" in time and space can only be expressed as a quantum combination of its many possible states (Barad 2007: 1–20). Applying this principle to the whole universe, Hawking and James Hartle realized that at its earliest stages, "the distinction between time and space disappears completely," producing a four-dimensional "Euclidean space-time" in which the universe itself has "every possible history" (Hawking 1998: 139, 2009: 93). To plot the shape of this placeless place and time out of

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joint, Hartle and Hawking plugged imaginary numbers (multiples of $\sqrt{-1}$) into the time function of Einstein's gravitational equations (Hartle and Hawking 1983). The result was not the sharp cone of an absolute beginning, but rather a rounded hypersurface with no "boundary or edge" at all (Hawking 1998: 141). By rounding off the point at the beginning, Hartle and Hawking effectively calculated away the singularity, producing a universe that is totally self-contained.

In Hawking's words, such a universe would be "like the surface of the earth, only with two more dimensions . . . if you keep traveling in a certain direction on the surface of the earth, you never come up against an impassible barrier or edge, but eventually come back to where you started" (Hawking and Mlodinow 2005: 103). The advantage of this self-enclosed model, he argues, is that "there would be no boundary to space-time." This means that "there would be no singularities at which the laws of science broke down, and *no edge of space-time at which one would have to appeal to God*" (Hawking 1998: 141; emphasis added). So there we have it: no infinity, no exteriority, no *deus ex machina* at $t = 0$. But then, having finally ridden physics of its godlike singularity, Hawking concludes: "The universe would be completely self-contained and not affected by anything outside itself. It would neither be created nor destroyed. It would just BE" (141). And so in the process of rounding God out of the universe, Hawking reinscribes God *as* the universe. Self-contained, impassive, uncreated . . . just like the old God of Exodus, Hawking's cosmos *is that it is*.

Now if it is the case that the theologemes of sovereignty and nothingness emerge by means of one another, then somewhere alongside Hawking's absolute cosmos, we should expect to find traces of the *ex nihilo*. In his early work, Hawking does make some passing references to the universe's having appeared out of nothing (Hartle and Hawking 1983; Hawking and Penrose 1996: 85). But his central concern here is more functional than ontological; what he wants to emphasize is that nothing "before" the bang could have had any effect on the universe it produced. Because it would have "no observational consequences," anything outside our uncreated, self-contained universe *might as well* be nothing (Hawking 1998: 9).

This functional gesture toward the *ex nihilo* becomes a full-out ontological appeal in Hawking's recent best-seller *The Grand Design*, co-authored with the American physicist Leonard Mlodinow (2010). As countless newspaper articles and blog postings have reported, this book takes its principle aim at "God" (primarily the God of American Intelligent Design theorists), looking to discredit him forever as an explanatory cosmic power (Akin 2010; Garner 2010; Mathew 2010;

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Theology Unnecessary 2010). As the authors argue rather tediously throughout the book, the universe "doesn't need to be set in motion by some god." Rather, it appears on its own, "*out of nothing*" (Hawking and Mlodinow 2010: 8; emphasis added). What is striking here is that even in the process of freeing physics from Christianity's God, Hawking and Mlodinow have enshrined its most orthodox creation story. The details, of course, are different: for Hawking and Mlodinow, the world's appearance *ex nihilo* is possible by means not of "the absolute sovereignty of God," but of "vacuum fluctuations" at the quantum level. Quantum theory shows that below the Planck length (or minimum unit of measurement), particles can actually "flicker into and out of existence" (Susskind 2006: 72). If, then, the earliest universe is *itself* the size of a subatomic particle, the whole universe could indeed have flickered, or "quantum tunneled," out of nothing at all. So the ancients, it seems, were partly right but mostly wrong: "bodies such as stars or black holes cannot just appear out of nothing. But a whole universe can" (Hawking and Mlodinow 2010: 180).

Although they do not admit as much, Hawking and Mlodinow are hardly the first physicists to offer such a "spontaneous quantum" *creatio ex nihilo* (2010: 136). The first was the American physicist Edward Tryon, who was laughed out of a seminar room when he proposed it, and the second was the Russian cosmologist Alex Vilenkin, whose work was nearly unanimously ignored until a few years ago (Tryon 1973; Vilenkin 1982, 2006; Vilenkin and Garriga 2001). As Vilenkin explains it, "the main objection against [this model] was that it was concerned with the universe beyond the horizon which is not accessible to observation" (2006: 91). Perhaps most disturbingly, the notion that our universe might be a vacuum fluctuation opens up the very real possibility that *other* universes have fluctuated into being, as well—and it is by definition impossible to observe other universes. Sometime during the last decade, Hawking seems to have softened on the issue of observability, because rather than maintaining that science has no business speculating about such things, he and Mlodinow now admit that our universe is most likely one of an infinite number that bubble out of an eternal sea of vacuum fluctuations (2010: 136–137). The author of this idea was Andrei Linde, whom Hawking and Mlodinow also do not cite, and who calls the process "eternal chaotic inflation" (Linde 1986, 2009). But unlike Linde or Vilenkin, Hawking and Mlodinow spend very little time accounting for their cosmic bath. Their aim is not to describe the formation of bubble universes from the primordial waters, but rather to demonstrate that *this* universe—the one in which we live, move, and have our being—emerged out of nothing at all.

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At first blush, Hawking's and Mlodinow's "nothing" seems even more of a nothing than the church fathers' nothing. For whereas Irenaeus' and Tertullian's world emerges from nothing and God, Hawking's and Mlodinow's world emerges from nothing *at all*. This reduction could be seen as a confirmation of Nietzsche's (and more recently, Jean-Luc Nancy's) conviction that Christianity "atheizes" itself through the march of western history (Nietzsche 1989; Nancy 2008): contemporary physics in a sense takes *creatio ex nihilo* so seriously that it not only re-nihilates any sort of primordial chaos, but gets rid of God as well. Yet this atheization is only surface-deep. For as we have already seen with *A Brief History of Time*, the sovereign God of orthodoxy disappears from Hawking's universe only to reappear *as* the universe: an uncreated, self-contained *thatness* at the source of all there is. When it comes to the rabidly atheistic *Grand Design*, this God-spot still fails to disappear, but this time, it shifts from the universe to its intelligent inhabitants.

As Hawking and Mlodinow see it, of all possible worlds bubbling out of nothing, "only a very few would allow creatures like us to exist. Thus our presence selects out from this vast array only those universes that are compatible with our existence" (2010: 9). This is their version of the so-called weak anthropic principle—the mostly tautological notion that while no one created the universe *for* human beings, any universe in which humans find themselves must have the conditions necessary for human existence. In Hawking's and Mlodinow's words, "the fact of our being restricts the characteristics of the kind of environment in which we find ourselves" (153–154). "We," in other words, retroactively determine the parameters of the universe that brought us here. So, as the authors of *The Grand Design* conclude, "although we are puny and insignificant on the scale of the cosmos, this makes us in a sense the lords of creation" (9).

As "lords of creation," Hawking and Mlodinow believe that it is our destiny to find one theory that explains all of it. And although general relativity and quantum mechanics remain infamously unreconciled, Hawking proclaims that this reconciliation is at hand. As he writes in a review of his own work on Amazon.com, "It was Einstein's dream to discover the grand design of the universe, a *single* theory that explains everything." Hawking goes on to assure us that recent developments in string theory and ever-sharper satellite observations, along with his own contributions to cosmology, "have brought us closer than ever to that single theory" (Hawking 2010).

While securing such a single theory might seem the ultimate scientific liberation from religion, the Brazilian astronomer Marcelo Gleiser

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has criticized such efforts as hopelessly theological. Since the Ionians, he argues, western scientists and philosophers have been in pursuit of Oneness—whether it be the one primordial element, the one God, or the one theory that will unlock every cosmic secret (2010a: xiii). If the discoveries of the twentieth century have taught us anything, Gleiser claims, it is that the universe is in all likelihood *not* the coherent, intelligible whole we so desperately want it to be. And yet, insofar as it looks for a "Theory of Everything," modern science remains what he calls "monotheistic science," still "under the mythic spell of the One" (xiv, 7). One might argue that it is this monotheistic persistence that has given rise to Hawking's "weak" anthropic principle on the one hand, and his hope for a "single" theory on the other: in seeking to solve every last question at once, the human mind becomes an image of the very God from whom it proclaims its liberation—an all-knowing, all-powerful, and perfectly unified "lord of creation."

In *A Brief History of Time*, Hawking famously promised that finding "a complete theory" would allow us to "know the mind of God" (1998: 191). Now that he has harnessed the *ex nihilo*, Hawking seems to promise we can *be* the mind of God. But whether transposed onto the cosmos or identified with the human mind, a godly sovereign haunts every attempt to derive the cosmos out of nothing, insisting himself even where he seems least wanted. I have suggested that this sovereign's appearance is a function, as it was during the Babylonian exile, the antignostic period, and the Age of Exploration, of a certain will toward oneness that reduces everything else to nothing. The upshot of this conceptual pairing is that even in the most avowedly atheistic frameworks, appealing to a nothing "before" creation cannot help but resurrect the sovereign. Detecting such a divine remnant in *The Grand Design*, Gleiser concludes a recent blog post by musing, "maybe Hawking should leave God alone" (2010b). For Gleiser, "leaving God alone" would mean giving up the ontotheological effort to find a "single theory." But I would suggest that it would also require abandoning the *ex nihilo*.

We will recall that the *nihil* of quantum cosmology denotes spacetime below the Planck length, in which particles and antiparticles "flicker" in and out of existence. Along this reading, our universe is a rare but not impossible "small space bubble" that happens to "pop out," tunnel through the energy barrier that should cause it to collapse, and inflate into full-blown, classical spacetime. Because it emerges "from zero size," Alex Vilenkin proclaims that quantum tunneling produces a world "from nothing!" (2006: 180). And although he swears he had not known it earlier, Vilenkin reports his excitement at discovering

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St. Augustine's formulation of the *ex nihilo* to be "very close to what I argued in my tunneling-from-nothing scenario" (186).

It is "very close," except that as Vilenkin recognizes, *God* creates out of nothing for Augustine, whereas *nothing* creates out of nothing in quantum cosmology (Vilenkin 2006: 181; cf. Oliver 2010: 133ff). That having been said, considering Hawking's unintentional resurrections of sovereignty, the difference between God and nothing is less significant than one might think. The real difference between Vilenkin and Augustine, I would suggest, is that the quantum "nothing" *is not really nothing*. Vilenkin admits this in a brief aside, saying that:

> the state of "nothing" cannot be identified with absolute nothingness. The tunneling is described by the laws of quantum mechanics, and thus "nothing" should be subjected to these laws. The laws of physics must have existed, even though there was no universe. (Vilenkin 2006)

Existing even before there was a universe to materialize them, these "laws of physics" might seem to be the secularized correlate to the divine Ideas, or the Platonic Forms (so much for *Vilenkin's* effort to get rid of God). But there is even more to Vilenkin's "nothing" than he explicitly admits. For unlike the mind of God, the "laws of physics" cannot exist in a vacuum. Or, insofar as they do exist in a vacuum, the vacuum is not what we tend to think of as a vacuum. Rather, it is what Leonard Susskind calls "a fluctuating sea of virtual particles" (2006: 74). "Bubbles" of spacetime appear haphazardly out of this frenetic quantum "sea"—out of what Vilenkin himself calls the "*chaotic*, foam-like" fray below the Planck length (2006: 123). Particles emerge—worlds emerge—not out of nothing, but out of chaos.

I began this article by locating the big bang's resemblance to "biblical" cosmogony on the notion of a singularity: an infinite power that creates everything out of nothing. As we have seen, however, neither infinite power nor creation out of nothing is a biblical given; rather, these doctrines have emerged by means of one another in order to ground various forms of human sovereignty. Standing in the place of the almighty God, the human king, bishop, or nation secures its own supremacy by reducing everything else to nothing. Thanks to the persistent pairing of the nothing and the sovereign, it is no wonder that the modern astrophysical appeal to one ends up resurrecting the other. This reinscription of sovereignty is a function, I have suggested, of quantum cosmology's retention of the doctrine of *creatio ex nihilo*—a baffling decision considering that the quantum flurry at the beginning of things, in the midst of things, looks nothing like nothing.

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A cosmogony without sovereignty, if there were such a thing, would be one that could come to terms with this initial and interstitial chaos. Far from positing an absolute origin out of nothing at all, such a cosmogony could only figure singularity as a shifting product of the seething multiplicity that worlds the world. As such, it would have to abandon the notion that the cosmos is strictly self-contained, taking seriously its entanglement with the other "bubbles" that nucleate out of the primordial sea—and with the primordial sea itself.[6] Unhinging the singularity at the beginning would therefore unhinge the singularity of the cosmos itself, figuring the world not only as one of many, but also as many in its oneness—as "itself" only in the midst of multiplicity and by means of multiplicity. But that is a matter for another exploration.

[6]The model that seems most promising in this particular regard is the entangled multiverse model of Laura Mersini-Houghton (see Mersini-Houghton 2008). Other models that avoid the *ex nihilo* include Steinhardt and Turok's "new ekpyrotic" scenario, Lisa Randall and Raman Sundrum's multiple brane-worlds, Lee Smolin's black hole scenario, and any number of other models that are currently bubbling out of a rapidly inflating sea of multiverse theories (see Smolin 1997; Randall 2005; Steinhardt and Turok 2008). For broad introductions to these models, see Tegmark (2003) and Greene (2001). I map many of these models in relation to their philosophical, mythological, and theological precedents in my book *Worlds without End: Cosmology and Multiplicity*, forthcoming from Columbia University Press. A very promising theological treatment of this phenomenon can be found in Kirk Wegter-McNelly's *Entangled God*. Reading the trinity as a sign of God's entanglement both within Godself and with creation, Wegter-McNelly argues for a "creation out of relationship," rather than a *creation ex nihilo* (see Wegter-McNelly 2011). Unfortunately, this book was published when the present article was already in press, and so could not be woven into the main fabric of the argument.

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