Atheists Giving Thanks to the Sun

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ABSTRACT: I argue that it is rational and appropriate for atheists to give thanks to deep impersonal agents for the benefits they give to us. These agents include our evolving biosphere, the sun, and our finely-tuned universe. Atheists can give thanks to evolution by sacrificially burning works of art. They can give thanks to the sun by performing rituals in solar calendars (like stone circles). They can give thanks to our finely-tuned universe, and to existence itself, by doing science and philosophy. But these linguistic types of thanks-giving are forms of non-theistic contemplative prayer. Since these behaviors resemble ancient pagan behaviors, it is fair to call them pagan. Atheistic paganism may be part of an emerging ecosystem of naturalistic religions.

1. Introduction

At least since the Stoics, gratitude has been a topic of enduring philosophical interest (Manela, 2019). It is now standard to distinguish two types of gratitude (McAleer, 2012; Manela, 2016). The first type is propositional gratitude: you have gratitude *that* some good fact is true. The second type is prepositional gratitude: you have gratitude *to* some benefactor *for* some benefit. We express prepositional gratitude by *giving thanks* to our benefactors. For example, both theists and atheists agree that we can give thanks to other humans (and perhaps some other animals) for giving us mundane benefits.

But theists extend this mundane account of thanks-giving. They say reality contains deep personal agents: spirits or deities working in the depths of nature. These deep persons give us goods on which all mundane goods depend. These deep goods include benefits from our evolving biosphere, from the sun, from our finely-tuned universe, and from the fact that anything exists at all. For these deep goods, the theists say we ought to express deep gratitude: we ought to give deep thanks *to* the spirits or deities *for* these deep goods. We ought to offer sacrifices, hymns, or prayers of thanks-giving. These activities of giving thanks are usually thought to be central to religion.

According to Dawkins, atheists correctly feel extremely powerful urges to give thanks *to* something *for* deep benefits (2010: 35:30-40:40; see 2017: 243-5). Now Dawkins asks: "Give thanks to whom? Or to what? To providence? To the fairies? To the gods?" (2010: 27:01-17). Dawkins answers that atheists cannot give deep thanks *to* anything. At most, they can be grateful *that* we have these deep goods. While atheists want to express prepositional gratitude, they can only express propositional gratitude. So their urges to give deep thanks are frustrated, and atheism is emotionally unsatisfactory. If the theists are right that we are morally obligated to give deep thanks, then atheism is also morally unsatisfactory. Here is *the problem of atheist thanks-giving:* since atheists deny deep persons, it looks like it is conceptually impossible for atheists to give deep thanks. Hence atheism is emotionally and possibly morally unsatisfactory. A solution to this problem will show that atheists really can give deep thanks.

The problem now divides. Its first subproblem is *existential*: are there any deep impersonal benefactors to which it is appropriate for atheists to give deep thanks? Its second subproblem is *conative:* if such benefactors do exist, by what means can atheists thank them? Should atheists offer sacrifices to evolution? Sing hymns to the sun? Say prayers of thanks-giving to the universe? At least relative to us, these things are as impassible and immutable as the classical deities. Many philosophers have discussed these issues (Bishop, 2010; Colledge, 2013; Lacewing, 2016). While their discussions have been insightful, it is surprising that they do not refer to much science. After all, atheists are usually deeply motivated by the scientific story of the universe.

I will argue that the scientific story, along with the philosophical analysis of gratitude, has surprisingly religious consequences. It entails that it is conceptually possible (it is appropriate or rational) for atheists to give deep thanks. It is appropriate for atheists to give thanks to evolution by sacrificially burning works of art. It is rational for them to give thanks to the sun by performing rituals in solar calendars (like stone circles). And for them to thank the universe by building scientific models of it. Likewise to thank existence by doing philosophy. By giving deep thanks, atheists can satisfy their emotional urges. Since some (but not all) atheists are ethical naturalists, who agree that we ought to give thanks, they can also satisfy their moral obligations. Some atheists do perform these thanks-giving behaviors. Since these thanks-giving behaviors resemble ancient pagan behaviors, it is fair to call them pagan. The resulting *atheistic paganism* is not crypto-theism – it excludes all forms of theism. Nevertheless, since atheistic paganism is pagan, it is fair to categorize it as religious. If this reasoning is correct, then atheism does not exclude religion – it generates new forms of religion.

2. The Agency of the Sun

Our universe begins with the big bang, which generates a vast plurality of atoms swirling in the void. But they do not move randomly. On the contrary, their motions are statistically patterned by powerful forces. At the time of the big bang, the entropy of our universe was extremely low (Greene, 2005: 173-4). The second law of thermodynamics entails that entropy will increase until it reaches its maximum. But entropy is not disorder – entropy measures energy dispersal. It measures the flatness of the potential energy landscape of the universe. As it increases, energy becomes more uniformly distributed, until the potential energy of the universe is exhausted.

The second law of thermodynamics generates an arrow that points from the big bang to the finality of maximal entropy. Thus all natural processes have an intrinsic directionality. Clausius said "the entropy of the world strives to a maximum" (see Prigogine & Stengers, 1984: 119). He portrays the second law as generating a powerful force. This force is teleonomic, but not teleological. Entropic forces are now well-established in physics. The entropic force generated by the second law may well be the most powerful force in our universe. Physicists have derived the laws of gravity from the principles of thermodynamics (Jacobson, 1995). Some physicists believe this means that gravity itself is an entropic force (Verlinde, 2016). Whatever it is, gravity quickly gets to work pulling atoms together into stars. Stars are highly concentrated balls of energy. They have extremely high temperatures and low entropies.

The first stars are composed of very simple atoms. But two entropic principles are working on these simple things. The *maximum entropy production principle* (MEPP) states that physical systems tend to maximize their entropy production rates (Martyushev & Seleznev, 2006; Lineweaver, 2006). The *orderly flow principle* states that orderly flow produces entropy faster than disordered flow (Swenson, 2006: 318). As the force generated by the second law passes through these two principles, it becomes a complexity-building power. Entropic forces drive matter to self-organize. They drive the evolution of atomic, molecular, and biological complexity. This thermodynamic picture of nature resembles older philosophies, which picture nature as driven by some order- and value-creating force. The Stoics argued that thermal energy drives all physical processes. Their *pneuma* looks like an entropic force (Steinhart, 2018). The Roman Neoplatonist Iamblichus often talks about a divine fire-energy which animates all things (*On the Mysteries* (M), 1.8-9, 1.12, 2.4, 3.20, 4.3, 5.11-12). The Cambridge Platonists posited a spirit of nature which drives matter to self-organize (Greene, 1962). If ancient pagans thought that nature was *animated*, then a modern scientific pagan can say it is animated by thermodynamic force. However, atheists will almost certainly not call this force "God". Nor are they likely to accept any pantheistic beliefs about it.

Three arguments now say that the sun is an agent. The first argument is motivated by evolution. For the evolutionary naturalist, all concepts begin with their simplest forms. From this evolutionary perspective, the simplest form of agency is mere self-motion. Since the two entropic principles drive all the self-motion of matter, they motivate a more precise definition: an *agent* is anything that strives to produce as much order as possible by producing entropy as fast as possible. On this definition, the only *basic agents* in our universe are the stars. Hence our sun is a basic agent.

The second argument is motivated by the further evolution of agency. The planets orbiting our sun have varying degrees of thermodynamic agency (Lorenz, 2002). Our earth supports highly self-organizing flows of matter. Dependent on the agency of the sun, it is a *derivative agent*. Plants devour energy from the sun; herbivores devour plants; carnivores devour herbivores. The self-motions of life emerge from the self-motion of the sun. As entropic forces drive the evolution of more complex life, they drive the evolution of more complex forms of biological agency. Evolution creates intelligent agents and rational moral agents. The theory of *physical intelligence* or *intelligence from first principles* says principles like the MEPP drive the evolution of intelligence (Turvey & Carello, 2012; Kondepudi, 2012; Fry, 2017). The MEPP has been generalized to make the *causal entropic principle* (Wissner-Gross & Freer, 2013). The CEP shows how complex adaptive behaviors, including social cooperation, can emerge from thermodynamics. The CEP "predicts many of the observed features of social interactions among both human and animal groups" (Mann & Gammett, 2015). More complex forms of agency, including personal agency, are evolutionary elaborations of the self-motion of the sun. All biological agents, including human animals, satisfy the thermodynamic definition of agency. Hence the thermodynamic definition of agency captures the core concept of agency. Again, our sun is a basic agent.

The third argument comes from the cognitive science of religion. Barrett (2007) says our brains contain *hypersensitive agency detection devices*. These HADDs are finely-calibrated by evolution to detect agency in nature. According to Barrett, our HADDs are hypersensitive because they rely on a minimal concept of agency. On the basis of their

finely-calibrated HADDs, ancient philosophers correctly detected the minimal agency of the sun. Plato marked the agency of the sun with a cosmological argument (*Laws,* 893-896). Epictetus marked it with a design argument (*Discourses*, 3.22.4-7). However, after correctly detecting the simple agency of the sun, they made a *theistic error:* they incorrectly projected complex personal agency into it. Plato did this (*Laws,* 895c-899d; *Phaedrus* 245c-e). The Stoics did it too (Meijer, 2007: ch. 4.1).

3. Exchanges of Food and Grooming

On the basis of the three preceding arguments, the thermodynamic conception of agency is accepted here. Thermodynamic principles entail that our biosphere strives to produce as much order as possible by producing entropy as fast as possible (Kleidon, 2010; Vallino, 2010). Consequently, our biosphere is an agent. Of course, its agency depends on that of the sun (it is a derivative agent). Nevertheless, the agency of the biosphere is far more sophisticated than that of the sun. Dawkins (1996: 72, 326) regards biological evolution as a planetary computer that runs an optimization algorithm. It has memory and it may even learn (Watson & Szathmary, 2016; Kouvaris et al., 2017). So the agency of the biosphere is mindlike even if it is not a mind. An atheistic pagan can say that the biosphere is animated by thermodynamic powers.

From thermodynamic roots, there evolves a flower which consists of living agents exchanging biologically useful goods. Here I will use the word "food" as a term of art for any biologically useful good or service. Thus food includes edible things, but also sex, assistance, protection, agonistic support, and so on. The symmetrical exchange of food is *direct reciprocity,* and it is mutually beneficial. There are many examples of direct reciprocity in our biosphere. Plants and animals encode dispositions to directly reciprocate. It does no harm to express these dispositions as a rule. The *first rule of reciprocity* says that if some agent gives you food, then you give equal food in return to it. This the positive part of the tit-for-tat strategy in the prisoner's dilemma: if you cooperated with me, then I'll cooperate with you. Following Dawkins (2010: 35:30-40:40; 2017: 243-5), this first rule generates an emotional urge to reciprocate. An ethical naturalist may argue further that this rule generates a moral obligation in rational animals: if you cooperated with me, then I *ought* to cooperate with you.

Besides exchanging food, many social animals exchange *grooming*, that is, they clean the body parts of other animals in their communities. Vampire bats exchange grooming (Carter & Wilkinson, 2013; Carter & Leffer, 2015). Many primates exchange grooming (de Waal, 2008). Of course, grooming has some use-value; but the effort animals expend in grooming each other often far exceeds its utility. The first rule of reciprocity also includes symmetrical exchanges of grooming: if somebody grooms you, then you give equal grooming in return to them. Animals exchange grooming in order to build social bonds. These bonds support *asymmetrical transfers* of food. An asymmetrical transfer is a *sacrifice*. A sacrifice occurs when a benefactor gives food to some recipient, but does not get any food in return. Asymmetrical transfers are thus *altruistic*. Altruistic transfers of food are often stimulated by earlier transfers of grooming: if I groom you, then you give me food. They are returned by later transfers of grooming: if you gave me food, then I give you grooming. The exchanges of grooming for food suggest a *second rule for*

reciprocity: if you can't reciprocate with food, then reciprocate with grooming. This rule also generates an emotional urge, and possibly a moral obligation.

The second rule enhances the fitness of social animals because direct reciprocity often fails. Cooperative partners often fail to acquire the resources they need for symmetrical exchange. This failure threatens to trigger the negative part of the tit-for-tat strategy, so that cooperation breaks down. To prevent the collapse of cooperation, animals have evolved fall-back rules like the second rule for reciprocity. Here grooming enters into the evolution of *indirect reciprocity*. One form of indirect reciprocity is known as *upstream reciprocity*, also known as *paying it forward*. It is defined by this maxim: "I will help anybody, if I was helped by somebody" (Barta et al., 2011). The maxim for upstream reciprocity resembles the tit-for-tat strategy in the iterated spatialized prisoner's dilemma game. But here it applies in cases where mobile players need not repeatedly interact with the same neighbors. Thus grooming signals a commitment to future altruism; it indicates a promise to sacrifice food. Many biologists argue that the function of gratitude is to motivate upstream reciprocity. Expressions of gratitude signal commitment to upstream reciprocity (Bonnie & de Waal, 2004; Nowak & Roch, 2007; McCullough et al., 2008). Grooming is one way to express gratitude. Now turn to humans.

Humans are highly social animals who exchange both food and grooming with each other (Nelson & Geher, 2007). Arlet and colleagues (2015) argue that non-human primates perform *grooming-at-a-distance* by exchanging calls. Leavens and colleagues (2014) argue that chimpanzees use grooming calls to attract assistance from others when solving novel problems. Dunbar (2017) argues that early hominid grooming behaviors evolved into human language. These ideas motivate a linguistic version of the second rule for humans: if I can't reciprocate with food, then I'll reciprocate with linguistic grooming. I'll say "thank you". Linguistic grooming evolved into more general signals of upstream reciprocity. We can satisfy our emotional urges to give thanks by linguistically grooming our benefactors. And, if these emotional urges indicate moral obligations, we can also discharge our moral obligations.

4. Reciprocate Food with Grooming Avatars

Soldiers often sacrifice their lives for their civilian compatriots. The civilians benefit by gaining protection. This is an asymmetric transfer – it is altruistic. It arouses feelings of indebtedness and gratitude in the civilians. They feel an emotional urge to reciprocate, and many philosophers will say they have the moral obligation to reciprocate. However, since the soldiers are deceased, the civilians cannot directly reciprocate. They cannot apply the first reciprocity-rule, which says if you got food, then give food. Likewise, they cannot fall back to the second rule that says if you can't give food, give grooming. How can they express their gratitude if the soldiers do not exist?

A common way that civilians *do* give thanks to their deceased soldiers is by raising monuments to them. Monuments to dead soldiers often take the shape of a soldier. They are statues of soldiers equipped with the tools of war (helmets, boots, guns, and so on). They typically carry information about the soldiers. They are symbols which refer to *these* soldiers who died in *this* war. The monuments *bear witness* to the soldiers through mimicry of shape. And raising a monument squanders resources. It wastes resources on

a work of art, resources which could have been used to service biological needs. And, of course, the deceased soldiers will not give any food in return. Raising a monument is a sacrifice. Since it is done for the soldiers, it is a reciprocal sacrifice. It is an act of reciprocal altruism. But is it really an act of thanks-giving?

People can touch monuments. And they can bring them flowers or other gifts. By performing these acts, they are *grooming the monument*. If the monument is a statue of a soldier, this grooming can be direct: people can stroke or pat the statue. The statue is a representative or avatar of some generic soldier, and therefore stands as a symbol for each particular soldier. This motivates a hypothesis: by grooming the statue, you groom the soldier. Our ability to use symbols motivates this *third rule for reciprocity:* if you can't groom the original, groom an avatar. The emotional urge to groom the soldiers can be satisfied by grooming the statue. If we have obligations to reciprocate, then this third rule also has normative force: if the other rules fail, then you *ought* to groom an avatar. This is sympathetic magic. It works both emotionally and morally. But it does not involve fakery – it requires neither fictionalism nor pretense. We use stories and images to arouse real emotions. When you cry at a movie, you cry real tears. When you laugh while reading a story, your laughter is genuine. We use symbols to satisfy our desires and obligations. Your thanks to a statue is authentic thanks-giving.

Practices involving grooming avatars are close to some ancient pagan religious practices. Statues played central roles in ancient Greek and Roman cults. Collins (2008: 94-5) describes many ways ancient Greeks treated statues as if they were humans. They dressed them; they offered them food; they spoke to them; they sometimes even had sex with them. They put them on trial for crimes and exiled them. They built houses for them. Luck (2008: 5) reports that if the ancient Greeks were angry with their gods, they whipped their statues and dragged them through the streets. Faraone (1991) describes how they bound statues of gods (like Ares) with chains to prevent them from making trouble. So it is not unreasonable to say that behaviors which express gratitude by grooming avatars are *pagan* religious behaviors.

These behaviors expand to include our exchanges with non-human animals, exchanges which activate the rules for reciprocity. Our exchanges with non-human animals often fall back to the third rule for reciprocity: if you can't groom the original, then groom an avatar. Thus we build monuments that bear witness to the altruistic sacrifices made by animals. The Animals in War Memorial in Hyde Park in London honors the animals who served in British and allied campaigns. The US Military Working Dog Teams National Monument was raised to thank military dogs for their service. At least one monument was raised to bear witness to the laboratory mice who served in scientific experiments (Sharp, 2019: 119-20). A monument in Alabama gives thanks to boll weevils for forcing cotton-growing farmers to diversify their crops (Giesen, 2011: 123-6). These monuments contain effigies of the animals. Raising them satisfies emotional urges and any moral obligations. It bears witness to these animals. Humans can and do give thanks to many kinds of life. This suggests that we can give thanks to life itself – we can give thanks to the evolutionary process.

5. The Requirements for Giving Thanks

Two arguments now aim to show that if some thermodynamic agent gives you some good, then it is your benefactor. Being a benefactor does not require being a rational moral agent or being a personal agent with intentions. The first argument is motivated by the thermodynamic roots of biological exchange. Entropic forces generate economic regularities (Annila & Salthe, 2009). The ultimate explanation for economic exchange is that organisms are striving to create as much order as possible by producing entropy as fast as possible. So the ultimate explanation for economic exchange is just thermodynamic agency. And this is the ultimate explanation for reciprocity. On this view, all that is required for reciprocity, and thus for interacting as benefactor and beneficiary, is to be agents whose exchanges emerge from laws like the MEPP and CEP. Of course, complex expressions of gratitude require complex forms of agency. Thus Proclus (in *On the Hieratic Art*) was right to say that the sunflower sings to the sun only the small kind of hymn that a plant is capable of singing.

The second argument is motivated by conceptual analyses of gratitude. McAleer (2004) and Boleyn-Fitzgerald (2016) have argued that it makes sense to give thanks to non-personal agents. Comte-Sponville asks "How could one not be grateful to the sun for existing? To life, to flowers, to birds?" (2002: 134). It is rational for humans to say "Thank you for existing" to their friends, the earth, and the universe (2002: 139). More precisely, Bardsley (2013) does not require benefactors to be persons. She says gratitude towards an entity is "both rational and appropriate when (1) that entity is the source of a valuable and unearned benefit and (2) the benefit did not result from some accidental and/or regrettable feature of that entity's character" (2013: 28). Our sun and our evolving biosphere both satisfy Bardsley's analysis. Therefore, if her analysis is correct, then those impersonal agents are our benefactors. They deserve thanks.

However, Manela (2018: 10-12) has argued that Bardsley's analysis is too weak. It can be strengthened by adding the requirement that benefactors have thermodynamic agency. Such agents (like the sun and our biosphere) act teleonomically. From their teleonomic self-motions, arrows emerge which point at the situations in which we gain benefits from them. These arrows explain the fact that we got these benefits. The theory of physical intelligence argues that laws like the MEPP or CEP generate intentionality (Kugler et al., 1990; Tschacher & Haken, 2007). Accordingly, any explanatory force added by intentionality is already present in thermodynamic teleonomy. When Bardsley's analysis is thermodynamically strengthened, Manela's objection can be met. Consequently, if you receive some good from a thermodynamic agent, then it is rational and appropriate to give thanks to it for its given benefits.

If the reasoning so far is correct, then the existential problem of atheistic gratitude is solved: there are some deep impersonal benefactors to which it is appropriate for atheists to give deep thanks. On this view, agency is still required for benefaction, so it makes no sense to thank non-agents (such as nitrogen, the big bang, or the curvature of space-time). Our task now is to turn to the conative problem: by what means can atheists appropriately thank deep benefactors? Among our many deep benefactors, our evolving biosphere is the most immediately relevant. So we turn to evolution.

6. Giving Thanks to Evolution

Dawkins says evolution *blesses* us with *gifts* (1998: 5; 2003: 12). And while he denies evolutionary design in his middle works, in both his early and later works he explicitly says that evolution *designs* organs, organisms, and ecological adaptations. It does not design them in any intelligent or purposive way. It designs them teleonomically, by running its optimization algorithm. Dennett says that "Darwin's dangerous idea is that Design can emerge from mere Order via an algorithmic process" (1995: 83, his caps). Theists who made organic design arguments correctly marked the agency of evolution; but they incorrectly projected persons into it. Evolution is an impersonal artist, and we are its works of art. By designing our organs, and our many mutually beneficial relations with other organisms, evolution gave us biologically useful gifts – it gave us food. We thus seek to reciprocate, to give some food back to evolution. Since we cannot directly reciprocate food with food, we strive to apply the second rule: if you can't give food, give grooming. As Comte-Sponville indicates, you could give linguistic grooming by saying "Thank you" to evolution. But this approach may be too superficial to satisfy a deeply felt urge to give thanks. This failure triggers the third rule: if you can't groom the original, groom an avatar. So we seek to groom statues of evolution.

An atheist can groom statues of evolution in an explicit way. Since the biosphere is often thought of as Gaia, you can groom a statue of Gaia. Statues of Gaia (which often look like a woman pregnant with the earth) are widely sold. You can place them on an altar and light lamps to them or stroke them with feathers. You can sing the Homeric Hymn to Gaia to your statue. The Gaia statue refers to the mindlike agency of our evolving biosphere. However, Roberts (2004) and Lacewing (2016) suggest that giving thanks to impersonal benefactors requires implicit personification. The Gaia statue is obviously personified. And Bishop (2010) argues that such thanks-giving eventually leads to theism. Consequently, many atheists will want find some way to thank evolution which is not easily misinterpreted as some kind of crypto-theism.

Beneficiaries often reciprocate by mimicking the actions of their benefactors. The three rules for reciprocity involve dynamical mimicry (e.g. if you gave me food, then I reciprocate by mirroring your action). Dynamical mimicry is crucial for the evolution of robust cooperative strategies in games (Fischer et al., 2013). Atheists can therefore give thanks to evolution through dynamical imitation. While evolution is an artist which designs its works, it also destroys its old works to create its new works. So we imitate it by making works of art which we destroy. It follows that one way to give thanks to evolution is by making and sacrificing works of art.

On this view, the Burning Man festival gives thanks to evolution through ritual symbolic grooming. During the course of the year, Burners create complex works of art. They carry these to Black Rock City, a temporary city for the festival. Just as the earth is an oasis of biological creativity in the inhospitable desert of space, so Black Rock City is an oasis of artistic creativity in the Black Rock Desert. Yet Burning Man has also been interpreted in religious terms (Kozinets & Sherry, 2004; Gilmore, 2010; Harvey, 2017). During the festival, two enormous works of art, the Man and the Temple, are sacrificially burned. Many smaller works are similarly sacrificed. On the basis of historical similarities, it is plausible to say that Burning Man is pagan. Atheists can (and do) participate in Burning Man and similar thanks-giving rituals. They can and do give thanks to evolution. On the analysis of gratitude given here, these rituals satisfy the emotional urge to give thanks. If we have moral obligations to give thanks, they satisfy

those obligations. If these urges (and obligations) push atheists towards these rituals, then they are pushing atheists towards paganism.

The analysis of these ways of thanking evolution resembles the analysis of the pagan religious activities described by the Roman Neoplatonists like Iamblichus and Sallustius. Iamblichus (M 1.12-15, 5.26) says the gods are not changed by our prayers or sacrifices. Sallustius (*On the Gods and the World*, ch. 14) says the gods are immutable and impassible. Our religious behaviors towards them do not change them. So why be religious? Iamblichus (M 1.8-15) says religious behaviors allow us to participate in the divine currents of energy that are always flowing through all things. Sallustius (chs. 15 & 16) says we should be religious because our behaviors towards the gods *change us*. The gods are always pouring their goodnesses into our lives. Our religious behaviors make us more receptive to the streams of divine benevolence.

But how does this work with evolution? By giving thanks to it, we change our relations to it. We gain emotional satisfaction. Ethical naturalists may also argue that we gain moral satisfaction. Both forms of satisfaction can help motivate better human behavior. Bearing witness to evolution can inspire greater ecological awareness and activism. It can inspire greater reverence for all living agents, including other humans. But giving thanks to evolution does not imply worshipping it. To worship evolution is to try to enter into a *do ut des* relation with it: I give that you might give. To worship evolution would be to try to change it to benefit us. But evolution does not change in response to our religious behaviors. So, while it can make sense for an atheist to give thanks to evolution, it would be foolish to petition it or worship it.

7. Giving Thanks to the Sun

The sun is a thermodynamic agent which gives us many benefits. It is one of our deepest benefactors. Since the sun gives us many benefits, we have the emotional urge to directly reciprocate. Some ethical naturalists will also say we have moral obligations to directly reciprocate. But we cannot do this: the sun is too big and too far away. Now the second rule applies: if you cannot give food, give grooming. So we have the urge to groom the sun. According to Lucian (*De Saltatione,* 17), it was customary for an ancient Greek to salute the sun by kissing her hand and raising it to the sun. This gesture looks like a way of giving thanks by symbolic grooming. Modern pagans have designed other daily rituals for giving thanks to the sun (Fox, 2020).

For some, these daily rituals will be satisfying; but others have sought to give thanks to the sun by grooming solar avatars. Just as you can groom a Gaia statue, so you can groom a solar statue. Solar statues (with smiling sun-faces in their disks) are readily available. Or you might give thanks at the Tower of the Sun in Osaka Japan. At seventy meters tall, it is a large solar monument. Its interior contains a model of the biological tree of life, which bears witness to the way the sun drives evolution. This Tower has three sun-faces. However, since sun-faces suggest unwanted personification, an atheist may seek to thank the sun through more abstract forms of mimicry.

A solar monument (like a stone circle) imitates the yearly cycle of the sun from a geocentric perspective. Although ancient stone circles (like Stonehenge) are well-known, many dozens of new stone circles have been built in recent years. The stones mark the

significant days in the solar cycle, such as the solstices and equinoxes. On those days, the stones channel the light of the sun into the circle. The circle appears to be animated by that light, so that it serves as an avatar of the sun on that day. Simpler solar monuments (like the sun-daggers of the American southwest) are animated by the sun in similar ways. Building monuments to the sun is a way of bearing witness to its life-giving power, and so a way of giving thanks. Once a monument is raised, people can groom it by touching it or by performing rituals in it or with it. These rituals can be as simple as shouting "Sol invictus!" on the morning of the winter solstice. More deeply, many groups perform complex rituals in their stone circles. Rituals celebrating the solar holidays are performed in new stone circles at the Four Quarters Interfaith Sanctuary of Earth Religion in Pennsylvania (2020) and the Kinstones in Wisconsin (2020). Modern Druids perform solar rituals in the stone circles at Dreamland in Vermont (2020) and at the White Mountain Druid Sanctuary in Washington (2020).

By abstraction, the solstices and equinoxes themselves become avatars of the sun. To these four solar holidays, modern pagans add the four cross-quarter days, which fall between the solstices and equinoxes. These solar holidays make the pagan *wheel of the year* (Meredith, 2013). By performing thanks-giving rituals on these eight days, we groom these episodic avatars of the sun. We give thanks to the sun through mimicry. As the sun creates light and heat, so we create light and heat. Thus candles and bonfires play central roles in many pagan celebrations on the solar holidays (Fox, 2009).

Performing rituals of thanks-giving on the solar holidays does not require theism. As part of his atheistic Religion of Nature, Crosby (2014: 147) includes rituals on the solar holidays. Many active atheistic pagan groups currently exist (e.g. Humanistic Paganism, 2020a; Atheopaganism, 2020). These atheistic pagans perform rituals on the eight solar holidays (Green, 2019: 93-6). These rituals take many forms (Livingstone, 2005: chs. 5 & 6; Humanistic Paganism, 2020b). On the cross-quarter days, the Beltane Fire Society (2020) performs secularized pagan rituals. Some entirely secular atheists honor the sun on the winter solstice (Cimino & Smith, 2014: 134). Many of these atheistic rituals explicitly include acts of thanks-giving to the sun or other natural agents.

By performing these rituals, you groom the sun. This is a kind of sympathetic magic, whose power is purely psychological. It works on the mind of the pagan theist who believes the sun is literally a god, but it works just as well on the mind of the atheist. By performing rituals which groom avatars of the sun, the atheist gives thanks to the sun. This is not fictionalism. The atheist is neither pretending to give thanks nor doing live-action role-play (larping). The atheist really does give thanks. The atheist satisfies their emotional urges to give thanks, as well as any moral obligations. By their similarities with historical pagan activities, it is plausible to say that solar thanks-giving rituals are pagan. Once more, if urges or obligations push atheists towards such rituals, then they are pushing atheists towards an atheistic paganism.

The analysis of thanking the sun parallels the analysis of thanking evolution. By giving thanks to the sun, we do not change it. We change only our relations to it. Specifically, we change our ethical relations towards its products, that is, towards the complex network of life which emerges from its gifts. Bearing witness to the sun can inspire greater ecological awareness and activism. It can inspire greater caring for all living agents, including our fellow humans. Just as giving thanks to evolution does not

imply worshipping it, so giving thanks to the sun does not imply worshipping it. Atheists do not try to bribe the sun or beg it for favors.

8. Conclusion

Our entire universe, finely-tuned for the evolution of internal complexity, is also a thermodynamic agent. It produces as much order as possible by producing entropy as fast as possible. Atheists can give thanks to our finely-tuned universe. And so the expected rules of reciprocity apply: atheists give thanks to our universe by grooming an avatar of our universe. We give thanks to it by bearing witness to it. Most deeply, atheists can give thanks for existence itself (Colledge, 2013). Here again we give thanks by bearing witness, and we bear witness by grooming avatars.

Carl Sagan said "The cosmos is within us. We are made of star-stuff. We are a way for the universe to know itself" (1980). Dawkins says "We can get outside the universe. I mean in the sense of putting a model of the universe inside our skulls" (1998: 312). Of course, he means that we put a linguistic model of the universe inside our skulls by doing science. By doing science, you build an avatar of the universe inside your head. By thinking about that avatar, you groom it linguistically. Of course, atheists need not endorse scientism. We can affirm that the study of existence itself is philosophical. By doing philosophy, we bear witness to existence. By building our philosophical theories, we construct and groom avatars of existence inside of our heads.

Although linguistic grooming resembles other acts of thanks-giving, it is reasonable to refer to it as *prayer*. Obviously, this is not petitionary prayer; on the contrary, it is *contemplative prayer*. Thus Colledge (2013: 41-2) proposes that the deepest expressions of atheistic gratitude are acts of prayer or acts of cosmic benediction. Just as atheists need not give deep thanks to any persons, so they need not pray to any persons. The idea that giving a rational account of the universe is a kind of contemplative prayer probably goes all the way back to Plato's *Timaeus* (Layne, 2013). If grooming a cognitive avatar of the universe is a kind of prayer, it is a pagan kind of prayer. Dawkins says that bearing witness to the universe by building scientific models of it *makes life worth living* (1998: *x*, 1-6, 313). If he is right, then what makes life worth living are kinds of prayer and thanks-giving for which no gods are required.

I have argued that our evolving biosphere, the sun, and our finely-tuned universe are agents. Since they teleonomically give us deep benefits, they are deep benefactors. It is rational and appropriate for atheists to give thanks *to* them *for* those benefits. By giving thanks to these deep impersonal agents, atheists can satisfy their emotional urges to give thanks. And, if we have moral obligations to thank these agents, then atheists can also satisfy their moral obligations. By giving deep thanks through ritual activities and through contemplative prayer, atheists can meet the theistic charges that atheism is emotionally and possibly morally unsatisfactory. Moreover, I have argued that the atheistic practices of thanks-giving resemble ancient pagan practices. If that is right, then the atheists who do give thanks are becoming *atheopagans*.

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