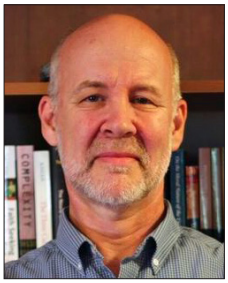

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Evolutionary Accounts of Religion within a Christian Account of Big History

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HOW RELIGION EVOLVED and Why It Endures by Robin Dunbar. New York: Oxford University Press, 2022. xxii + 330 pages. Hardcover; $32.99. ISBN: 9780197631829.

EVOLVING BRAINS, EMERGING GODS: Early Humans and the Origins of Religion by E. Fuller Torrey. New York: Columbia University Press, 2017. 312 pages. Hardcover; $37.00. ISBN: 9780231183369. New York: Columbia University Press, 2019. Paperback; $24.00. ISBN: 9780231183376.

"Big History" is a mode of thought that seeks to integrate findings of the natural sciences, social sciences, and history into a coherent overarching story of the universe and of humanity. The humanity-related elements in Big History will necessarily include the emergence of "religion," including Evolutionary Accounts of Religion (EAR). Here we review two programmatic contributions to EAR, by Dunbar and Torrey, and then propose a theistic account of Big History through which to respond to their proposals. We accept their general argument that humanity's religious capacities have emerged through the evolutionary history of the Homo *genus, yet we offer a theistic alternative to their accounts of the evolutionary function of religion. We then argue for how one aspect of humanity's evolved religious capacities, namely the proclivity of the* Homo sapiens *brain to produce transcendent ambiguity (many gods, etc.), reflects not a flaw in God's design but an evolutionary outcome intended by God—to facilitate humanity's search for God.*

Keywords: cognitive psychology of religion, evolutionary psychology of religion, evolution of religion, origins of religion, evidential ambiguity, Big History, Dunbar on religion, design argument for God, signs for God, *sensus divinitatis*

Evolution is fundamentally a matter of biology, yet the concept of evolution is often applied analogously to other fields, including to the study of social phenomena such as religion. The notion that religious beliefs and practices (including those of Christianity) are outcomes of natural neural processes has been with us for some time through the discipline known as the cognitive science of religion (CSR). A rich and diverse literature has emerged in this field over the past quarter century—indeed, the field has become sufficiently mature that some even speak today of a "standard model" of CSR.[1] In more recent times, greater attention has been paid to the evolutionary processes behind CSR through a discipline known as the evolutionary psychology of religion (EPsR). Yet, the study of the human phenomena that are often collected within the label "religion"

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includes much more than just the relevant neural processes; it also includes practices of worship and ritual, of community formation, of leadership, and so forth. Whenever any of these phenomena, neural or behavioral, are studied from an evolutionary perspective—and such study has been increasing in recent years—these contribute to a wider category still: evolutionary accounts of religion (EAR).

Into this discussion come these two contributions: one by Robin Dunbar, emeritus professor of evolutionary psychology at the University of Oxford, and another by E. Fuller Torrey, associate director of research at the Stanley Medical Research Institute, Maryland. Both works are concerned to better understand the neural evolution of religious beliefs and behaviors. Dunbar's work is more thematic, addressing the evolutionary origins of such elements of religion as transcendence, trance states, ritual, shamanic religion, doctrinal religion, group sizes, and group division. In contrast, Torrey provides a more historically layered account of how such features neurologically evolved over the past couple of million years.

Dunbar is known as a key figure in the development of the "social brain" hypothesis—the idea that the *Homo sapiens* neocortex has grown to its current size, disproportionately large compared to other mammals, in order to handle the complexities of group relationships. His volume arises both from his many years of scholarship and from a three-year Templeton-funded project which he led. Torrey's work is older, published in 2017, yet it remains the most substantial work to date, describing how religious belief emerged through specific evolutionary stages over the past several million years.[2] Neither author is interested in simply surveying the state of the field in the evolutionary origins of religion—although both do provide a chapter overviewing different approaches in the field today. Rather, both authors seek to make an original contribution from their decades of scholarly expertise. Dunbar's volume is very accessible to nonspecialist audiences. Much of Torrey's book is also accessible, but his periodic detailed discussions of neural evolution require effort for nonspecialists. Both volumes are research laden, engagingly written, and well argued (even if one ends up disagreeing with a particular argument). Both present a constant flow of interesting material from the human sciences, most of which this review will be unable to mention, simply for lack of space. In short, although both have their respective deficiencies, and neither work should be taken as a general introduction to CSR,[3] I happily recommend both books to readers interested in the field.

For my purposes here, the value in reviewing these two works together is the helpful ways in which they potentially advance theological discussion in relation to CSR and EPsR. Regardless of their particular differences, Dunbar and Torrey together provide excellent representations of the evolutionary process, thereby prompting the sorts of theological issues I wish to address here. By placing this discussion within a Big History framework (as I will below), we gain additional conceptual resources in support of the coherence and explanatory power of Christian faith in our intellectual climate today.

Dunbar's Argument

I begin with Dunbar. His first three chapters describe what constitutes "religion," how to study religion, and why religion is beneficial to humanity. In chapter 1, he discusses current debates around the difficulty, even fallacy, of defining "religion," yet nonetheless he proposes his own "minimalist" definition of religion:

> … belief in some kind of transcendent world (that might or might not coincide with our physically observable world) inhabited by spirit beings or forces (that may or may not take an interest in and influence the physical world in which we live). (p. xvii)

Dunbar surveys various approaches to studying the origin of religion, including CSR and its interest in such neural features as theory of mind (ToM) and HADD ("hypersensitive agency detection device"). Nonetheless, while CSR "provides convincing explanations as to how human cognition underpins many aspects of religiosity … it overlooks … the core fabric of religion—in particular, ritual and the role of religion in creating communities" (p. 15). In effect, Dunbar's argument is that religion exists principally to facilitate community-cohesion because of the evolutionary and survival benefits that come with group living.

Chapter 2 identifies the origin of religion in what Dunbar calls "a feeling of divine transcendence from time to time"—or, as he prefers to call this feeling, "the mystical stance." The mystical stance is "the

motor of religiosity" (p. 48) and manifests itself in two stages: initially, as shamanic/immersive religion ("immersive" meaning ecstatic states, trances, and the like) among nomadic and pastoralist peoples; then, evolving from these, as doctrinal/institutional religions which eventually emerge within larger sedentary societies—although shamanic/immersive religion remains operative within doctrinal/institutional religion. Later chapters will have more to say about both of these.

Chapter 3 surveys "why believing might be good for you." Dunbar disagrees with those who argue that religion is an evolutionary spandrel or is evolutionarily maladaptive. "It seems to me that nothing which is so costly in time, emotion, and money as religion can possibly be entirely maladaptive or functionless" (p. 49). He identifies two *individual*-level benefits: "religion provides a *unifying framework for the world* … it allows us to make sense of our world in a way that enables us to function effectively because [religion provides resources by which] we can control [the world's] more erratic behavior"—such as by charms (protection from evil forces) and divination (future-telling) (p. 50; italics added); and religion also provides *health benefits*, providing cures for illness, including psychological illness (here Dunbar points to modern research showing the psychological benefits of religious belonging and practice). Dunbar says these individual benefits "are likely to have a direct effect on individual evolutionary fitness" (p. 55).

Religion also provides several *societal*-level benefits, which share the costs of survival and reproduction: "to benefit from the whole-is-greater-than-the-sum-of-its-parts effect that group living provides" (p. 55). Dunbar contends that this is the level at which we find the primary function or benefit of religion—*community bonding* or *cohesion* (he uses both terms). "[T]he benefits of cooperation … [are] the reason why religion became necessary: enforcing social rectitude may help to preserve the fabric of society for the other benefits that society confers" (p. 61). Consequently, the other (individual-level) benefits of religion "are secondary benefits once religion is in place" (p. 73).

Why the need for such cohesion or bonding? Because group living does not come easily to humans—"we are not naturally pro-social." Consequently, we need behavioral patterns that reinforce cooperation and protect us from cheaters and free-riders "lest crime and delinquency burst the fragile bonds that hold communities together" (p. 57). In effect, "The key to group living is cohesion" (p. 70), and religious practices, such as joining together in worship and the accompanying rituals, enhance social bonding and pro-sociality, even toward strangers. Research shows that "being actively religious increases people's willingness to behave altruistically … [and that] religiousness [does] seem to act as a guarantee of trustworthiness" (p. 59); these qualities are important for group cohesion.

The remaining chapters develop this thesis, that religion emerged for communal cohesion. Chapters 4–6 examine the evolutionary emergence of religion from psycho-neurological perspectives, while chapters 7–10 discuss the evolution of religion from social-historical perspectives. The latter four chapters provide different angles on the previous three chapters, as opposed to completely new topics; thus the chapters are thematically interwoven.

Chapter 4 considers the communities in which religious practices occur—churches, synagogues, and the like. Two questions arise here: the size of religious communities, and why they so-frequently fragment. Dunbar invokes research that indicates mammalian group size is limited by species' brain size. Correlations across species are considered, and the *Homo sapiens* brain size, which has evolved over millions of years for hunter-gatherer societies, predicts optimal human social network size to be about 150 to 175. This is why 150 to 175 also turns out to be the optimal size for religious communities.

Chapter 5 continues to discuss the brain, specifically to link three of his topics from previous chapters—brain size, group size, and the role of ritual. Monkeys, our primate cousins, can have groups of only about 50 before dividing, so how is it that humans can build groups in the 150 range before group size becomes too great to maintain cohesion? The answer lies in the evolution of neural bonding processes. For monkeys, their primary bonding method is grooming. The touch of their fingers as they groom each other triggers endorphins, which have two neurochemical roles: reinforcing the immune system, and creating bonded relationships. But the tactile closeness of monkey grooming is too intimate as a bonding mechanism for 150 or more humans in a group; so, in the process of evolving larger brains for managing the complexities of group relationships (the "social

brain"), part of this evolutionary process has been to develop endorphin-releasing mechanisms without the tactile intimacy of grooming.

Humans have developed a range of such behaviors ("grooming-at-a-distance"), including laughter, singing, dancing, emotional storytelling, feasting, and, most recently of all these, religion (religious rituals and religious story telling). However, Dunbar later notes that of these various grooming-at-a-distance behaviors, religious behaviors "seem to scale up [the bonded-group size] in a way that few of our other bonding behaviors seem capable of doing" (p. 261). Ritual has a particularly intense endorphin-releasing, and thus bonding, effect: an effect beyond even what these other behaviors provide, an effect equivalent to an intense romantic relationship. Thus, religions often use language of romantic or even erotic love to describe their encounters with the transcendent/spiritual realm.

Then Dunbar asks why it is that only humans have developed religion. His answer is that only humans have developed the capacity for "mentalizing" or "theory of mind" (ToM)—the ability to attribute intentionality (beliefs), distinct from one's own intentionality or beliefs, to the minds of others. Theorists describe modern *Homo sapiens* as capable of at least five orders (or "intentionality levels") of ToM. In first order ToM, the mind is capable of thinking "*I* believe such-and-such." In second order, "*I* believe *you* believe such-and-such." In third order, "*I* believe that *you* believe that *So-and-so* (a third person) believes such-and-such." And so forth, through levels four and five. Mentalizing serves the emergence of religion because religion is contingent on the ability to attribute intentionality to an unseen being (God, gods, angels, etc.) as well as to the beliefs of others (thus sharing beliefs, including religious beliefs, to form religious community).

Dunbar cites two situations in which diminished mentalizing (ToM) capacity produces people who are "less religious." One situation is that of autistic adults, who are "barely 10 per cent as likely to believe in God as neurotypical adults" (p. 121). The other is men vis-à-vis women on religious inclinations: "Men's lower mentalizing skills compared to women significantly predicted [men's] lower likelihood of believing in God … males were half as likely as women to believe in a personal God" (pp. 122, 123).

Chapter 6 explores ritual in more depth, with more attention to how participating in religious practices activates the endorphin system and thus enhances bonding with other participants. This discussion includes the neuroscience of "synchrony," in which participating in religious activities that involve group synchronous behavior (such as ritual, dancing, recitation in unison, chant, and the like) increases endorphin output, and thereby increases collective cooperation and cohesion. Other religious effects, such as out-of-body experiences and moments of intense meaningfulness, are also neurochemical effects, though related to serotonin rather than to endorphins.

Also essential to the emergence of religion has been the evolution of human-like speech mechanisms about 500,000 BP (years before the present), along with fourth-order intentionality in ToM (mentalizing) to enable beliefs about a spiritual realm; however, fifth-order intentionality is required for shared communal beliefs and would only have appeared with the appearance of modern humans about 200,000 years ago. "In other words, only modern humans could be meaningfully religious" (p. 170), because only modern humans have sufficient capability for language and fifth-order mentalizing.

Dunbar's remaining four chapters describe the social-historical evolution of religious neural states and social/ritual practices. He identifies four phases in this evolution, each of which "represents successive solutions to the stresses that arise as population sizes increase … solutions to the problem of social cohesion as community sizes became progressively larger over historical time" (pp. 260–61).

The first two phases he discusses in chapter 7 under the rubric of religion "Prehistory," the age of hunter-gatherers. Indirect evidence in the archeological record, such as trance-like cave art and psychoactive drugs (causing mystical trance-like experiences), indicates potential animist and shamanic religious practices before recorded history. On Dunbar's account, this first phase of religion conceived of a spirit world (though not of gods) and experienced trances and synchrony. In the second phase, still with hunter-gatherers, spirit beings become associated with illness, and thus arose the emergence of special healers, diviners, and shamans. Religion at this stage had little or nothing to do with morality.

Chapter 8 moves us from the Paleolithic hunter-gatherer age to the Neolithic period when farming and settlements appeared, about 12,000 BP. Living in groups and settlements larger than hunter-gatherer clans brought new challenges to group cohesion, including higher rates of intra-group homicide. Dunbar calls this the "Neolithic crisis"—how to inhibit internal stress, conflict, and violence within communities that shifted from nomadic life to sedentary habitation with hundreds, or eventually thousands, of residents.

Communities developed various strategies to solve this growth crisis, ensuring social cohesion within increasing populations, such as becoming socially stratified, shifting from democratic to hierarchical leadership, and transitioning to the third phase of religion, "characterized by local gods, more formalized rituals, ritual specialists (priests), and ritual spaces (temples)" (p. 257). In this phase, gods are typically many in number, although largely capricious or punitive rather than benevolent, and often require propitiation through ritual animal sacrifice. In this phase, rituals, including animal sacrifice, are particularly related to stratification, and the research is "very clear: animal sacrifice emerged *before* stratification. In effect, [the social cohesion provided by] sacrifice and its rituals … provides the gateway for increasing social complexity (and hence population size)" (p. 195; italics in original). Along the way, human sacrifice also emerged, although *after* stratification developed. Leaders justified human sacrifice as propitiating the angry gods, but its real purpose within the emergent social stratifications was to use fear to keep elites in power.

About 4,000 years ago, with the emergence of very large settlements and early cities, the fourth phase of religion began to emerge, with greater ritual complexity, priestly hierarchies, formal religious spaces or buildings, a theologically justified moral system, and a centralized bureaucracy to oversee both right doctrine and right behavior—all of which are absent from hunter-gatherer societies but all of which very rapidly appeared in urban settings during the course of the Neolithic Age (p. 188).

The emergence of moralizing high gods (MHGs) comes at a later stage within this fourth phase, during the so-called Axial Age, a period of about 600 years (800 BC–200 BC) when major religions emerge for the first time: Confucianism, Hinduism, Buddhism, Zoroastrianism, and Judaism (with Christianity and Islam emerging later from Judaism). Unlike capricious ordinary gods or high gods (who are mostly uninterested in human affairs), MHGs take an active interest in human behavior in order to "act as an all-seeing policeman in the sky … who punishes those who step out of line" (p. 58). That is, MHGs are "moralizing" in the sense that they "monitor what humans are up to and [monitor] religiously justified injunctions (such as the Ten Commandments)" (p. 193). In short, "organized religion seems to have been part of the machinery used to keep the lid on fractiousness so as to allow larger communities to exist … It is to ensure community cohesion for mutual protection that [moralizing] High Gods are necessary" (p. 194).

Nonetheless, Dunbar contends that cohesion is more effectively served by bottom-up means (such as ritual) than by top-down enforcement by MHGs; thus, MHGs should be seen as supplementing the role of bottom-up ritual in the job of collective bonding (p. 69). Regardless, overall "there is a natural progression from informal religions in small-scale societies to formal religions in large-scale societies as a way of managing the stresses involved [in maintaining cohesion within large-scale societies]" (pp. 190–91).

Chapters 9 and 10 continue to discuss dogmatic religion. Chapter 9 is concerned with charismatic leadership, the psychology of why people follow cult leaders, and why "most established religions" spawn cults "with puzzling ease" (p. 215). Chapter 10 addresses the observation that, despite the cohesion-strengthening capacity of doctrinal religion, doctrinal religion has, ironically, also produced much division and violence in history. "Deep down, religion is largely an emotional, not intellectual, phenomenon" (p. 244), and so large-scale religion taps into "the crowd effects of mass psychology [which] very easily escalate into religious conflict … However beneficial religion has been at the personal level, its ability to arouse crowd violence against members of other religions has been far beyond any secular philosophy's capacity to do so" (p. 265).

In conclusion, religion, underpinned by the mystical stance, has been important for human bonding in two ways: (1) "it triggers the neurobiological basis of social bonding, thereby creating a sense of commitment that no abstract ideological belief seems able to do"; and (2) "the religious dimension seems to scale

up in a way that few of our other bonding behaviors seem capable of doing" (p. 261). Along the way, religion provides other secondary benefits, such as improved psychological and physical health outcomes, yet can also cause division at large scales. "In short, it is difficult to see any convincing evidence for anything that will replace religion in human affairs. Religion is a deeply human trait … for better or for worse, it is likely to remain with us" (p. 268).

Torrey's Proposal

Now we turn to Torrey. As we will see, the two both complement and disagree with each other in important ways.

Torrey's volume is divided into two Parts. Part 1 ("The Making of the Gods") describes five preliminary cognitive stages hominins went through to reach the point of believing in gods. Torrey goes into detail describing the possible evolutionary neurological developments that made each of the five stages possible; however, for reasons of space, I will not describe these neurological developments here; I will only describe Torrey's account of the cognitive capacities and behavioral practices made possible by these underlying neurological developments. Torrey does argue that there is no single god part of the brain, "but there is a network that controls thoughts about gods and religious beliefs" (p. 9). This, Torrey calls "the network of the numinous," which is, in effect, his equivalent to Dunbar's "mystical stance."

The first stage on the way to human belief in gods Torrey calls "A Smarter Self." This refers to a period about two million years ago when *Homo habilis* emerged, with a significant increase in brain size and intelligence over predecessor hominins, in effect serving as "the starting gun for the human race" (p. 37).

The second stage Torrey calls "An Aware Self." This came about 1.8 mya with the emergence of *Homo erectus*, whose brain was considerably larger than previous hominins, including *habilis*. *Erectus* was the first to control and use fire, and the first to migrate and adapt to new climates and conditions, indicating increased levels of intelligence and cooperation over predecessors. Notably, *erectus* also developed a sense of self—the ability to "know that I exist" and to be the object of one's own attention, thus "An Aware Self."

Torrey's third stage, "An Empathic Self," comes about 200,000 years ago with archaic *Homo sapiens* (Neandertals and others), who developed the capacity for early forms of speech, and, as seen through paleo-archeological remains, exhibited empathic caring behavior toward others. Crucially, "Based on their caring behavior, it seems probable that … archaic *Homo sapiens* had developed a theory of mind" (p. 60). With archaic *Homo sapiens* emerges at least first-level ToM intentionality, in which "*I* think *you* are thinking such-and-such." Caring indicates first-level intentionality because it indicates the ability of one person to put themselves into the emotional (suffering) mind of another.

Beyond empathy, though, Torrey contends (as does Dunbar) that ToM is also a necessary precondition for belief in gods. "Creating gods and attributing to them theory of mind leads to several possible benefits" (p. 65), such as explaining the unknown features of life. Examples he gives include lightning (as the gods showing anger) and disease (indicating retribution from the gods). ToM is also necessary for later developments, such as attributing intentions about human punishment to the gods. Nonetheless, although first-level ToM emerged during this archaic *Homo sapiens* phase, it is unlikely that gods were conceived of at this stage, for religious belief still requires the remaining developmental stages to emerge.

Which brings us to the fourth stage, the emergence of early *Homo sapiens* about 100,000 years ago. This stage Torrey calls "An Introspective Self," reflecting the ability of a person at this stage "to objectify himself, to stand apart from himself, as it were, to consider the kind of being he is … and to reflect on their own thoughts" (p. 76). This was made possible through the emergence of second-order intentionality—the ToM ability to think about what the other is thinking *about me*. This new neural capacity for introspection led to a cascade of developments, including significant development in language, the ability to talk about oneself and one's own thoughts, and the emergence of self-adornment (which reflects thinking about what others think about me). This stage also produced more-advanced technology, the dead began to be buried, and clothing began to emerge in the form of fitted animal skins. "A new kind of hominin had clearly emerged" (p. 74).

Down the road, second-order ToM would have important implications for religion by providing an

ability "to think about the fact that the gods may be thinking about us, and [about] what the gods may be thinking [about us], and [about] what we think about what the gods are thinking about us" (p. 82). Nonetheless, even with second-order intentionality early *Homo sapiens* did not yet hold god beliefs—additional necessary developments were still needed.

These first four stages all took place in Africa. Then about 60,000 BP modern *Homo sapiens* left Africa, spreading relatively rapidly around the globe. Not long after, about 40,000 BP, Torrey's fifth stage emerged: "A Temporal Self." In this stage, cave art and material representation appears, technological innovation begins to gather speed, and autobiographical memory emerged—"an ability to project ourselves backward and forward in time" (p. 3), enabling both life-story composition from the past, and prediction and planning for the future.

Crucially for our purposes, with autobiographical memory, modern *Homo sapiens* became the first hominins to become aware of their own future death, and thus two particular experiences were now reflected on by the temporal self: dreams and death. Torrey notes various examples of this new concern with death: the "Epic of Gilgamesh," humanity's earliest recorded story, which was about seeking the meaning of death; the paintings at Çatalhöyük, Turkey, from around 9000 BP, that indicated death as a major theme with such images as "vultures with vast wings, their hooked and feathered beaks pecking at headless human bodies" (p. 152); and evidence at the British Paleolithic site at Avesbury, indicating that in the Avesbury community "death and the dead obsessed the living" (p. 189).

This fear of death became closely tied to dreams. People would at times experience dreams in which human souls would come to visit the dreamer, or the dreamer's soul would leave their body to go elsewhere. Such dreams fostered hope in the face of the fear of death so that from dreams "an idea slowly took hold that human spirits continue to live after the human body dies" (p. 119).[4] As this idea took hold in modern *Homo sapiens*, they also developed death practices such as interring grave items with bodies "so that those items will be available for use by the deceased in an afterlife" (p. 125). Notably, though, at this point the afterlife is not a place of judgment (everyone automatically goes there), and there are not yet any gods.

The emergence of autobiographical mind[5] 40,000 years ago had another crucial effect. For the first time, it prompted humans to start asking "meaning" questions, such as "Where did I come from?," "Why am I here?," and "What will happen to me after I die?" In effect, with autobiographical mind come "entirely new ideas … infinity, eternity, the meaning of life" (p. 112). With autobiographical mind also emerges another critical human feature—storytelling. This is the source of humanity's deep propensity to make sense of anything and everything through stories, such as stories about creation, about transcendent or supernatural beings (gods, goddesses, ancestor-spirits, angels, etc.), individual life stories, and eternal life stories.

We arrive then at Part 2, roughly 12,000 years ago during the late Paleolithic and early Neolithic periods, in which the gods finally emerge—in two stages. The first stage here (or the sixth stage from the time of *Homo habilis*) is the emergence of "a Spiritual Self," in which people began to worship (not just venerate) ancestors, believing that such worship could invoke beneficial responses from the ancestors being worshipped.

Ancestor worship may well have begun with hunter-gatherers, but it was facilitated further by the move to the Neolithic age of farming and the rise of settlements. When on the move, hunter-gatherers left their deceased where they died (whether buried or not), but as people settled, they began to consistently bury their dead, often inside their homes. As a result, in the Neolithic period "a concern for the deceased and one's ancestors was becoming more prominent" (p. 148). Consequently, between 10,000 and 7000 BP, we finally see the arrival of the gods, for some ancestors came to be seen as particularly powerful in their ability to assist the living, and these particularly important ancestors "crossed an invisible line and conceptually began to be regarded as gods" (p. 3). Torrey notes this idea is hardly new with him; he cites the Greek philosopher Euhemeros, who, 2,300 years ago, said that "gods were originally human rulers who were gradually deified by their subjects" (p. 156).

There is, as with each of Torrey's proposed stages, a neurological substrate to these developments. He comments that 20,000 or 30,000 years ago, "there was not yet a sufficient number of connections between the prefrontal cortex and other brain areas [for such

beliefs to form]. But by 11,000 years ago, these connections had developed, allowing for not only the cultivation of plants but the cultivation of the spiritual self as well" (p. 163).[6]

Some deified ancestors would become family or household gods. Others, though, would gain wider influence, becoming a local god. A particularly good farmer, or warrior, or leader, when they were alive, would come to be particularly associated with these capacities for their after-life contribution to their living descendants, and over time they were elevated to the status of a local or community god. Torrey observes that as groups of hunter-gatherers came together and settled in growing communities, "it would have been necessary to establish a hierarchy among the competing spirits" (p. 158). In effect, he says, as one moves up the continuum, one acquires more supernatural powers.

Ancestor worship was, however, not the only route to the emergence of gods, for Torrey also identifies a second route: "the worship of powers of fertility and yield, of the powers in nature ensuring human survival" (p. 167). Thus, nature gods arose, controlling the powers of nature, such as gods of the sun, the moon, water, wind, fertility, and the like. These gods not only explained observations in nature (such as the cycles of the seasons), but were also appealed to for positive influence in the lives of people, particularly to mitigate the harmful effects of nature. Yet the gods included a further function:

> More effectively than animal spirits or ancestor spirits, the gods provided answers for … philosophical questions … Why does the moon change shape? Why do the stars move? ... Why am I here? And especially, what will happen to me after I die? The presence of the gods has been enormously comforting as we have continued to dutifully cross the stage of life. (p. 195)

This brings us to Torrey's seventh and final stage in this journey of humanity's religious evolution. (To be clear, this is also the second stage of his Part 2.) This is the stage in which the High Gods appear, the gods of today's major religions. He calls this stage "A Theistic Self," which arises in the period between 6500 and 5000 BP. By 6500 BP, when the first written records appear, gods had already become numerous and high gods had also come along. As populations grew, cities, states, empires, and civilizations emerged, each with increasing complexity. Higher gods, with power over subordinate gods, emerged independently in regions as diverse as southwest Asia, China, and Peru. Torrey notes the correlation between "the size of a population and the type of gods that exist in that population": for instance, "between the size of societies (number of levels of political authority beyond the local community) and the existence of 'moralizing gods' (gods who tell the people what they should and should not do)" (p. 158). Thus, "from the very beginning [of emerging cities and states], the higher gods were associated with large populations" (p. 166).

Along the way, "the gods acquired political, judicial, and social responsibilities such as enforcing laws and providing shelter for orphan children" (p. 175). Conversely, at the same time, the emergence of local rulers, kings, and emperors led to some of these usurping some of the powers of the gods. In effect, just as some deceased ancestors had become divinized as gods, now some living human rulers became divinized likewise, taking on for themselves or conferred by the people, degrees of divine status and authority.

Then comes the final emergent piece of the theistic self stage: the Axial Age (so named by philosopher Karl Jaspers in that this period represented an "axis in history"). This 600-year period, beginning about 2,800 years ago, saw the remarkable flourishing of new and diverse religious ideas. At the beginning of the agricultural revolution there were an estimated five million *Homo sapiens.* By the Axial Age, this number had grown to between 200 and 300 million. Torrey comments,

> The original gods of natural forces, life, and death, that had been adequate 3000 years before, were no longer adequate for empires spanning millions of people in multiple ethnic groups. Just as governance had to be systematized to cover the new world order, so too did the gods and religions, since they are an integral part of such governance … Thus was born the "Axial Age." (pp. 197–98)

The Axial Age "was thus the culmination of a remarkable period in the evolution of *Homo sapiens*. In a mere 4000 years, the first [high] gods and civilizations emerged, spread rapidly, and were followed by the formation of all the world's major religions" (p. 201).[7]

One of the innovations of this period was monotheism—allegiance to a single high god, with no other co-reigning high gods and no secondary gods. This idea first emerges pre-Axial, around 1350 BCE (or 3350 BP) with the Egyptian Pharaoh Akhenaten who officially replaced the Egyptian pantheon of gods with one god—the sun god Ra, renamed Aten. This proved, however, very unpopular, and subsequent pharaohs re-established the old gods. The next recorded monotheism arises in the Axial Age, with Zoroaster (aka Zarathustra), who lived sometime in the early Axial Age. Zoroaster, living in Babylon (roughly today's Iran), took a local god, Mazda, from among the Babylonian gods, renamed him Ahura Mazda, and elevated him to the status of the only god (the other gods being reduced to spiritual beings).[8] Monotheism subsequently also emerged in the Axial period through the Hebrews and their Jewish descendants, though most other religions remained polytheistic. Torrey believes the emergence of high gods is an inevitable outcome of "Spiritual Self," but he does not comment in this regard on monotheism. It appears that for Torrey monotheism emerges simply as a variation of the "high god" concept.

Torrey concludes the book by asking whether gods are adaptively advantageous products of evolution, or just vestigial by-products of a primate mind. He argues for the latter: that gods are a by-product of our acquisition of autobiographical memory, and that religions followed the emergence of gods as populations increased and societies became organized. Moreover, "The history of *Homo sapiens* is littered with god contests … Such contests become especially dangerous when combined with apocalyptic beliefs about the end of the world as being glorious" (p. 221). Nonetheless, Torrey also contends,

> [H]umans need gods … [T]he human need for gods is an integral part of the brain networks that make us uniquely human … neither gods nor religions are likely to simply disappear anytime soon, even if they are no longer needed … Thus gods and their religions will probably continue to be born and die. (p. 221)

Comparison

It will be helpful now to draw some key comparisons between our two authors before moving to the theological issues they raise.

Dunbar and Torrey share two fundamental assumptions: an evolutionary account of the origins of religious beliefs and practices; and a materialist worldview—that, whether gods or God exist or not, neither gods nor God had anything to do with this evolutionary process. We will return to both these issues below.

Dunbar is thematically broader. Torrey focuses specifically on belief in gods, whereas Dunbar also discusses the evolution of religious practices, from ritual to prayer to leadership. Torrey provides a deeper dive on the neural evolution of god beliefs through each emergent Self stage over the past two million years, whereas Dunbar's descriptions of neural evolution feels a bit more *ad hoc*, but therefore thematically broader, as relevant to whatever religious topic he may be discussing—whether of belief or behavior. Both approaches bring a great deal of engaging research to their discussions.

As part of their shared evolutionary perspective, both authors agree that theory of mind and multiple levels of mentalizing had a central role in the emergence of religious belief. They don't necessarily agree on the number of levels of ToM, nor on the historical periods at which each level of mentalizing occurred, but this is no strike against either of them as our evidence for this will likely always be indirect: the thought processes of those who died in pre-history are not retained in their cranial fossils, and only circumstantial evidence of humanity's neurological development will ever be available to us.

Crucially, though, they disagree on the ultimate origins of religion. Dunbar offers a "social cohesion" account, undergirded neurologically by "the mystical stance," which arises from three potential sources: agency detection (e.g., HADD); mentalizing (ToM); and schizotypal thinking (arising from mental health issues, such as hearing voices with strange messages attributed to God). The first two of these three are well known in the CSR literature, the third (schizotypal thinking) is infrequently mentioned. Regardless, their ultimate evolutionary function is to produce social cohesion.

In contrast, Torrey offers his "response to dreams and death" account, undergirded neurologically by "the autobiographical mind." Dunbar's neurological description of "the mystical stance," including its attention to shamanism, trances, ritual, and medita-

tion, is significantly more developed than Torrey's few comments on "the network of the numinous," yet Torrey's neurological focus on the autobiographical mind and its concern with "dreams and death" is to my mind persuasive, and not addressed by Dunbar.

Unsurprisingly, then, our two authors also disagree on the evolutionary value of religion. Dunbar belongs, with others such as David Sloan Wilson and Ara Norenzayan, to the "adaptive" school. Specifically, for Dunbar religion is adaptive to environmental threats because religion triggers neurobiological processes for social bonding, and for scaling up cohesion more effectively than other human bonding behaviors. By contrast, Torrey belongs, along with others such as Pascal Boyer, to the "spandrel" school—that religion is accidental, originating as a non-adaptive by-product of evolution (namely of the evolutionary emergence of autobiographical memory). Torrey gives the impression that nonreligious people will just have to grudgingly put up with the continuing reality of religions.

Theological Issues

Readers will likely have a range of theological questions in response to the evolutionary proposals of Dunbar and Torrey. Christians familiar with CSR literature over the past 25 years are already familiar with ToM and agency-detection themes, and theological questions arising from these features of the brain have been addressed by Christian thinkers for some time.[9] Indeed, Christians have found CSR theologically helpful, supporting ancient Christian beliefs about innate human belief in God, such as Romans 1:19, Augustine's restless heart, Calvin's *sensus divinitatis*, Pascal's "infinite abyss that can only be filled by God," or, more recently, Plantinga's "properly basic belief."[10]

Nonetheless, Christian CSR discussions have paid less attention to the implications of *how* our "religious capacities" have evolutionarily emerged, and this diachronic perspective, as described by Dunbar, Torrey, and others[11] prompts additional sorts of theological questions.[12] Conversely, theology also raises challenges for EAR (and thus for EPsR and CSR). The questions that both sources of thought, EAR and theology, raise for each other are far too numerous to address in a single article. Therefore I will focus the remainder of this review on a particular question, namely, Why would God produce a neural system that produces such a plurality of transcendent-being concepts? This seems intuitively counterproductive to enabling humanity to identify and relate to the true God. In other words, why is "natural theology" (natural knowledge of God) so imprecise? I will seek to address this question through an intellectual project I will call "trinitarian Big History," along the way integrating human evolutionary history with some philosophical categories proposed by the Christian philosopher C. Stephen Evans.

My Presuppositions

I am bringing assumptions to this discussion. One is that all truth is God's truth, and so wherever the methodologies of science reveal truth, then in God's mind, and thus in our theology, these truths must somehow integrate with Christian belief. (This provides the epistemological basis for my theistic account of Big History below.) In addition, I also hold to the ancient notion that God has provided two books of revelation—scripture and creation—and these are to mutually interpret each other. Thus, if at times it feels difficult to fit Christian faith with findings of the sciences (natural or social), I see this as no different from the sorts of challenges that arise within science itself, such as the difficulty of reconciling general relativity and quantum physics: these appear to contradict each other at points and yet both are considered valid by physicists today, even though physicists are still trying to figure out how they fit together (the term "quantum gravity" is still a label without any consensus content).

When it comes to Christian faith and evolution, I have reached two positions: that the beliefs of orthodox trinitarian Christian faith are true; and that a macro-evolutionary account of biological evolution, including the so-called extended synthesis, is the most true account of biology currently available to us. To my thinking, these combine into the claim that God has created evolution as the process by which to bring about beings who bear the image of God and who are capable of *agape*-love relations with God and with others. I am further convinced that humanity is both the good creation of God and yet also corrupted (Gen. 6:12), and, as a result, humanity stands in need of God's redemption and transformation by the work of Christ (Phil. 2:9–11). Holding all these affirmations together means, in part, that it is consistent with orthodox Christian faith to suggest that God could

have designed an evolutionary process by which to bring about the emergence of cognitive capacities for "religion," in which the human/God relationship is located and practiced.

Consequently, I find persuasive the general picture Dunbar and Torrey provide of emergent religious capacities through evolutionary stages. This certainly does not mean either of them gets everything right,[13] but it does mean I would concur with their general principle that our "religious capacities" are complex (involving, for example, desires for transcendence, agency-detection, ToM, moral principles, attitudes of worship, ritual behaviors, and the like), and that these various capacities did not all appear at the same *de novo* moment in history but rather they accumulated in evolutionary stages (such as described particularly by Torrey) over millions of years, or even tens of thousands of years, depending on the particular neural feature. With these comments in place, we can turn now to Big History as the context for our evaluation of Torrey, Dunbar, and EAR/EPsR.

Trinitarian Big History

"Big History" is the term used to describe "a new disciplinary field of scholarship that studies the past at all possible scales. Its approach is historical, but it links disciplines from cosmology to geology to evolutionary biology and human history."[14] While the Big History project has produced a number of popular best sellers,[15] it also has its critics, who argue, for instance, that some Big History authors fail to meet scholarly standards of historical methodology, such as by making claims that are overly confident in their speculative historical reconstructions, or excessive in their sweep. There is also the long-standing post-modernist criticism of "grand narratives," that they are written by elites and thus risk marginalizing those without a voice to tell their part of the story.

I would contend that these are good reasons to be alert to risks in the project, but not reasons to avoid the project. Indeed, the Bible itself may be understood as an ancient version of Big History! In contrast to the Bible, though, the standard Big History literature today is written from a materialist (atheistic) interpretation. For Christians, though, who consider the supposed "objectivity" or "neutrality" of materialism to be fallacious, to engage in a trinitarian account of Big History—one that accounts for both scripture and our fields of knowledge today—could be an important intellectual project for our times. But what would trinitarian Big History look like?

I have provided just such an account, at least by implication, in my "*agape*/many-routes" (AMR) account of God's design of the universe. (An earlier version has been previously published in this journal as the "*agape*/probability account" of God's design.)[16] Here it will be helpful if I give the core proposal of the AMR account, providing a trinitarian *telos* for creation, and thereby a framework for theistic Big History:

> The trinitarian God of *agape*-love created the universe(s) to provide the space and conditions for the emergence of habitable bio-niches (planets, moons) on which *imago*-bearing *agape*-capable beings could emerge with high probability over sufficient time (billions of years), through many potential evolutionary routes—all this in order for such beings to live in *agape*-love relations with God and with each other, and to live out their *imago*-bearing vocation. Earth is one such emergent bio-niche, and *Homo sapiens* are an instance of such emergent *imago*-bearing, *agape*-capable beings.[17]

The full account in the original article includes addressing how such features of the universe as massively large numbers, self-organizing emergent complexity, stochasticity (randomness and probability), evolutionary convergence, and the statistical possibility of life elsewhere in the universe are not merely interesting features of the universe. Rather, such features are essential elements of God's design contained within the initial conditions of the universe, the unfolding of which, over billions of years, would bring about, through many potential evolutionary pathways, the eventual emergence of *imago*-bearing *agape*-capable beings.[18]

Thus, the AMR proposal provides an account of the divine *telos* behind creation, as well as an account of how the statistical features and physics of the universe serve to achieve that *telos*. It also removes any God-of-the-gaps charges because all the physics and information needed for this system to successfully unfold is front-loaded in the Big Bang (or earlier)—there are no gaps in the process that God needs to conveniently fill in along the way (though there are certainly gaps in our knowledge of the whole process). Yet the AMR account provides more than this. In effect, it also provides a framework within which

the findings of Big History through methodological naturalism can be integrated into a theistic, rather than naturalistic, account of Big History. In other words, the AMR account enables the integration of any truth from any scholarly discipline—including the formal sciences (mathematics and statistics), natural sciences (physics, cosmology, chemistry, geology, biology, zoology), social sciences (sociology, psychology, and anthropology, including paleo and evolutionary subdisciplines), and human history—into the divine story of creation, from God's launch of the universe (the Big Bang) until the emergence of *imago*-bearing, *agape*-capable beings anywhere in the universe, including *Homo sapiens* on planet Earth.

Trinitarian Big History will include, however, one more critical feature—God's action of choosing to break into time and space by becoming *incarnate*. Whether God does this on all planets where *agape*-capable beings emerge (if such beings do emerge elsewhere in the universe) we can only speculate.[19] However, we do know that God has done this, at the very least, on our planet Earth, through Emmanuel, God with us in *Homo sapiens* form at a particular place and time in Jesus of Nazareth, in order to demonstrate to *agape*-capable-but-sinful beings on Earth what constitutes God's *agape*-love, to teach humanity the two great love imperatives ("Love the Lord your God with all your heart, mind, soul, and strength," and "Love each other as I have loved you"), to achieve atonement, and to change the world through resurrection.

An important effect of theistic Big History is to change how we interpret evolution—not in terms of how evolution works but in its purpose. Materialism argues that evolution serves only two purposes, or "functions": survival and reproduction. In contrast, the AMR account argues that since there is divine purpose in creation, and thus in evolution, survival and reproduction are *subsidiary* purposes (or *supportive* purposes) to God's ultimate purpose for evolution—that *agape*-capable beings would flourish in their *agape*-relationality and in their *imago*-bearing vocation.[20] A *telos* of flourishing in all *agape* and *imago* dimensions is a vastly richer account of the purpose of evolutionary processes than the ultimately nihilist survive-and-reproduce reductionism of materialist accounts, including those of Dunbar and Torrey.

Moreover, our *agape* and *imago* capabilities are not the whole of our relationship with God, for this relationship also includes *practices*—practices of private and public worship and ritual, of community life, of moral behavior, and so forth. Yet here an important observation arises: that capacities for such practices do not arise just with Christian faith, but that they are found throughout all humanity. To understand the emergence of humanity's *agape* and *imago* capacities and practices, it is helpful to attend to the emergence of humanity's disposition to "religion" more broadly. The human sciences, particularly anthropology, psychology, and sociology, demonstrate in their respective ways how deeply inherent to human nature are our religious dispositions. So, theistic Big History will need to include an account of the emergence of "religion" at large in human history. Here then I will address two questions within theistic Big History: the evolutionary function of religion (including EAR/CSR); and the question of why God would create a system that produces such wide religious plurality as we see within humanity, including plurality of transcendence beliefs—that is, why God would create a system which so ambiguously points us to God.

The Evolutionary Origins of Religion

There is heated academic debate about the evolutionary function of religion; that is, whether religion is fundamentally an adaptation (benefiting our ability to survive and reproduce), a spandrel (a neutral side-effect of other evolutionary adaptations, as dancing is a neutral side-effect of having legs), an exaptation (a spandrel that becomes adaptively useful, as dancing well can attract a mate), or a maladaptive liability. As we have seen, Dunbar takes an adaptive position, while Torrey takes a spandrel position.

The problem with such discussions, however, is that they assume that "religion" has an essence, and so they discuss the evolutionary function of religion in relation to that essence. Yet many religion scholars today argue that "religion" has no essence.[21] Rather, "religion" is merely a catch-all term, simply a convenient way to refer to a wide range of related phenomena, whether these be beliefs, intuitions, dispositions, and/or practices. But drill down not too far below the surface and disagreement arises very quickly on what human phenomena actually belong to "religion." It is no wonder that no two definitions are the same, and yet essentialism easily becomes a default assumption. Indeed, we see the difficulty of

avoiding essentialist thinking in Dunbar, who begins his book by identifying current debates around the fallacy of defining "religion" with some sort of universal definition, yet nonetheless goes on to propose his own "minimalist" definition: this then functions as an essentialist definition for the remainder of his work.

I concur with the non-essentialists, that "religion" is too diverse and amorphous a concept to possess any essence—it is a term of convenience, not precision. This subtle distinction becomes important when it comes to the question of the evolutionary function of "religion." Scholars who argue that "religion" is either an adaptation, maladaptation, spandrel, or exaptation are making the essentialist error. Torrey prompts us to attend to humanity's evolutionary stages, helping us recognize that the sorts of human features (beliefs and practices) that scholars include under the rubric "religion" have arisen at varying periods over very long periods of time. This implies that each of the emergent features associated with "religion" need not have emerged for the same evolutionary function. That is, a feature that emerged a million years ago, and a feature that emerged 100,000 years ago, and a feature that emerged 10,000 years ago need not all have arisen for the same evolutionary function. Consequently, the many sorts of beliefs, intuitions, dispositions, and practices that get collected together under the term "religion" may have differing origins. Some may have been adaptive at their origin, others may have been maladaptive, still others may have emerged as spandrels, and still others as exaptations. Therefore, to make such generalized claims as "religion is adaptive by encouraging group cohesion" (Dunbar) or "religion is a spandrel side effect of fear and dreams" (Torrey, failing to recognize the non-essentialist implications of his evolutionary account) is to fallaciously homogenize the many features of humanity that get clumped together within the label "religion." I would contend that this explains why there is so much disagreement on the evolutionary origins or function of "religion": it is a failure first to recognize that "religion" is a non-essentialist term, and a failure secondly to discuss it as if it were a non-essentialist term.

Consequently, a Big History account of the evolutionary emergence of "religion" should first recognize that "religion" is a non-essentialist term; then identify the many human features and phenomena that get included within the term "religion;" then identify when each emerged in human evolutionary history (at least to the best of our inductive abilities, from the paleo sciences); and, finally, identify their respective evolutionary functions, whether as adaptive, maladaptive, spandrel, or exaptation. Here, however, I do not have the space for such an undertaking, and such an undertaking will always produce hypothetical reconstructions at best—though any Big History will always need to include hypothetical reconstructions to a significant extent. But for theistic Big History, following any such reconstruction, we then need to ask, *Why* would God produce a system with such incredibly diverse features as we find in the world's religions? I have not the space here to give a full answer, but nonetheless, in the remainder of this review, I will provide some direction to an answer by focusing on just a single feature of "religion," namely, "transcendent-being" beliefs.[22]

Why Such Diversity of Transcendence Beliefs?

Theistic Big History will need to include an answer to this question: Why has God designed an evolutionary system by which the human brain has evolved to produce a plenitude of "transcendent-being" beliefs—gods, goddesses, demi-gods, ancestor-spirits, nature-spirits, and so on? I will call this the question of *metaphysical ambiguity* (or, equally, *metaphysical plurality*). Ancient history and paleoanthropology reveal at least five very different clusters of transcendence-beliefs that have emerged over the last several thousand years: *Animism* (divine spirits in all of nature), *Polytheism* (gods and goddesses), *Impersonalism* (nonpersonal forces such as the Dao or karma), *Monotheism* (a single god or Creator Mind), and *Pantheism/Panentheism* (a single god and the universe together form some sort of unity). Yet, even within each of these clusters, there are multiple versions of what is believed, including different accounts of an ultimate single transcendent being, ranging from Brahman of Hinduism to Ahura Mazda of Zoroastrianism, to Allah as conceived by Islam, to the trinitarian God of Christianity.

Intuitively it can seem odd that God would intentionally create a system with such metaphysical ambiguity. As Thomas Aquinas put it in the thirteenth century, "To know in a general and confused way that God exists is implanted in us by nature." As mentioned earlier, Christians engaged with CSR over the past 25 years have frequently suggested that CSR

provides a satisfying explanation of Romans 1:19 (the natural knowledge of God within us) and of Calvin's *sensus divinitatis*. While I fully concur with this, the critic may still respond, "Surely God would want to ensure that humans have a more precise neural capacity for identifying God than one with all these 'confusions,' metaphysical ambiguities, and mis-readings of the divine. So, either God is a failed designer, thus not worthy of our devotion, or there is no God."[23] In other words, why would God create a system in which our neural processes are only roughly tuned, prompting beliefs in a wide range of transcendent-being possibilities, rather than being much more finely tuned in order to pick out the actual metaphysical/divine reality?

An immediate answer for some theists involves a combination of "free will" and "sin"—that God created a system that would give people free will to believe what they want, but that, in their sinfulness, they create false gods. In effect, God created a system that permits both free will and rebellion against God, including space to create false gods or misconstrued metaphysics. But this response does not actually answer the question, for even with free will, could God not have given humans a more precise neural capacity than we actually have by which to identify God?

I want to suggest that the answer involves how God desires to be sought—that is, the sort of evidence for God that God intends creation to possess, and the sort of neural capacities we need in order to recognize that evidence. To address this, I want to invoke the Christian philosopher C. Stephen Evans, who makes an argument which proves very helpful when integrated with our evolutionary story. Evans is concerned to understand the divine principles underlying our natural knowledge of God ("natural theology"). A brief and simplified description of his formal argument goes as follows.[24]

Evans holds that God has built the world with signs pointing humanity to God. There are many such signs, though Evans identifies five signs as particularly significant: the experience of cosmic wonder, the experience of purposive order, the sense of being morally accountable, the sense of human dignity and worth, and the longing for transcendent joy. Crucially, such signs "are not intended to give us an adequate knowledge of God. They are intended only to give us a sense that there is more to reality than the physical world. They are signs that prepare us to encounter God's self-revelation" (p. 36). That is, they point us *away* from naturalism, *preparing* us for encounters with God.

Evans then argues that signs achieve this by fulfilling two underlying principles. First, because God desires a relationship with every person, Evans argues that God would provide evidence, or signs, for himself that would be widely available to humanity at large. Evans calls this the "wide availability principle" (WAP). That is, God desires to be in mutual relationship with all humanity, and so God would make evidence or signs of himself widely available to humanity—and these five signs (along with others) are indeed widely available because they are widely found among humanity at large.

At the same time, God desires a certain *type* of relationship with people—one in which people are motivated to believe and to enter a relationship with God by love of God's goodness, rather than by coercion or fear. If God's omnipotence and omniscience were too obvious, it would undermine this goal by, in effect, coercing belief by God's sheer overpowering presence. "God would not force his knowledge on those who do not wish to know God … Such signs … point to God in a way that allows those who do not wish to believe in God to reinterpret or dismiss the sign."[25]

So, to ensure that people are attracted and persuaded through their own free will, and not epistemologically overwhelmed and thus coerced, the evidence for God needs to fulfill a second criterion, namely, to be

> the kind of evidence that a person who wished to do so could dismiss or reject. [Consequently, Evans continues,] We might expect the evidence to have a degree of ambiguity, to be such that it could be reinterpreted or explained away by those who do not wish to believe in God … The evidence would then be *easily resistible*, even though widely available.[26]

Evans calls this the "easy resistibility principle" (ERP). Indeed, his five signs meet this "easily resisted" criterion, for we see that people do indeed easily resist them by choosing materialism or agnosticism over the theism to which they point.

In sum, WAP and ERP together argue that signs pointing to God must be sufficiently *widely available*

that the vast majority of people have access to them, sufficiently *strong* that they point humanity away from naturalism by prompting humans to consider the possibility of God and thus to seek this God, yet sufficiently *weak* that they do not "prove" God (since "proof" would be epistemically coercive), and thus *resistible*.

Here we need to note a dual aspect to Evans's account of signs, to which I think he pays insufficient attention. Intuitively, one thinks of signs as external to the mind, such as a highway sign, or, say, evidence of a crime (which counts as a sign, pointing to a criminal who caused that evidence). So, unsurprisingly, Evans points to signs of God which are external to the mind: "God has made certain features of the natural world, such as beautiful sunsets or magnificent ocean or mountain vistas, with the intention that those features be signs that point to him" (p. 33).

Yet the five signs that Evans considers most significant are, to my perception, all internal to the mind. His first two, cosmic wonder and purposive order, are indeed triggered by external signs (the universe itself and order in creation), yet wonder and perception of order are, in fact, neural operations, as are the other three as well—sense of moral obligation, sense of dignity, and longing for transcendent joy. In other words, we need to note more strongly than Evans himself notes, that the notion of signs pointing us to God includes neural operations; indeed, it is the interior/neural signs Evans considers most significant.

For those five major signs (which I have called "internal/neural" signs), Evans asserts that God could have produced them by an evolutionary process, yet he provides no discussion of *how* evolution could produce them. And so here we arrive at a very helpful confluence of Christian philosophy with CSR, namely a confluence of divine design (as understood through Evans's WAP and ERP principles) with evolutionary psychology of religion (such as described by Dunbar and Torrey).

So let us unpack this confluence. From the CSR literature in recent years, we can identify at least four neural sources that prompt belief in transcendent beings: *Agency-detection* (e.g., HADD—particularly in children but also in adults);[27] *Mentalizing* (ToM); *Causality-seeking* (not only the cause of objects in the world but also the ultimate origins of everything); and *Telos-attributing* ("promiscuous teleology," the inclination to see purposeful explanations behind non-understood phenomena).[28] Employing stages of evolutionary emergence, agency detection emerged first (as HADD to detect predators); ToM emerged next (over several evolutionary stages); then causality-seeking and *telos*-attributing both arose with the emergence of autobiographical mind. Yet also with the emergence of autobiographical mind, the earlier two features (agency-detection and mentalizing) were "recruited" (or exapted) for an additional function (beyond their original evolved functions), namely prompting human minds to posit transcendent agency and transcendent mind. Collectively I will call these four features "neural transcendence-positing dispositions" (NTDs).[29]

Importantly, while these four NTDs qualify as Evans-type neural signs, none of them emerged specifically to point to God; rather, positing transcendent states and transcendent beings are among the range of applications to which each of these evolved neural functions can be put. It appears then that God's design strategy by which to create the conditions for "natural knowledge" of God (neural pointers/signs) was not that a God-specific part of the brain would emerge through evolution (indeed, neuroscientists now confirm that there is no God-specific part of the brain), but rather, that a range of neural features would evolve that include pointing to transcendence within their range of application. In effect, God has chosen a system by which our brains point us to God, not by a God-specific neural feature resulting from direct evolutionary selection, but rather, by multiple evolved neural features having the capacity to prompt transcendence-pointing ideas. For convenience, let us call this "NTDs by evolutionary side-effect" rather than "NTDs by evolutionary selection."[30] NTDs by side-effect may seem an unexpected strategy, but we will see there is good reason for this strategy.

So now let's connect the NTDs with Evans's two divine principles. In terms of wide accessibility, the NTDs are found universally in humanity (neural damage excluded); thereby meeting the wide accessibility criterion. They may, however, be suppressed by environmental factors. As one reviewer of this article has pointed out, NTDs are not only easily resisted but also easily "blanked out before we are even aware of them."[31] In "predictive brain" theory, this "blanking out" can occur through the

operation of "top-down" contextual factors such as culture or nurture. (A "nurture" example here would be Sy Garte's story, that his parents "indoctrinated him against a faith they had no actual knowledge of.")[32] Regardless of whether they are suppressed, or blanked out, by culture or nurture, NTDs remain widely found throughout humanity. Moreover, wide accessibility could also account for why God would employ a multiple NTD-producing system (in which at least four NTDs have emerged)—multiple NTDs provide built-in redundancy so that at least some NTDs might remain operative in face of neural damage or contextual suppression. And as we are about to see, each NTD points to a different facet of divine transcendence.

In terms of NTDs being strong enough to dispose humans to consider the possibility of God, that is precisely what the NTDs do, by pointing us to different facets or aspects of transcendence. *Causality-seeking* intuits or posits the possibility of an ultimate *Creative Source* of everything (whether creator gods or a single creator god), leading more formally to cosmological arguments for God. *Telos-attributing* intuits or posits that the Creative Source possesses rational purpose for creating the objects we observe, objects ranging from geological forms, to life-forms, to the whole universe—leading more formally to teleological arguments for God. *Agency detection* attributes agency to this Creative Source *in the present* (in contrast to, say, Deism, which posits a Creative Source without agency in the present)—leading not to particular arguments for God but to a particular characteristic of God, namely, as "involved in the world" (unlike, say, Deism or Brahman). *Mentalizing* (ToM) attributes *relational intentions*, such as beneficence, responsiveness to prayer, or punishment, to this Creative Source. Collectively, these four dispositions or pointers nicely fulfill both the "wide availability" principle (being widely found among humanity) and the "strength" principle (strong enough to point a large portion of humanity to posit the existence of transcendent being).[33]

Yet, at the same time, in terms of the ERP requirement, we see that these four dispositions are also *easily resistible*, in the sense that it is easy for a person to resist interpreting them as pointing to a Creator God. Here we see why God may have chosen to produce NTDs by evolutionary side effect, rather than by a more direct means (such as a God-specific part of the brain being evolutionarily selected)—namely, that "side effects" are probably easier to resist than a hard-wired evolutionarily selected circuit.

That the NTDs are easily resisted is seen in that they so readily prompt people to posit other types of metaphysical states and transcendent beings (polytheistic gods, different types of monotheistic gods, pantheism/panentheism, and so forth). They are also easily resisted by those who deny transcendence altogether, arguing, for instance, that gods or God are projections of human qualities or otherwise figments of the imagination.[34] In other words, the NTDs remain sufficiently vague in identifying the transcendence to which they point that, on their own, they produce significant *metaphysical ambiguity*, including polytheisms, monotheisms, and even atheism (though atheism is a more recent human invention, and a small-minority position within humanity, so that atheism appears to take extra effort). So, the content of these dispositions is vague and rudimentary, thereby providing easy resistibility. Yet this content is still sufficient to achieve God's desired objective—to point away from materialism and toward transcendence, thereby prompting individuals to further seek this transcendent source.

It turns out then that both divine principles—easy resistibility and wide accessibility—are successfully fulfilled by our neural evolution as identified by EPsR and CSR. In turn, this answers the critic's challenge, that God's divine design has worked poorly because our brains and their cultural contexts produce so many different metaphysical beliefs.[35] For, in terms of *how* God desires to be sought, the design has worked perfectly to fulfill God's intended WAP and ERP principles. To recall our earlier quote from Evans, "The natural signs, then, are not intended [by God] to give us an adequate knowledge of God. They are intended only to give us a sense that there is more to reality than the physical world … They are signs that prepare us to encounter God's self-revelation" (p. 36).

The next step, then, in the story painted by trinitarian Big History is not another neural evolutionary stage. For within God's design, the process of evolutionary biology has done its job. Rather, the next step has been God's own response to humanity's NTD-motivated searchings. That is, the next step is God's self-revelation in history, whereby God, the One who created this evolutionary meaning-seeking, transcendence-pointing system, came to humanity

as Emmanuel, God-with-us in Jesus of Nazareth. It is by incarnation and resurrection, not by cognitive evolution, that we are able to identify and be in relationship with the God to which our evolved NTDs point us. A further question then arises: How should we view the other religions of the world, given that these other beliefs have arisen out of neural capacities created by God, but which, by God's design, only vaguely point to God? Evans approvingly cites converts to Christian faith who "see their former faith as preparation for the good news they have come to believe" (p. 36).

Conclusion

Dunbar and Torrey have contributed to EAR and CSR by paying particular attention to the evolutionary process and stages by which humanity's neural capacities for religious beliefs and practices have emerged. This overall account can fit well with versions of Christian faith that accept macro-evolution by situating this evolutionary history within a larger framework of so-called "Big History"—in particular, by seeking to form a theistic, especially trinitarian, account of Big History (such as provided by the AMR account), in contrast to materialist Big History.

There are many further theological questions that arise with EAR, and no doubt readers will have thought of some such questions in the course of this review; however, space precludes consideration of further questions here. My hope is that readers will consider this review an invitation to continue exploring such questions.

Notes

[1]E. Thomas Lawson, "The Historical Genesis of Cognitive Science of Religion," in *The Oxford Handbook of the Cognitive Science of Religion*, ed. Justin L. Barrett (New York: Oxford University Press, 2022), 21.

[2]Readers familiar with these discussions may object that two other more recent works would be more appropriate for comparative purposes with Dunbar: Jonathan H. Turner et al., *The Emergence and Evolution of Religion by Means of Natural Selection* (New York: Routledge, 2018); and Margaret Rappaport and Christopher Corbally, *The Emergence of Religion in Human Evolution* (New York: Routledge, 2020). The work by Turner et al. is a bit too tangential in my view, in that they are using the evolution of religion not as the principal subject in itself but rather as a test case to demonstrate their principal objective, namely, to argue for "four types of sociocultural selection beyond strictly biologically based natural selection" (p. 3). I find this too methodologically tendentious to accept their findings regarding the evolution of religion without prior assessment in the literature of their proposed underlying account of sociocultural selection. Their sociocultural focus also means they are uninterested in the neural evolution of religion, which is a concern for my later theological discussion. Rappaport and Corbally offer a methodologically similar "Big History" account (over millions of years) to that of Torrey, by identifying how different cognitive aspects of religion emerged at different stages of humanity's neural evolution. There is much of interest in their proposal, and a comparative study of their proposal with Torrey would be very fruitful. Nonetheless, Torrey provides a more clearly delineated account of the historical stages of the neural evolution of religion, which is more helpful both for my purposes of exploring theological implications and for readers new to this topic to grasp how religious cognition and behaviors can be understood to emerge through evolutionary processes.

[3]For general introductions, see Claire White, *An Introduction to the Cognitive Science of Religion: Connecting Evolution, Brain, Cognition and Culture* (New York: Routledge, 2021); or, more exhaustively, Barrett, ed., *The Oxford Handbook of the Cognitive Science of Religion*.

[4]It is worth noting here that Torrey is not the first to attribute the origins of religion in part to dreams. E. B. Tylor (1832–1917), the founder of anthropology, "developed his theory of religion in close connection with dreams and visions." See Robert E. Sears, "Conceiving Religious Dreams and Mystical Experiences: A Predictive Processing Investigation," in *The Oxford Handbook of the Cognitive Science of Religion*, Barrett, ed., 215–36.

[5]Torrey uses only the standard term "autobiographical memory." However, for our purposes, I find the term "autobiographical mind" more appropriate because this implicitly acknowledges the ability to project possibilities into the future, including the possibility of an afterlife, whereas "autobiographical memory" implies only a capacity to look back at the past.

[6]Here the world's megalithic structures become relevant. Along with celestial calendar-tracking purposes, ancestor worship may be the origin of many of these structures around the world, such as at Göbekli Tepe, Turkey. Research now indicates that many of these structures were built by hunter-gatherers who would come together in large numbers for a season of construction, then return to their home locales for hunting and gathering. Thus, agriculture arose to feed these seasonal large gatherings in which hunter-gatherers would turn into engineers and builders. In effect, agriculture was "an epiphenomenon of these huge gatherings of hunters and foragers." (David Graeber and David Wengrow, *The Dawn of Everything: A New History of Humanity* [London, UK: Penguin Random House, 2021], 137.) This view is in contrast to Dunbar's self-protection thesis, that agriculture arose to feed hunter-gatherers who began to move into larger sedentary groups for self-protection.

[7]I have inserted "high" here because Torrey seems a bit loose in his language. In an earlier chapter, he explicitly describes the emergence of gods out of ancestor worship prior to the Axial Age, and it is the emergence of high gods that he otherwise describes in the Axial Age.

[8]There is debate among academics as to whether Zoroastrianism is truly monotheistic. For our purposes here, of understanding the emergence of monotheism, Zoroastrian metaphysics is sufficiently monotheistic leaning to serve our purposes of helping us trace the emergence of monotheism. Darius the Great (d. 486 BC) provides the

first written attestation to Ahura Mazda, attributing his military success to Ahura Mazda. Zoroastrian monotheism remained the dominant religion of that part of the world until the Islamic conquest of Persia (roughly present-day Iran) in the seventh century AD.

[9]Justin Barrett has been particularly prolific. See, for instance: Justin L. Barrett, *Born Believers: The Science of Children's Religious Belief* (New York: Atria Press, 2012); Justin L. Barrett, "Cognitive Science of Religion and Christian Faith: How May They Be Brought Together?," *Perspectives on Science and Christian Faith* 69, no. 1 (2017): 3–12, https://www.asa3.org/ASA/PSCF/2017/PSCF3-17Barrett.pdf; Justin L. Barrett, *Cognitive Science, Religion, and Theology: From Human Minds to Divine Minds* (West Conshohocken, PA: Templeton Press, 2011); and Kelly James Clark and Justin L. Barrett, "Reformed Epistemology and the Cognitive Science of Religion," *Faith and Philosophy* 27, no. 2 (2010): article 4, https://doi.org/10.5840/faithphil201027216.

[10]For such discussions in addition to Barrett, see also Kelly James Clark, *God and the Brain: The Rationality of Belief* (Grand Rapids, MI: Eerdmans, 2019), chap. 2, "Brain and Gods"; Greg Cootsona, "Science and the *Sensus Divinitatis*," in *Connecting Faith and Science,* ed. Matthew Hill and Wm. Curtis Holtzen (Claremont, CA: Claremont Press, 2017), 87–116; and Adam Green, "Cognitive Science and the Natural Knowledge of God," *The Monist* 96, no. 3 (July 2013): 399–419, https://api.semanticscholar.org/CorpusID:145473784.

[11]For some of these others, see endnote 2 above.

[12]For instance, given that the last 40,000 years (since the emergence of autobiographical mind) is but a blink in the two-million-year history of the *Homo* genus, why would God produce a system in which it would take so long for beings to emerge with neural capacity for god beliefs and accompanying religious practices (such as ritual, prayer, etc.)? Why, moreover, would God create a system in which belief in gods and goddesses emerged well before belief in a single God emerged—in other words, why a system in which polytheism seems more intuitive to *Homo sapiens* than monotheism? And what is the relationship between the emergence of the *sensus divinitatis* as a cognitive disposition and monotheism as an idea? These are just a few of the sorts of theological questions that arise from EPsR.

[13]For instance, while I find that Torrey provides a clearer theoretical account than Rappaport and Corbally of the evolutionary stages of humanity's religious neural capacities, Rappaport and Corbally identify two evolutionary stages that Torrey omits, stages which appear to me necessary to include in an EPsR account of "religion"—the emergence of moral capacity "around 1.5–1 million years ago," and the evolutionary "down-regulation of aggression [and] greater social tolerance among adult humans, especially while feeding" (Rappaport and Corbally, *The Emergence and Evolution of Religion*, 146).

[14]David Christian, "What Is Big History?," in *Journal of Big History* 1, no. 1 (2017): 4, https://doi.org/10.22339/jbh.v1i1.2241.

[15]Examples of Big History familiar to the reading public include Stephen Hawking, *A Brief History of Time* (New York: Bantam, 1990); Jared Diamond, *Guns, Germs, and Steel: The Fates of Human Societies* (New York: W. W. Norton, 1997); Yuval Noah Harari, *Sapiens: A Brief History of Humankind* (New York: Signal Press, 2016); Sean Carroll, *The Big Picture: On the Origins of Life, Meaning, and the Universe Itself* (New York: Dutton, 2017); and David Graeber and David Wengrow, *The Dawn of Everything: A New History of Humanity* (New York: Penguin Random House, 2021).

[16]Chris Barrigar, "God's *Agape*/Probability Design for the Universe," *PSCF* 70, no. 3 (2018): 161–75, https://www.asa3.org/ASA/PSCF/2018/PSCF9-18Barrigar.pdf. Note that since publishing this article I have changed the name for my proposal to the "*Agape*/Many-Routes" account of God's design, as I feel this more precisely captures the core idea of the proposal. The term "Big History" had not been popularized by the time my article appeared, so I do not mention the phrase "Big History" in the article, but the article's proposal for God's *telos* for the universe and the place of evolution and the incarnation in that *telos*, amounts to an account of God's relation to Big History. I have produced a popularized video version of the AMR account, available at https://www.youtube.com/watch?v=wgnphHLUASo.

[17]This is an updated version of that which I presented in my *PSCF* article. Two years after my initial publication of the *agape*/probability account (in *Freedom All the Way Up: God and the Meaning of Life in a Scientific Age* [Friesen, 2017]), Michael Murray made a similar proposal:

> [O]ur evolutionary history seems to have been set up in a way that pushed us down an evolutionary path that allowed for the emergence of creatures with the critical mental abilities needs to be able to engage in relationships of love and friendship. We might thus see this evolutionary history as one that was crafted for the purpose of yielding creatures that are made for the very purposes God intended for us, and perhaps for manifesting the divine image. (p. 18)

Michael Murray, "Reverse Engineering the *Imago Dei*," unpublished paper presented at the Toronto Christian Scholar Symposium, Wycliffe College, January 25, 2019, p. 18, cited by Justin L. Barrett with Pamela Ebstyne King, *Thriving with Stone Age Minds: Evolutionary Psychology, Christian Faith, and the Quest for Human Flourishing* (Downers Grove, IL: InterVarsity Press, 2021).

[18]Central to the AMR account is the principle of "multiple realizability." Michael Gazzaniga provides the following illustration:

> Eva Marder has been studying the simple nervous system and resulting motility [cellular behavior] patterns of spiny lobster guts. She has isolated the entire pattern of the [lobster's neural] network with every single neuron and synapse worked out, and she models the synapse dynamics to the level of neurotransmitter effects. Deterministically speaking, from knowing and mapping all this information she should be able to piece it together and describe the resulting function of the lobster gut. Her laboratory simulated more than 20 million possible network combinations of synapse strengths and neuron properties for this simple little nervous system. By modelling all these combinations, it turned out that about 1–2 percent could lead to the appropriate dynamics that would create the motility pattern observed in nature. Even though it is a small percent, it still turns out to be 100,000 to 200,000 different tunings that will result in the exact same behavior [of the lobster gut] at any given moment … The philosophical concept of multiple realizability—the idea that there are many ways to implement a system to produce one behavior—is alive and well in the nervous system. (pp. 130–31)

Michael Gazzaniga, *Who's in Charge? Free Will and the Science of the Brain* (New York: HarperCollins, 2011), 130–31. The spiny lobster example applies analogously to *agape*-capability, that multiple different evolved "neural tunings," through multiple potential neural pathways, could also produce *agape*-capability. The importance of multiple realizability (multiple different potential pathways to *agape*-capability) is to enable new evolutionary routes to emerge in order to get around evolutionary bottlenecks and dead-ends on the way to *agape*-capability finally emerging.

[19]For a survey of various discussions of this topic, see Paul Brazier, "C. S. Lewis: The Question of Multiple Incarnations," *The Heythrop Journal* 55, no. 3 (May 2014): 391–408, https://doi.org/10.1111/heyj.12049.

[20]For discussions of flourishing from Christian perspectives, see Barrett with King, *Thriving with Stone Age Minds*; and Jonathan T. Pennington, *The Sermon on the Mount and Human Flourishing* (Grand Rapids, MI: Baker, 2017).

[21]This discussion has been around for some time. For a review of this discussion, see Nigel Ajay Kumar, *What Is Religion? A Theological Answer* (Eugene, OR: Wipf & Stock, 2013), 3–8.

[22]There are various terms that are used in the CSR literature, ranging from "theism" to "supernatural beings" (which is much wider in scope than "theism"). I prefer the term transcendence, because it allows us to distinguish what Martha Nussbaum has called "internal transcendence" (transcendent qualities in the physical world, ranging from visible-light wavelengths to widely held public opinions) from "external transcendence" (transcendent entities beyond the physical world, such as personal gods or impersonal forces such as karma or the Dao). Through the remainder of this paper, I will use the term "transcendence" to mean "external transcendence." I would consider "supernatural beings" equivalent to my term "transcendent beings."

[23]Various figures have charged that religious belief is "unreliably formed and hence epistemically tainted." For a response, see Hans Van Eyghen, "Is Supernatural Belief Unreliably Formed?," *International Journal for the Philosophy of Religion* 85 (2019): 125–48, https://doi.org/10.1007/s11153-018-9671-4. My proposal here reinforces Van Eyghen's argument.

[24]Evans has published both an academic and a more popular account. See, respectively, C. Stephen Evans, *Natural Signs and Knowledge of God: A New Look at Theistic Arguments* (New York: Oxford University Press, 2012); and C. Stephen Evans, *Why Christian Faith Still Makes Sense* (Grand Rapids, MI: Baker, 2015).

[25]Evans, *Natural Signs and Knowledge of God*, 17.

[26]Evans, *Why Christian Faith Still Makes Sense*, 25.

[27]HADD is particularly a feature of the minds of children, and diminishes into adulthood, yet nonetheless remains in adulthood. See Barrett, *Cognitive Science, Religion, and Theology,* 70–71.

[28]For a discussion of intuitive or promiscuous teleology, see Johan De Smedt and Helen De Cruz, *The Challenge of Evolution to Religion,* Cambridge Series: Elements in the Philosophy of Biology (Cambridge, UK: Cambridge University Press, 2020), 9–12. The term "promiscuous teleology" was coined by Deborah Kelemen to describe the minds of children. Research indicates, however, that as children develop into adults, promiscuous teleology diminishes due to greater understanding of how things work; nonetheless, in adulthood teleological interpretations of non-understood phenomena do not disappear. See Barrett, *Born Believers*. I would point out that while HADD and *telos*-attribution can appear very similar, they are not the same thing: agency can be creative without teleological intent. This is seen, for instance, in the Brahman of Hinduism, and in the God of Deism, both of whom create but then leave the creation alone, to run its own course.

[29]I am not claiming that there are only four NTDs; there may be others. The CSR literature is not consistent with terminology, so other authors may use different terminology than I have used here. For instance, while the terms "mentalizing," "theory of mind," "agency detection" and "HADD" are well established in the literature, I have coined the terms "causality-seeking" and "*telos*-attributing." However, my ideas behind this terminology are common in the CSR literature.

[30]I had considered calling the NTDs "neural spandrels," which seems less awkward than "NTDs by evolutionary side-effect." However, since spandrels are normally phenotypical, using the term "neural spandrel" raises a number of difficulties. Nonetheless, this term does convey the sense that the NTDs are not evolutionarily selected for.

[31]This anonymous reviewer points to "the predictive brain," or "predictive error theory" (PE). Over the past twenty years, PE analysis has been applied across numerous neural operations and is now understood as a central function of the neocortex. Here the reviewer states that, "How we perceive the signals of [NTDs] might be blanked out by error-checking before we are even aware [of them]—and those [blanking-out error checks] are put in place at the top neural level by 'culture' or rearing, if you will." From a theistic perspective, such occasions would amount, ironically, to erroneous "error-checking." How PE applies to religion has been considered by a number of figures. See Uffe Schjoedt and Michiel van Elk, "Neuroscience of Religion," in *The Oxford Handbook of the Cognitive Science of Religion*, Barrett, ed., 327–48.

[32]Sy Garte, "I Was Indoctrinated to Despise Christians. Then I Became One," in *Premier Christianity*, April 20, 2023; accessed online at https://www.premierchristianity.com/real-life/i-was-indoctrinated-to-despise-christians-then-i-became-one/15353.article?fbclid=IwAR1QOxLHQsD4DTecyvu0mr5izrdYDew_PqHYXWS-Twwxtp6deSo7XkEfu1A.

[33]To be clear, I am not saying that each of these neural features serves solely a transcendence-related purpose, as if, for instance, humanity's promiscuous teleology disposition functions only to seek god/gods. Rather, I am saying that as each of these neural features has evolved, with infinite scope of conscious application (e.g., Is there purpose to the sun shining?, Is there purpose to me stubbing my toe?), the scope of how humans apply these features is so wide that it includes applying them to the concepts of transcendence produced by autobiographical mind, thus raising the possibility of gods/god.

[34]As "projectionism" is a particularly common psychological argument against theism, I will add some comment here. There is no need to deny that we humans do have this propensity to project our own wishes and self-images onto God, and that we appropriate God all-too-easily for our own personal ends. Indeed, theists can readily affirm that humans project their own images onto transcendence. For instance, pastoral theologians are well

aware that adult children of alcoholics often understand God as they understand their own alcoholic parent: as untrustworthy and as needing to be appeased and danced around. The problem with projection theses, however, is that they draw a false conclusion from their valid observations. The Bible itself is well aware of this phenomenon and has a specific term for it—idolatry. The phenomenon of projection, however, simply does not demonstrate the non-existence of God. Indeed, parents do the same with their children, projecting their own qualities, hopes, and desires onto their children—but it does not therefore follow that their children do not exist! Furthermore, the atheism of the projectionists can itself be subjected to the same interpretation, that their atheism is itself self-deceptive, merely a projection of their own wish-fulfillments and will-to-power. Projectionism simply observes that humans do project their own desires and qualities onto God, and even onto humanity itself; however, the phenomenon of projectionism provides no grounds by which to draw either theistic or materialistic implications.

[35]See Jeffrey P. Schloss, Justin L. Barrett, and Michael J. Murray, "Looking Past vs. Overlooking Cognitive-Evolutionary Accounts of Religion: A Response to Nathaniel Barrett," *Journal of the American Academy of Religion* 78, no. 3 (2010): 622–28, https://doi.org/10.1093/jaarel/lfq049.

> Thus any natural predisposition to form beliefs in invisible and/or counterintuitive agents is context-dependent … And whether those spirits are conceived of as ancestors or gods, or spirits, or bodhisattvas, will depend on local factors. Even more importantly, the meaning given to and believed to be given these entities will covary with myriad individual, cultural, and historical factors. (p. 625)