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**Paleoevil, Theodicy, and Models of Earth History**

*Kurt P. Wise*

299



## *Paleoevil, Theodicy, and Models of Earth History*

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**Abstract:** The total amount of natural evil includes natural evil in the present world plus the natural evil of the past—including ‘paleoevil’, the natural evil inferred from the geologic record. ‘Baseline paleoevil’—paleoevil directly inferred from the geological record—is considerably greater than the natural evil observed in the present. Beyond phenomena of the present that cause suffering—such as disease, parasitism, carnivory, degenerative aging, accidental injury, death, extinction, floods, droughts, storms, tsunamis, mudflows, and avalanches—the geologic column also evidences giant meteorite impacts, supervolcanoes, and superquakes. Because the geologic column is an incomplete sample of earth history, the actual amount of paleoevil is an amplification of baseline paleoevil. How much the baseline paleoevil is amplified is dependent upon one’s view of earth history. A minimal amplification is necessary if the earth is young; an amplification by at least five orders of magnitude is required if the earth is old. Even greater amplification is required if organisms arose by biological evolution.

Augustine’s theodicy dominated most of Church History, but the only paleoevil it can explain is young-age paleoevil. Of theodicies fashioned to explain old-age paleoevil, Alvin Plantinga’s requires a fall of angels prior to that indicated in Scripture and William Dembski’s requires a judgement before sin inconsistent with a biblical view of God. Although theodicies similar to that proposed by Augustine can explain young-age paleoevil, no theodicy seems to adequately address either old-age or evolutionary paleoevil.

**Key Words:** natural evil, theodicy, Augustine, young earth, old earth, philosophy of science, Alvin Plantinga, William Dembski

### **Introduction**

Perhaps the most substantial philosophical challenge to Christianity is the problem of evil. Atheologists<sup>1</sup> claim that the existence of evil is inconsistent with belief in a good, all-powerful, all-knowing God. In response to atheological challenges, Chris-

1. A person who is a critic of Christianity.

tians have developed theodicies to argue that evil is not inconsistent with a Christian God. Some of these theodicies only address the problem of moral evil—why God permits acts of willful disobedience to Him. But not all evil is moral evil. Natural processes that lack any ability at all to choose disobedience are responsible for a substantial amount of human and animal suffering. This ‘natural evil’ is added to moral evil, thus substantially increasing the amount of evil that a Christian theodicy ought to explain.

The natural evil of the *present* world, however, may actually pale in magnitude compared to the natural evil of the past (here called ‘paleoevil’). The fossil record of the earth contains direct evidence of natural evil and processes that result in natural evil. Other than general references to natural evil prior to the fall of Adam, theodicies tend not to address the natural evil directly evidenced in the earth’s rock record. Yet, the paleoevil directly evidenced in the fossil record pales again in comparison to the paleoevil that must be *inferred* in certain interpretations of earth history. It is doubtful that any theodicy has even attempted to address the full magnitude of the paleoevil required in models of earth history created in the last couple centuries.

This article seeks to apply Christian theodicies to a fuller understanding of paleoevil. Using one type of natural evil to gain perspective on total paleoevil—namely the suffering of animals—the article will begin by introducing the nature of animal suffering in the fossil record—both that directly evidenced in the fossil record and that required in several interpretations of earth history. The article will then examine a couple of the popular theodicies to determine how effectively they explain the different levels of paleoevil required in different interpretations of earth history.

## **Paleoevil**

‘Paleoevil’ is here defined as a subset of natural evil—namely that natural evil of the past which we infer from the geologic record (the fossils and rocks of the earth). Furthermore, this article will focus on the paleoevil suffered by animals<sup>2</sup>. Although it is generally acknowledged that animals can and do suffer, very few believe that plants, fungi, protozoa, algae, or bacteria are capable of suffering. To avoid a dispute on what can and cannot suffer, and to make the project more manageable, this article is restricted to the suffering of animals that might be inferred from the geological record.

2. There is much discussion on where the line should actually be drawn between natural process that is not evil and natural process that is. Some would say that death, per se, is a natural evil, whereas others would say that death in a world of suffering is mercy, and not, at least, evil in an absolute sense. Some would say that death that provides life (e.g., the death of a plant to feed an animal or the death of an animal to feed a human) is not evil. Others would say that it is. And so the argument continues. Here, we will track only natural processes that cause animal and/or human *suffering*, as most would agree that even if pain and death may be necessary for life and to maximize the pleasure of life, suffering (pain beyond what is necessary) is not.

Paleoevil, like natural evil, can be roughly divided according to the cause of the evil into biological, climatological, geological, and astronomical natural evils. Biological natural evils would include plant and animal toxins, genetic mistakes, microorganism-caused diseases, parasitism, carnivory, and degenerative aging. Accidental injury, though not easily classified into the other categories, is included as a natural biological evil because it also causes animal suffering. Climatological natural evils would include lightning (and the wildfires lightning might ignite), extreme temperatures (sweltering or freezing), extreme precipitation (droughts or floods), and severe storms (tornadoes, hurricanes/cyclones, blizzards, *etc.*). Geological natural evils would include earthquakes and volcanic eruptions, as well as some of the events they cause (e.g., tsunamis, mudflows, landslides, environmental poisoning). Astronomical natural evils would include such things as supernova explosions and bolide impacts and the things they might generate (e.g., tsunamis, avalanches). All these things cause animal suffering.

Most of these natural evils are evidenced in the geologic record and would thus be classifiable as paleo evils. Among astronomical natural evils, there are no known evidences of nearby supernova explosions in the geological record. However, about 190 structures on the earth are currently identified as likely impact craters.<sup>3</sup> They are scattered throughout the geologic record and across the earth's continents. 50 of them are craters 10 miles or more in diameter (with an estimated energy release greater than that of the entire nuclear weapons arsenal of the world), 14 are greater than 25 miles in diameter, and 6 are in excess of 50 miles in diameter. These sorts of impacts on a planet like ours would cause extensive animal suffering across the planet.

The evidence for geological natural evils in the geological record is extensive. Volcanic activity, for example, is evidenced directly from lava flows and debris tossed out of erupting volcanoes<sup>4</sup> and indirectly from intrusive igneous rocks and hydrothermal mineral deposits.<sup>5</sup> Interestingly enough, the volcanism evidenced in the geologic record is often on a scale many times larger than the volcanism we experience today. There have been volcanic eruptions since the time of Christ that have been quite destructive (e.g., the eruptions of Pinatubo in 1991, St. Helens in 1980, Tambora in 1815, and Vesuvius in AD 79). The 1980 eruption of Mt. St. Helens, for example, pulverized more than 1/5 of a cubic mile of rock into volcanic ash, devastated over 150 square miles of forest in less than six minutes, and killed more than 50 people

3. See, for example, the Earth Impact Database: "Earth Impact Database", The Planetary and Space Science Centre, accessed January, 2017, available at <http://www.passc.net/EarthImpactDatabase/index.html>.

4. E.g., pyroclastic deposits and volcanic ash.

5. Molten rock rising towards the earth's surface 'intrudes' rocks on the way up, and cools as 'intrusive igneous rock' if it does not make it to the surface. Water released or heated up by such molten rock carries dissolved minerals that can deposit many of those minerals in hydrothermal mineral deposits.

and many animals—including more than 10,000 elk.<sup>6</sup> In the first century, in a similar-sized eruption, Vesuvius destroyed the cities of Herculaneum and Pompeii, killing perhaps 15,000 people.<sup>7</sup> In 1991, Pinatubo pulverized more than 2 cubic miles of rock into ash,<sup>8</sup> and, in 1815, Tambora pulverized roughly 22 cubic miles of rock and killed over 70,000 people.<sup>9</sup> But these eruptions pale in comparison to the eruptions of ‘supervolcanoes’ evidenced in the geologic record. Several eruptions sourced in what is now Yellowstone National Park, for example, pulverized more than 200 cubic miles of rock, covering most of what is now the United States west of the Mississippi River with volcanic ash.<sup>10</sup> Even larger eruptions must have generated the hundreds of feet of volcanic ash now evidenced in the Chinle Formation (the rocks of the Painted Desert) and the Morrison Formation (the rocks containing the dinosaurs of Dinosaur National Monument).<sup>11</sup> And even these events must have been dwarfed by the eruptions which created more than a dozen ‘Large Igneous Provinces’ found in the geologic record,<sup>12</sup> each of which contains more than 32,000 cubic miles of lava erupted in just weeks of time. If volcanic eruptions on these scales were to occur today they would cause a huge amount of animal suffering.

Earthquake activity is evidenced indirectly by landslides and directly by faults, scrapes on rocks caused by faulting, and sediments deformed by earthquake shock waves. Earthquake evidences of this nature are common throughout the geologic record. Even teasing out the earthquakes which are known to be due—or thought to be due—to volcanic or impact events, earthquake evidence abounds.<sup>13</sup> And, as in the case of volcanism, earthquake activity is evidenced in the geologic record that is many times stronger than earthquakes we experience today. Even huge earthquakes such as the one on December 26, 2004, which triggered a tsunami which in turn

6. “Mount St. Helens – From the 1980 Eruption to 2000,” U.S. Geological Survey Fact Sheet 036-00, last modified March 1, 2005, accessed June 16, 2017, available at <https://pubs.usgs.gov/fs/2000/fs036-00/>.

7. Alfonso de Franciscis, *The Buried Cities Pompeii & Herculaneum* (New York: Crescent Books, 1978).

8. “The Cataclysmic 1991 Eruption of Mount Pinatubo, Philippines,” U.S. Geological Survey Fact Sheet 113-97, last modified February 28, 2005, accessed June 16, 2017, available at <https://pubs.usgs.gov/fs/1997/fs113-97/>.

9. “Comparisons With Other Eruptions,” USGS, last modified June 25, 1997, accessed June 16, 2017, available at <https://pubs.usgs.gov/gip/msh/comparisons.html>.

10. “Questions About Yellowstone Volcanic History,” USGS, last modified July 6, 2012, accessed June 16, 2017, available at [https://volcanoes.usgs.gov/volcanoes/yellowstone/yellowstone\\_sub\\_page\\_54.html](https://volcanoes.usgs.gov/volcanoes/yellowstone/yellowstone_sub_page_54.html).

11. Eric H. Christiansen, Bart J. Kowallis, Michael J. Dorais, Garret L. Hart, Chloe N. Mills, Megan Pickard, and Eric Parks, “The Record of Volcanism in the Brushy Basin Member of the Morrison Formation: Implications for the Late Jurassic of Western North America,” *Geological Society of America Special Papers* 513 (2015).

12. Hetu Sheth, “‘Large Igneous Provinces (LIPs)’: Definition, Recommended Terminology, and a Hierarchical Classification,” *Earth-Science Reviews* 85, nos. 3-4 (2007): 117-24.

13. For example, Frank R. Effensohn, Nicholas Rast, and Carlton E. Brett, eds., *Ancient Seismites: GSA Special Paper 359* (Denver, CO: Geological Society of America, 2002).

killed more than 230,000 people, pale in comparison to the ‘superquakes’ evidenced in the geologic record. The geologic column evidences fluid evulsion structures<sup>14</sup> dozens of times larger than those produced by any earthquake known in the last 3000 years.<sup>15</sup> The geologic column evidences faults with displacements hundreds of times greater than the largest fault displacements on any earthquakes known in the last 3000 years.<sup>16</sup> Earthquakes which sever buildings from their foundations and move massive objects dozens of feet are impressive. Yet during the time that Miocene and Pliocene sediments were deposited, earthquakes on the San Andreas Fault severed mountains from off from their roots and moved them scores of miles across the landscape.<sup>17</sup> Whereas the 2004 Sumatra quake moved a 1000-kilometer slab of rock 20 meters, evidence suggests at least one paleoquake collapsed all the continental margins across the entire planet.<sup>18</sup> If earthquakes of this magnitude occurred today, they would cause considerable animal suffering across our planet.

Because they have much less direct impact on sedimentation, climatological natural evils are more difficult to recognize in the geologic record. Yet lightning can be evidenced by sediments fused by the heat of lightning strikes, and wildfires can be recognized in tree-ring studies. Variations in rainfall can be evidenced in tree-rings, ice cores, and sediment cores. Frozen carcasses evidence the effects of freezing, and salt deposits can evidence drought conditions. River overbank deposits that evidence floods and storm deposits are commonly recognized throughout the geologic record. Whereas it is difficult to infer lightning and temperature extremes in older deposits, storm activity as well as high and low extremes in rainfall are evidenced consistently in time and space throughout the entire geologic column. Events of this nature cause considerable animal suffering in the present, so climatological paleo evils have caused much animal suffering in the geologic past as well.

14. Resulting from sediments becoming ‘liquified’ by water forced out from between the grains when an earthquake shock wave causes the grains to settle closer together.

15. For example, H. L. Hilbert-Wolf and E. M. Roberts, “Giant Seismites and Megablock Uplift in the East African Rift: Evidence for Late Pleistocene Large Magnitude Earthquakes,” *PloS one* 10, no. 6 (2015) and Summer Rose Weeks and Arthur V. Chadwick, “A Prominent Seismitic in the Upper Cretaceous Lance Formation in Northeastern Wyoming as a Stratigraphic Marker,” *Geological Society of America Abstracts and Programs* 43, no. 5 (2011): 119.

16. Faults with miles of displacement are rather common in the fossil record. Although it is difficult to determine how long it took for that total displacement to occur (it could have occurred over many earthquakes over many years), many cause folding of thousands of feet of rock without any evidence that sediments were being deposited at the same time. See, for example, the monocline in Grand Canyon described in Stanley S. Beus and Michael Morales, eds., *Grand Canyon Geology* (Oxford: Oxford University Press, 1990).

17. For example, the Kingston Range: J. P. Calzia, R. J. Blakely, and R. C. Jachens, “Miocene Magmatism and Extension in Ibex Pass, Southern Death Valley, California,” *Eos* 72 (1991): 469.

18. Steven A. Austin and Kurt P. Wise, “The Pre-Flood/Flood Boundary: As Defined in Grand Canyon, Arizona and Eastern Mojave Desert, California,” in *International Conference on Creationism*, Robert E. Walsh, ed. (Pittsburgh, PA: Creation Science Fellowship, 1994).

Biological natural evils are best evidenced in fossils themselves. In contrast to plant and animal toxins which are rarely possible to identify in the fossil record, death is directly evidenced by billions of animal fossils throughout the geologic record on all continents. Extinction is directly evidenced by more than a quarter million species of fossil animals unknown in the present world.<sup>19</sup> Carnivory is nearly as pervasive, evidenced by predator designs (e.g., teeth, claws), animal remains in digestive systems or feces, body damage matching the bites of known predators, and bone growth around embedded predator teeth. Although it is very difficult to distinguish among the different causes of disease (genetic vs. parasite vs. microorganism causes), the evidence of disease (e.g., tumors) is found in animal fossils throughout the fossil record. The fossil bones of vertebrates not only commonly show evidence of disease and predation (healed tooth punctures) but also commonly show evidence of accidental injury in the form of healed bone breaks. Substantial animal suffering from a variety of biological natural evils is evidenced throughout time and space in the geological record.

### **Baseline Paleoevil**

Paleoevil which is evidenced in the manner recounted above is here defined as ‘baseline paleoevil’. More or less directly evidenced by the rocks and fossils, this is a *minimum* amount of paleoevil evidenced in the geological record. By its very nature, though, the fossil record provides an incomplete picture of the earth’s past. There are countless fossils that are buried so deeply in rocks—some miles beneath the surface—that they have never been seen and probably will never be seen. Even in the case of fossils at or near the earth’s surface, many of them are in places where they are never seen by humans, many are eroded away by weather or pulverized by being stepped on by animals. Then there are the fossils that were found in rocks now completely eroded away. The fossils and rocks known to science are only a sample of all the fossils and rocks that exist in the present, or once existed and are now gone.

How large a sample the present rocks and fossils represent is dependent upon what is believed about earth history. Some views of earth history understand the fossil record to represent a vanishingly small sample of earth history. Others suggest that most of the rocks and fossils that were formed in the earth’s past still exist on our planet today. Some views suggest that the natural evil we see in the present is a key to understanding the natural evil of the past. Others argue that paleoevil has changed in both type and magnitude throughout earth history. Because the rock and fossil record is only a sample of the earth’s past, *all* views of earth history argue that the *true* paleoevil is substantially more than the baseline paleoevil. However,

19. See, for example, Donald R. Prothero, “Fossil Record,” in *Encyclopedia of Paleontology*, R. Singer, ed. (Chicago: Fitzroy Dearborn Publishers, 1999), 490-92.

*how much more* is very much dependent upon one's view of earth history.<sup>20</sup> Three broadly different perspectives of earth history are now reviewed for their respective enhancements of paleoevil.

### Young-Age Paleoevil

Until just two or three centuries ago, most Jewish and Christian theologians understood that the creation began less than eight thousand years ago.<sup>21</sup> This was simply because the natural or naïve reading of the biblical text suggested creation occurred in a week of time, and Abraham (*circa* BC 2000) lived only two or three millennia after the creation.<sup>22</sup> This changed only after geological arguments for a much older earth began to be introduced in the late eighteenth and early nineteenth centuries. Those who continued to interpret the Bible in this 'literal' fashion continued to embrace a young age for the creation—thus continuing to accept what is here referred to as 'young-age' interpretations of earth history. A somewhat diverse set of young-age interpretations of earth history persist to the present. The nearly universal belief among these young-age interpretations is that natural evil was not in the original creation, but originated with the curse of Genesis 3. Young-age earth histories, then, claim that the animal fossil record was generated after the Fall of Man.<sup>23</sup> This requires that a huge number of fossils and a huge volume of rocks must have formed in less than eight thousand years of time. This, in turn, requires a rate of formation of rocks and fossils many, many times greater than the formation rate observed in the present (i.e., at catastrophic rates). According to a typical young-age reading of Genesis 6-9, the flood in the days of Noah began suddenly and covered the whole globe. This makes Noah's flood a catastrophic event, and a good candidate for the catastrophic formation of rocks and fossils necessary in a young-age view of earth history. Not surprisingly, then, most young-age earth histories assign much of the animal fossil record to the Genesis Flood or catastrophes following soon thereafter.

20. Some might object that it is inappropriate to measure the total amount of paleoevil that has occurred through time, for that would mean that every day that passes would increase the difficulty of evil for the Christian. But, every day that passes *does* increase the difficulty of evil for the Christian. The theodicy problem is how to reconcile the existence of evil with a God who is perfectly Good and all-powerful. Although *any* amount of evil would be a problem, the more evil there is, the more difficult the problem. And, the longer such a God waits to rid the world of that evil, the more difficult the problem.

21. Roughly 4000 B.C., based on a Masoretic chronology and roughly 5500 B.C. based on a Septuagint chronology. For an example of the pervasiveness of the belief in a young earth, see William Van Doodewaard, *The Quest for the Historical Adam: Genesis, Hermeneutics, and Human Origins* (Grand Rapids, MI: Reformation Heritage Books, 2015).

22. Based on the 'days' of Genesis 1 being the earth-rotation days of our current experience, and the genealogies of Genesis 5 and 11 being both accurate and complete.

23. From the perspective of young-age earth history, since death was not a part of the original creation and animal fossils seem to evidence animal death, God did not create the fossils in place. Young-age earth history, then, concludes that animal fossils were formed after the creation, and, in fact, after the fall of man.



In the modern world, only a vanishingly small percentage of organisms get preserved as fossils. Many plants and animals are killed and eaten by consumers. The bodies of most of the rest are consumed by scavengers, and decomposers destroy the vast percentage of the remainder. Young-age earth histories involve such a short history that conditions like the present—even collectively over the entire history of the world—would generate no appreciable rocks or fossils. However, in the midst of catastrophes, organisms can get buried quickly. Organisms get preserved as fossils at a greater frequency, the more rapidly they are buried. Young-age earth histories require such a high rate of rock formation that animal fossils and the rocks that contain them must have been produced during one or more catastrophes of astonishing magnitude.<sup>24</sup> The burial rates during the catastrophe(s) must have been so high that a very high percentage of organisms must have been preserved as fossils.<sup>25</sup> In young-age earth histories, then, the fossil and rock record we have in the present is thought to represent a substantial percentage of all the rocks and fossils that were ever formed. The paleoevil directly evidenced by those rocks and fossils, then, represents a substantial percentage of the paleoevil that occurred at the time of the catastrophe(s). Since young-age earth histories begin with a world lacking natural evil, and are only thousands of years long, relatively little paleoevil occurred during non-catastrophic periods of earth history. Overall, then, the total paleoevil inferred by young-age earth histories—what is here called ‘young-age paleoevil’—is probably within an order of magnitude of baseline paleoevil.

### **Old-Age Paleoevil**

Whereas young-age earth histories dominated Christian thought before the middle of the eighteenth century, geological arguments for an old earth began a gradual transition to old-age earth histories.<sup>26</sup> Rocks containing animal fossils were first given ages of tens of thousands, then hundreds of thousands, then millions, and, by the latter part of the nineteenth century, hundreds of millions of years. During the second half of the nineteenth century even the age of human fossils was pushed back, first to tens of thousands, and then to hundreds of thousands of years. In the twentieth century, the abundance of rare, radioactive atoms in rocks was interpreted in such a way as to push the age of the oldest animal fossils back to more than 500 million years and the oldest

24. Consistent, in turn, with geologic events evidenced in the rock record (e.g., superquakes and supervolcanoes) many times more powerful than is observed in the present.

25. This is consistent with a very high percentage of modern species being represented in the fossil record, and the number of species unique to the fossil record (roughly a quarter million) being within an order of magnitude of the number of named species in the modern world (roughly 1.8 million).

26. Examples of histories of this transition include: C. L. E. Lewis and S. J. Knell, eds., *The Age of the Earth: From 4004 BC to AD 2002* (London: The Geological Society, 2001) and Martin J. S. Rudwick, *Bursting the Limits of Time: The Reconstruction of Geohistory in the Age of Revolution* (Chicago, IL: University of Chicago, 2005).

human fossils back to between two and four million years.

In contrast to the limited enhancement of paleoevil inferred from young-age earth histories, the enhancement of paleoevil inferred in old-age earth histories is quite considerable. This is because the thickness of fossiliferous sediments averages less than a mile on the continents and one third of mile on the ocean bottom. Even if the average sedimentation rate was at the very low end of the observed range, one half billion years of sedimentation should generate more than 100 times that much sediment. More reasonable sedimentation rates would require one to two orders of magnitude more than that.<sup>27</sup> And this is assuming no catastrophic sedimentation (i.e., assuming no impacts, volcanoes, landslides, storms, floods, *etc.*, all of which are evidenced throughout the rock record). In an old-age interpretation of earth history, at least five orders of magnitude more rock has been produced in earth history than we have evidence of in the present. If the rocks really are as old as old-age histories suggest, baseline paleoevil is an extreme underestimate of the actual amount of paleoevil—by something in excess of five orders of magnitude.

In regards to extinction, old-age histories would suggest that rather than merely the quarter million extinctions evidenced by fossil species, there should have been something on the order of 50 *billion* extinctions<sup>28</sup>—again, roughly five orders of magnitude more than we have direct evidence. Similarly, rather than the billions of deaths that are directly observed in the fossil record, old-age earth history would require many billions *of* billions of deaths.<sup>29</sup> In old-age earth histories there would have been at least five orders of magnitude more carnivory, disease, and accidental injury than we have direct evidence for. There would also have been five orders of magnitude more *species* of carnivores and pathogens than we see directly evidenced in the fossil record.

For similar reasons, old-age histories require orders of magnitude more floods, droughts, storms, earthquakes, volcanoes, and meteor impacts than we see directly evidenced in the geologic record. For example, even assuming the very small cratering rates we observe in the present, in the course of animal history there should have been at least 500 impacts releasing more energy than is stored in the earth's entire nuclear weapon arsenal (rather than the 50 for which we have direct evidence). There

27. An 'order of magnitude' estimate is an estimate within a factor of ten either way, so two orders of magnitude greater is within a factor of ten of  $10^2$  greater, or between 10 and 1000 times as large.

28. This is calculated by integrating Sepkoski's Phanerozoic genera diversity curve with respect to time, multiplying by the average number of species per genus (~3), and dividing by the average species duration (~30 million years).

29. This can be derived by assuming that during its 30 million year duration, each extinct species not evidenced maintained a (conservative) average population size of 1000 and an average (conservative) lifespan of 5 years. This yields 6 billion deaths per species. 50 billion un-evidenced species would generate 300 billion billion deaths. Alternatively, if we assume there are a billion preserved fossils, then  $\frac{1}{4}$  million extinct species suggests there are an average of 4000 fossils per extinct species, yielding 200 billion billion fossils if all 50 billion un-evidenced fossil species were evidenced to the same average extent.

should have been 50 impacts large enough to cause more than 75% extinction of earth species (rather than the direct evidence we have for only three impacts of this size, and five mass extinctions of this size). Even these estimates are underestimates, given that the present cratering rate appears to be smaller than the cratering rate in the past.

Along with the greater number of instances of natural evil, a greater diversity of different *types* of natural evil would also be expected in old-age histories. Furthermore, this more diverse natural evil would persist over hundreds of millions of years. The quantity of natural evil which must have occurred if old-age earth histories were true—what is here called ‘old-age paleoevil’—is difficult to estimate, but should be well over five orders of magnitude more paleoevil than baseline paleoevil.

### **Evolutionary Paleoevil**

Naturalistic evolution is another interpretation of earth history which substantially inflates estimates of paleoevil.<sup>30</sup> In conventional evolutionary theory every species is struggling for survival. It persists only if a greater percentage of its offspring survive to produce viable offspring than every other species in its vicinity. Every organism is essentially at war with its environment and adjacent organisms, making *everything* in its environs—even members of its own species—something of a natural evil to that species. In this understanding of biology, natural evil *is* the norm. In an evolutionary view, harmony, cooperation, and mutualism would be expected to be rare phenomena, even though that does *not* seem to be case in the present world.<sup>31</sup> In general, the evolutionary perspective suggests there is much more natural evil in both the present and fossil world than is directly observed. Furthermore, in an evolutionary perspective, species arise due to the natural evil of natural selection. And, if old-age earth history is assumed—which it is in biological evolution—then billions of species must not only have gone extinct in the course of earth history (as argued above), but billions of species must have come into existence in the course of earth history. Not only does an evolutionary view of earth history require organisms to experience more natural evil than is observed or inferred in other views of earth history, but tens of billions of species must have come to be by a process of natural evil not a part of any other view of earth history. The paleoevil inferred in an evolutionary view of history is here defined as ‘evolutionary paleoevil’. Because biological evolution also requires

30. In measuring paleoevil, there is no distinction between naturalistic evolution (with no Creator) and evolutionary creation (where God creates the universe with the ability to evolve itself) or theistic evolution (where God continually creates, but at a more-or-less unobservable micro-scale). If human observers were in place to observe, there would be no observational distinction between and among these three ideas, so they would each generate roughly the same paleoevil.

31. Among long-term relationships between organisms (symbioses), evolution would expect mutualism to be rare, and parasitism and pathology to be very common. Unlike evolution expects, mutualism in the present world seems to be more common than the other types of symbiosis (commensalism and parasitism) combined, and pathological organisms account for only about 1/10 of one percent of all species. The fossil record seems to show a similarly high rate of mutualism and low rate of parasitism and pathology.

Kurt P. Wise: *Paleoevil, Theodicy, and Models of Earth History*  
an old-age interpretation of history,<sup>32</sup> evolutionary paleoevil embraces *both* baseline paleoevil *and* old-age paleoevil *and* adds at least another order of magnitude more paleoevil of its own.

## Theodicy

### Augustine's Theodicy

Most agree that the theodicy of Augustine (AD 354-430) was the dominant theodicy for most of church history.<sup>33</sup> Based upon autobiographical entries in his *Confessiones*, it was concern about the evil in the world which initially drew the young Augustine into the Manichean heresy. One of his most significant intellectual struggles after his conversion, again according to his *Confessiones*, was how evil was to be understood in a Christian perspective of the world. It is no surprise, then, that one of Augustine's earliest Christian publications was *De Libero Arbitrio Voluntatis*,<sup>34</sup> where Augustine introduces a Christian theodicy.

In Augustine's theodicy,<sup>35</sup> moral evil does not come from an evil coexistent with God, as claimed by dualistic religions and heretical perspectives such as that of the Manicheans.<sup>36</sup> According to Augustine, God is the only entity extant from eternity past, and God is entirely good. Furthermore, evil for Augustine is not an essence,

32. Although old-age earth history is *necessary* for naturalistic evolution, naturalistic evolution is *not* a necessary assumption of old ages. Naturalistic evolution cannot be true without old ages also being true, but old age history could be true without naturalistic evolution being true.

33. For example, Barry L. Whitney, *Theodicy: An Annotated Bibliography on the Problem of Evil 1960-1990* (New York, NY: Garland, 1993), 3.

34. Augustine's baptism was in AD 386, and he supposedly wrote the first volume of *De Libero Arbitrio Voluntatis* in the period AD 387 to AD 389.

35. Based on the author's examination of English translations of *De Libero Arbitrio* [Thomas Williams, trans., *On Free Choice of the Will* (Indianapolis, IN: Hackett, 1993)], *Confessiones* [Edward Bouverie Pusey, trans., *The Confessions; The City of God; On Christian Doctrine by Saint Augustine*, ed. Robert Maynard Hutchins (Chicago, IL: Encyclopaedia Britannica, 1952), 1-125.], *De Natura Boni contra Manichaeos* [Albert H. Newman, trans., *Concerning the Nature of Good, Against the Manichees*, ed. Philip Schaff (Edinburgh: T & T Clark, 1886-1890)], *De Genesi ad litteram* [Edmund Hill, trans., *The Works of Saint Augustine: A Translation for the 21<sup>st</sup> Century, Part I: Books, Volume 13: On Genesis* (New York, NY: New City, 2002), 168-506], *De Civitate Dei contra Paganos* [Marcus Dods, trans., *A Select Library of the Nicene and Post-Nicene Fathers of the Christian Church, Volume 2: St. Augustin's City of God and Christian Doctrine*, ed. Philip Schaff (Edinburgh: T. & T. Clark, 1886)], *Contra Julianum* [Matthew A. Schumacher, trans., *Saint Augustine Against Julian* (New York, NY: Fathers of the Church, 1957)], *Enchiridion* [Albert C. Outler, transl., *Handbook on Faith, Hope, and Love*, accessed August 2007, available at <http://www.ccel.org/ccel/augustine/enchiridion.html>].

36. For Augustine's rejection of the eternal coexistence of evil with God see Augustine, *De Natura Boni contra Manichaeos*, chs. 1, 17, 41-47 and Augustine, *De Civitate Dei contra Paganos*, bk. 11, ch. 22.

but a [de]privation of good,<sup>37</sup> so there is no such thing as an intrinsically evil being.<sup>38</sup> Augustine also rejects the Gnostic claims that evil enters the creation by means of the creating angels. Instead Augustine claims that God, and God alone, is the Creator of all things. Augustine also rejects the Greek notion of the evil nature of matter and concludes that all beings were created intrinsically good,<sup>39</sup> because the (only) Creator is not only good, but he repeatedly pronounced the creation ‘good’ and ‘very good’.<sup>40</sup> It is from this latter fact that Augustine also deduces that at the end of the creation there was no moral evil anywhere among the creations listed in Genesis one.

Because God is good in Augustine’s theodicy, moral evil did not arise from God.<sup>41</sup> Rather, moral evil was the invention of wills with the power of free choice<sup>42</sup>—first the free will of angels, and later the free will of Adam.<sup>43</sup> According to Augustine, God created wills with free choice because there is more good in a creation with wills which freely choose good than there is in a creation without such beings.<sup>44</sup> In fact,

37. Augustine, *Nat. Boni*, chs. 4, 15; Augustine, *Confessiones*, bk. 3, ch. 7; bk. 7, ch.12; Augustine, *Civ. Dei*, bk. 11, ch. 9; Augustine, *Enchiridion*, chs. 11-12; Augustine, *Contra Julianum*, bk. 1, ch. 8, par. 37; ch. 9, par. 42-45; Thomas Aquinas, *Summa Contra Gentiles*, bk. 2, ch. 41; bk. 3, chs. 6-11, 13-14, 20, 85, and 141; bk. 4, ch. 52; Thomas Aquinas, *Summa Theologica*, tr. 1, q. 4, a. 3; q. 14, a.10; q. 19, a. 9; q. 48, aa. 1, 3, 5; q. 49 a.1; q. 49, a.3 ad 2; tr. 2.1, q. 18 a.1; q. 18, a. 5 ad 2; q. 18, a.8 ad 1; q. 21, a.1; q. 25, a.2; q. 36, a. 1; q. 42, a. 1; q. 78, a. 1; q. 84, a. 3 ad 2; q. 87, a. 7; tr. 3s, q. 12, a.3 ad 2.

38. Augustine, *Nat. Boni*, ch. 17; Augustine, *Civ. Dei*, bk. 12, ch. 3; Augustine, *Ench.*, ch. 13; Augustine, *Con. Jul.*, bk. 1, ch. 8, par. 36-37; Aquinas, *Con. Gent.*, bk. 3, ch. 7; Aquinas, *Sum. Theol.*, tr. 1, q. 5, a.3 ad 2; q. 49, a.3; q. 103, a.7 ad 1.

39. Augustine, *Nat. Boni*, chs. 1-2, 15-17, 19, 33; Augustine, *Conf.*, bk. 7, ch. 3, par. 4; ch. 5, par. 7; ch. 12, par. 18; bk. 12, ch. 7, par. 7; Augustine, *Civ. Dei* bk. 11, chs. 21-24; bk. 12, chs. 1 and 5; Augustine, *Ench.*, ch.12; Augustine, *Con. Jul.*, bk. 1, ch.8, par. 36-37; ch. 9, par. 42; bk. 3, ch. 24, par. 56; bk. 4, ch. 3, par. 30; ch. 7, par. 37; bk. 5, ch. 7, par. 28; ch. 16, par. 59 & 64; bk. 6, ch. 7, par. 20; Augustine, *Gen. Lit.*, bk. 11, ch.13, par.17; Aquinas, *Con. Gent.*, bk. 2, chs. 41, 44-45, and 83; bk. 3, chs. 7 and 107; *Sum. Theol.* tr. 1, q. 6, aa. 3-4; q. 20, a. 2; q. 48, a. 1; q. 49, a. 3; q. 63, a. 5; q. 65, a. 2 ad 1; tr. 2.1, q. 5, aa. 1, 3; q. 8, a. 1; q. 18, a. 1.

40. Augustine, *Conf.*, bk. 10, ch. 34, par. 51; bk. 13, ch. 28, par. 43; bk. 13, ch. 34, par. 49; Augustine, *Civ. Dei* bk. 11, ch. 23; Augustine, *Gen. Lit.* bk. 7, ch. 26, par. 37.

41. Augustine, *Nat. Boni*, ch. 29; Augustine, *Conf.*, bk. 1, ch. 7, par. 11; Augustine, *Civ. Dei* bk. 11, chs. 17, 22; Augustine, *Con. Jul.*, bk. 1, ch. 8, par. 37; bk. 3, ch. 24, par. 55; bk. 4, ch. 7, par. 37; Aquinas, *Con. Gent.*, bk. 3, chs. 71 and 162; Aquinas, *Sum. Theol.*, tr. 1, q. 48, a.5 ad 4; q. 49, aa.1-2; q. 63, a. 1; tr. 2.1, q. 42, a.3; tr. 2.1, q. 79, aa. 1-3; q. 80, aa. 1, 4; q. 83, a. 1 ad 4; tr. 2.2, q. 11, a.1 ad 3.

42. Augustine, *Lib. Arb.*, ch. 1; Augustine, *Conf.*, bk. 4, ch. 15, par. 26; bk. 7, ch. 3, par. 5; Augustine, *Nat. Boni*, ch. 28; Augustine, *Civ. Dei*, bk. 11, chs. 17 and 22; bk. 12, chs. 6-9; bk. 13, ch. 14; Augustine, *Ench.*, chs. 8 and 28; Augustine, *Con. Jul.*, bk. 1, ch. 5, par. 16; ch. 8, pars. 37-38; ch. 9, par. 42; bk. 3, ch. 5, par. 11; ch. 24, par. 55; bk. 4, ch. 7, par. 35; bk. 5, ch. 4, par. 17; ch. 16, par. 64; bk. 6, ch. 10, par. 28; Aquinas, *Sum. Theol.* tr. 1, q. 19, a.10 ad 2; q. 48, aa. 5-6; tr. 2.1, q. 74, a. 2; q. 75, aa. 2-3; q. 77, a. 3; q. 78, a. 1; q. 79, a. 2; q. 80, a. 1.

43. Augustine, *Ench.*, ch. 8; Augustine, *Con. Jul.*, bk. 3, ch. 9, par. 18; ch. 26, par. 63; Aquinas, *Con. Gent.*, bk. 4, ch. 50.

44. Augustine, *Lib. Arb.*, ch. 2; Augustine, *Ench.*, ch. 28. Aquinas adds further goods to the creation of free-will beings such as: (a) a greater multitude of actions are generated by free-will beings than non-free-will beings (Aquinas, *Con. Gent.* bk. 3, ch. 73); and (b) free-will beings permit the demonstration of more of God’s attributes in created beings, such as the free will of God Himself (Aquinas, *Con. Gent.*, bk. 2, chs. 46-48; bk. 3, ch. 73).

even as he considered the evil which resulted from those wills which did not choose the highest good, God still considered a creation with free wills a greater good than a creation without such free wills.

The timing of moral evil's origin for Augustine is intimately related to his understanding of creation—the latter being an issue he struggled to clarify for most of his life.<sup>45</sup> Augustine concluded that the six-day creation began with the creation of light in Gen 1:3, took no more than an instant of time for God to accomplish,<sup>46</sup> and occurred no more than 6000 years<sup>47</sup> before his time. Augustine also believed that three things were created by God sometime before the six-day creation, possibly even far back in the distant past (without such things coexisting with God in eternity past<sup>48</sup>): time,<sup>49</sup> the heaven of heavens as the abode of God Himself,<sup>50</sup> and the matter from which everything in the six-day creation was constructed.<sup>51</sup> Although Augustine believed that angels were created with the creation of the light in Gen 1:3,<sup>52</sup> he did allow for the possibility that angels were created as part of the heaven of heavens in

45. Augustine not only makes this claim in *Retractationes*, but this is evidenced by an abandoned attempt at a literal interpretation of creation (*De genesi ad litteram imperfectus liber*) before a completed attempt later in life (*De genesi ad litteram*). Augustine seems to have sought a literal understanding of Genesis in the light of the apparent contradiction between the six days of creation of Genesis One and the instantaneous creation indicated in *Sir.* 18:1 (Augustine, *Gen. Lit.*, bk. 5, ch. 17, par. 35; bk. 6, ch. 3, pars. 4-6; ch. 9, par. 16 through ch. 11, par. 19; ch. 14, par. 25 through ch. 18, par. 29; bk. 7, ch. 28, par. 41), which Augustine thought to be Scriptural canon.

46. Augustine, *Gen. Lit.*, bk. 1, ch. 15, par. 29; ch. 17, par. 32; bk. 4, ch. 33, par. 51 through ch. 35, par. 56; bk. 5, ch. 1, par. 1 through ch. 4, par. 6; ch. 5, pars. 12 and 15; ch. 11, par. 27; ch. 17, par. 35; ch. 23, pars. 45-46; bk. 6, ch. 1, par. 1 through ch. 3, par. 4; bk. 7, ch. 24, par. 35; ch. 28, par. 42; Aquinas seems to have accepted Augustine's thoughts on this (Aquinas, *Sum. Theol.*, tr. 1, q. 74, a. 2; tr. 3, q. 9, a. 3; tr. 3s, q. 77, a. 4 ad 1).

47. Augustine, *Civ. Dei*, bk. 12, chs. 10-12. These calculations are based upon a LXX chronology. In his discussion of the numbers of Genesis 5 and 11, however, Augustine expresses uncertainty that the LXX numbers are the correct ones (Augustine, *Civ. Dei*, bk. 15, ch. 13). Augustine may have considered the shorter Hebrew-based chronology a possibility as well.

48. Augustine, *Conf.*, bk. 12, ch. 2, par. 2 through ch. 12, par. 15; ch. 15, pars. 18 and 20; bk. 12, ch. 29, par. 40; Augustine, *Gen. Lit.*, bk. 1, ch. 1, pars. 2-3; ch. 9, par. 15; bk. 4, ch. 21, par. 38). Notably, in the later *Gen. Lit.* (Augustine, *Gen. Lit.*, bk. 1, ch. 16, par. 29; ch. 17, par. 32) Augustine does not seem to permit this initial creation to precede the six-day creation as he places the creation of Genesis 1:1 within the same instant as the six-day creation.

49. Augustine, *Conf.*, bk. 11, ch. 10, par. 12 through ch. 14, par. 17; bk. 11, ch. 30, par. 40; Augustine, *Civ. Dei*, bk. 11, chs. 5-6; bk. 12, ch. 15; Augustine, *Gen. Lit.*, bk. 1, ch. 1, par. 2; ch. 9, pars. 15-16; bk. 5, ch. 5, par. 12.

50. Augustine, *Conf.*, bk. 12, ch. 9, par. 9; ch. 11, par. 13; ch. 15, par. 18; Augustine, *Gen. Lit.*, bk. 1, ch. 1, pars. 2-3; ch. 9, par. 15; ch. 17, par. 32; bk. 4, ch. 21, par. 38.

51. Augustine, *Conf.*, bk. 12, ch. 2, par. 2 through ch. 3, par. 3; ch. 8, par. 8; Augustine, *Gen. Lit.*, bk. 1, ch. 1, par. 2; ch. 9, pars. 15-16; bk. 2, ch. 11, par. 24; bk. 4, ch. 21, par. 38; bk. 5, ch. 5, par. 12.

52. Augustine, *Conf.*, bk. 13, ch. 2, par. 3 through ch. 4, par. 5; ch. 8, par. 9; Augustine, *Civ. Dei*, bk. 11, chs. 7, 9, 19; bk. 12, ch. 15; Augustine, *Gen. Lit.*, bk. 2, ch. 8, pars. 16-19.

Gen 1:1<sup>53</sup> or even possibly as part of a creation event ‘preceding’ the creation of time and our universe.<sup>54</sup>

Augustine’s position on when the angels fell is not as clearly presented, but it can be deduced fairly precisely. First, Augustine believed that angels were good at their creation.<sup>55</sup> Second, Augustine does not believe they existed before God said ‘Let there be light’ (Gen 1:3)<sup>56</sup> nor even ‘before’ God pronounced the creation ‘very good’ (Gen 1:31).<sup>57</sup> Finally, Augustine seems to lean in the direction of a fall of the angels virtually instantaneously after their creation.<sup>58</sup> All this means that the angels were created in the same instant as the remainder of the six-day creation (including the same instant as man was created) and that they fell very quickly thereafter. Thus, Augustine placed the first sin of angels *after* the creation of man.

### **Augustine and Natural Evil**

Most of Augustine’s natural evil discussion concerns the impact of natural evil on humans. Augustine’s thoughts on natural evil itself or natural evil’s impact on animals are very uncommon, and consequently difficult to infer. First of all, Augustine seems to consider some natural evils inherent to even a ‘good’ creation. These include, at the very least, protective pain (non-excessive pain which warns an animal to avoid sustained harm),<sup>59</sup> evils of inequality (where different beings have different

53. Augustine, *Civ. Dei*, bk. 12, ch. 15.

54. Augustine, *Civ. Dei*, bk. 11, ch. 32; bk. 12, chs. 15-16.

55. Augustine, *Civ. Dei*, bk. 11, chs. 11, 13-15, 17; bk. 22, ch. 1; Augustine, *Con. Jul.*, bk. 5, ch. 16, par. 59; Augustine, *Gen. Lit.*, bk. 11, ch. 21, par. 28; ch. 23, par. 30. Ezekial 28, for example, indicates that Satan was originally unfallen: Augustine, *Civ. Dei*, bk. 11, ch. 15; Aquinas, *Sum. Theol.* tr. 1, q. 62, a. 3; q. 95, a. 1; q. 63, a. 6 ad 4; tr. 2.2, q. 5, a. 1.

56. Augustine, *Gen. Lit.*, bk. 1, ch. 17, pa. 33.

57. Augustine, *Civ. Dei*, bk. 11, ch. 9; Augustine, *Gen. Lit.*, bk. 11, ch. 21, par. 28; ch. 23, par. 30. It must be noted that in Augustine’s earlier work (Augustine, *Civ. Dei*, bk. 11, ch. 32; bk. 12, chs. 15-16) does cautiously allow for the possibility of the angels having been created *before* Genesis 1:1, so it would not be possible for the angels to have fallen before Genesis 1:1. By the time he wrote *Gen. Lit.* it appears that he no longer entertained that possibility. Even if he did, however, since Augustine’s creation was instantaneous, already fallen angels could not cause natural evil in this creation before the creation of humans. Aquinas, *Con. Gent.*, bk. 2, chs. 44-45 and 83; bk. 3, ch. 107; Aquinas, *Sum. Theol.*, tr. 1, q. 63, a. 5.

58. Augustine, *Gen. Lit.*, bk. 11, ch. 16, par. 21 through ch. 25, par. 33. Aquinas (*Sum. Theol.*, tr. 1, q. 63, a. 6) is explicit about the fallen angels being created good and being good for one moment and falling the second moment.

59. As Augustine argues (*Gen. Lit.*, bk. 3, ch. 16, par. 25) and Aquinas agrees (*Sum. Theol.*, tr. 2, q. 15, a.5 ad 2) that at least *some* pain is good.

capabilities),<sup>60</sup> animal death,<sup>61</sup> evils of population replacement (where, to preserve species, physical organisms must be generated and grow at the expense of other beings in order to replace individuals who die),<sup>62</sup> and evils of trophic consumption (where lesser organisms are consumed for the sake of higher organisms).<sup>63</sup> It seems reasonable to infer<sup>64</sup> that Augustine understood that all four of these evils (non-excessive pain, inequality of ability, animal death, carnivory) existed as part of—or potentially part of<sup>65</sup>—the ‘very good’ creation preceding Adam’s fall.

Augustine does allow for the possibility that thorns and thistles might have predated Adam’s sin,<sup>66</sup> as the thorns might have had another function before man’s fall and took on a punitive function of invading human fields only after Adam’s sin. Like many others in his day, Augustine believes that in the present world lower organisms arise by spontaneous generation, some from non-living things, some from decaying plant matter, and still others from decaying animal matter.<sup>67</sup> Interestingly enough, Augustine does *not* believe that animals that arise from decaying animal matter were part of the original creation.<sup>68</sup> So, although he seems to accept (the potentiality of) animal death before the fall of Adam, he does not believe that God, in the instant

60. Augustine, *Nat. Boni*, chs. 13-16, 30; Augustine, *Civ. Dei*, bk. 11, chs. 6, 22; bk. 12, ch. 4; Aquinas, *Con. Gent.* bk. 2, chs. 44-45 and 95; bk. 3, chs. 71-72, 74, 94, 97, and 109; Aquinas, *Sum. Theol.*, tr. 1, q. 22, a. 4; q. 23, a. 5 ad 1, 3; q. 47, aa. 1-2; q. 48, a. 2; q. 65, a.2 ad 3; q. 72; q. 75, a. 7; q. 92, a. 1 ad 3; q. 96, aa. 1-3; tr. 2.1, q. 79, a. 4 ad 1.

61. Augustine, *Civ. Dei*, bk. 12, ch. 4; Augustine, *Gen. Lit.*, bk. 3, ch. 16, par. 25; Aquinas, *Con. Gent.*, bk. 3, chs. 22, 69, 112, 126-127, 129, and 140; Aquinas, *Sum. Theol.*, tr. 1, q. 22, a. 2 ad 2; q. 23, a. 7; q. 48, a. 2 ad 3; q. 96, a. 1; tr. 2.2, q. 64, a. 1; q. 66, a. 1.

62. Augustine, *Civ. Dei*, bk. 12, ch. 4; Augustine, *Gen. Lit.*, bk. 3, ch. 16, par. 25; Aquinas, *Con. Gent.*, bk. 3, chs. 69 and 126; Aquinas, *Sum. Theol.*, tr. 1, q. 23, a. 7.

63. Augustine, *Civ. Dei*, bk. 12, ch. 4; Augustine, *Gen. Lit.*, bk. 3, ch. 16, par. 25; Aquinas, *Con. Gent.*, bk. 3, chs. 22, 71, 112, 127, 129, and 140; Aquinas, *Sum. Theol.*, tr. 1, q. 22, a. 2 ad 2; q. 48, a. 2 ad 3; q. 96, a. 1; tr. 2.2, q. 64, a. 1; q. 66, a. 1.

64. A direct claim of this nature has not yet been located in Augustine’s works. In contrast, Thomas Aquinas, otherwise very closely following Augustine, *does* explicitly assign carnivory (Aquinas, *Con. Gent.*, bk. 3, ch. 127; Aquinas, *Sum. Theol.*, tr. 1, q. 96, a. 1), death (Aquinas, *Sum. Theol.*, tr. 1, q. 72, a. 5; tr. 3s, q. 91, a. 5), and natural antipathy (Aquinas, *Sum. Theol.*, tr. 1, q. 96, a. 1) to the animal world before the fall of Adam. He also claims thorns and thistles predated man’s fall—it is just they did not negatively impact man’s agriculture (Aquinas, *Sum. Theol.*, tr. 1, q. 69, a. 2 ad 2; tr. 3s, q. 91, a. 3 ad 3).

65. Seeing as he doesn’t explicitly state this claim, it may be that Augustine believes in the *potential* of these things before the sin of Adam, but that the brief period of time between creation and fall was too short to actualize this potential. In other words animal death didn’t actually occur before the sin of Adam, but, in principle *could* have occurred if a long enough period of time elapsed between the creation and man’s Fall for it to actually occur.

66. Augustine, *Gen. Lit.*, bk. 3, ch. 18, par. 28.

67. Given that the early development of *all* organisms is microscopic, and microscopes were not invented until the seventeenth century, it was common in the ancient world to believe that living things—‘lower’ organisms, anyway—could be generated spontaneously from non-living matter. It was most common—and apparently the case for Augustine—to believe that lower animals arise from non-living materials.

68. Augustine, *Gen. Lit.*, bk. 3, ch. 14, par. 23.



of the creation, created dead things or organisms that arise *from* dead things. We would infer from this that Augustine would have rejected the notion that God directly created animal fossils, as fossils would constitute direct evidence of death.

These five (non-excessive pain, inequality of ability, animal death, carnivory, thorns/thistles) seem to be the only examples of natural evil that Augustine grants *might* have existed in the pre-Fall world.<sup>69</sup> The only other explanation Augustine offers for natural evil is as God's punishment of Adam's 'original sin'.<sup>70</sup> Natural evils that Augustine explicitly identifies as examples of God's punishment of original sin include: disease in animals,<sup>71</sup> frost,<sup>72</sup> wildfire,<sup>73</sup> wear and tear of the general creation,<sup>74</sup> and disease and genetic deformities in innocent children.<sup>75</sup> Augustine does not believe these natural evils could have existed before Adam's sin.<sup>76</sup> Among the punishments of Adam's original sin, Augustine also included natural evils which result in human fear,<sup>77</sup> thirst and hunger,<sup>78</sup> excessive pain,<sup>79</sup> and toil<sup>80</sup> in humans guilty of voluntary sin (e.g., earthquakes; poisoned air, water, and soil; extreme storms, lightning, hail,

69. These five evils are directly or indirectly inferred from Augustine's writings to be evils *and* preceding or potentially preceding man's sin. However, there are instances where Augustine claims that *all* evil and suffering is punishment of sin (Augustine, *Lib. Arb.*, bk. 1; Augustine, *Conf.*, bk. 7, ch. 3, par. 5; Augustine, *Civ. Dei*, bk. 13, ch. 14). Perhaps the short time between creation and fall prevented any of these *potential* evils from occurring, so although natural evil *in principle* might have pre-existed the Fall, *in practice*, it did not.

70. For example, all 'cruel ills': Augustine, *Civ. Dei*, bk. 22, ch. 22. So far as the author can tell, Augustine does not even identify any natural evils with angels, although he does suggest *angelic* sin can be used by God as punishment for Adam's original sin.

71. Augustine, *Ench.*, ch. 11.

72. Augustine, *Civ. Dei*, bk. 11, ch. 22.

73. Augustine, *Civ. Dei*, bk. 11, ch. 22.

74. Augustine, *Gen. Lit.*, bk. 11, ch. 35, par. 48.

75. Augustine, *Con. Jul.*, bk. 3, ch. 4, par. 10; ch. 6, par. 13; bk. 6, ch. 10, par. 30; Aquinas, *Sum. Theol.*, tr. 2.1, q. 87, a. 7 ad 1; tr. 3s, q. 32, a. 4.

76. Aquinas explicitly includes the general deterioration ('advanced age') of the world (Aquinas, *Sum. Theol.*, tr. 3s, q. 74, a. 2 ad 2), excessive pain in animals (as implied in Aquinas, *Sum. Theol.*, tr. 2.1, q. 39, a. 2), birth deformities in animals (Aquinas *Con. Gent.* bk. 3, ch. 6; Aquinas, *Sum. Theol.*, tr. 2.1, q. 21, a. 1 ad 1), and the blindness of the man in John 9:2-3 who did nothing to deserve the affliction (Aquinas, *Sum. Theol.*, 2.1, q. 87, a. 7 ad 1)

77. Augustine, *Civ. Dei*, bk. 22, ch. 22.

78. Augustine, *Civ. Dei*, bk. 22, ch. 22; Aquinas, *Con. Gent.*, bk. 4, ch. 52; Aquinas, *Sum. Theol.*, tr. 3, q. 1, a. 4 ad 2; q. 14, aa. 1, 4; q. 69, a. 3 ad 2.

79. Augustine, *Civ. Dei*, bk. 14, ch. 10; bk. 22, ch. 22; Augustine, *Con. Jul.*, bk. 4, ch. 16, par. 83; Augustine, *Gen. Lit.*, bk. 11, ch. 35, par. 48; Aquinas, *Sum. Theol.* tr. 2.1, q. 39, a. 2 ad 1; a. 3 ad 1; tr. 3, q. 15, a. 5 ad 2.

80. Augustine, *Civ. Dei*, bk. 14, ch. 10; bk. 22, ch. 22; Augustine, *Con. Jul.*, bk. 4, ch. 16, par. 83; Augustine, *Gen. Lit.*, bk. 8, ch. 8, par. 15 through ch. 9, pa. 18; ch. 10, pa. 22; bk. 11, ch. 35, pa. 48; ch. 38, pa. 51.

wind, and floods; diseases; accidental injury; plant and animal toxins;<sup>81</sup> hurtful animals;<sup>82</sup> and degenerative aging<sup>83</sup>). Augustine seems to have understood any natural evil which was unnecessary for the maintenance of the creation was an imposition on the original creation, i.e., divine punishment for Adam's original sin. This would have probably included most natural evils, including all astronomical, geological, and climatological natural evils and most biological natural evils (minus, apparently, plant and animal toxins, carnivory, and organismal death).

Augustine not only collected fossils,<sup>84</sup> he also understood them to be evidence of life that existed in the past. Although he undoubtedly did not understand the full magnitude of paleoevil, Augustine was not completely ignorant of paleoevil. What he knew of it he assigned to a time following the sin of Adam.<sup>85</sup> Augustine would reject old-age paleoevil because old ages are incompatible with Augustine's time line of earth history. Augustine would reject evolutionary paleoevil, both because of the rejection of old-age history required with evolution, and also because of Augustine's belief in the inherent goodness of the matter of creation.<sup>86</sup>

## Theodicy through the Reformation

For more than a millennium following Augustine, the church seems to have embraced both the cosmogony and theodicy of Augustine. Over eight centuries later, for ex-

81. Although Augustine considers both harmful animals and animal and plant toxins to be punishment for sin (Augustine, *Civ. Dei*, bk. 22, ch. 22; Augustine, *Gen. Lit.*, bk. 3, ch. 17, par. 26; bk. 8, ch. 10, par. 21), he does acknowledge in Augustine, *Civ. Dei*, bk. 11, ch. 22 that such things do not always have to be evil. In fact, in Augustine, *Gen. Lit.*, bk. 3, ch. 15, par. 24 he acknowledges that it is possible that 'harmful' animals and plant and animal 'toxins' may have existed in the original creation while God somehow prevented them from doing harm (as in the case of preventing lions from harming Daniel and a poisonous snake from harming Paul).

82. Augustine, *Civ. Dei*, bk. 22, ch. 22. Also Augustine, *Conf.*, bk. 5, ch. 9, par. 16 & Augustine, *Con. Jul.*, bk. 5, ch. 7, par. 28 & Augustine, *Gen. Lit.*, bk. 11, ch. 31, par. 42 for disease. Also Augustine, *Civ. Dei*, bk. 11, ch. 22 for hurtful animals. Aquinas's list includes infertile soil (Aquinas, *Sum. Theol.*, tr. 2.2, q. 164, a. 2), weeds (Aquinas, *Sum. Theol.*, tr. 2.2, q. 164, a. 2; tr. 3s, q. 91, a. 3 ad 3), and inefficiency in body functions which require consumption of excess food (Aquinas, *Sum. Theol.*, 3s, q. 81, a. 4).

83. Augustine, *Gen. Lit.*, bk. 11, ch. 31, par. 42.

84. In *Civ. Dei* bk. 15, ch. 9 Augustine reported finding giant human molars, which were most probably mastodon molars.

85. According to our best understanding of Augustine's view on natural evil, and given the evidence of astronomical, geological, and climatological natural evils in the fossil record, he would likely have assigned the entire fossil record of animals to a period following the sin of Adam.

86. In Augustine's theodicy, the original creation was inherently good (Augustine, *Nat. Boni*, chs. 1-2, 15-17, 19, 33; Augustine, *Conf.*, bk. 7, ch. 3, par. 4; ch. 5, par. 7; ch. 12, par. 18; bk. 12, ch. 7, par. 7; Augustine, *Civ. Dei*, bk. 11, chs. 21-24; bk. 12, chs. 1, 5; Augustine, *Ench.*, ch. 12; Augustine, *Con. Jul.*, bk. 1, ch. 8, pars. 36-37; ch. 9, par. 42; bk. 3, ch. 24, par. 56; bk. 4, ch. 3, par. 30; ch. 7, par. 37; bk. 5, ch. 7, par. 28; ch. 16, pars. 59 & 64; bk. 6, ch. 7, par. 20). Evolution requires a type of inherent evil in the original creation (for example, its 'struggle for survival') which Augustine would likely find unacceptable.

ample, Thomas Aquinas<sup>87</sup> (1225-1274), seems not only to adopt the totality of Augustine's cosmogony and theodicy but even to quote Augustine as an authority on such matters.<sup>88</sup> Whatever paleoevil was recognized would be understood to be divine punishment of Adam's original sin, and there would be room for neither old-age paleoevil nor evolutionary paleoevil.

Since most Reformation traditions rejected both the canonicity of the Apocrypha and the Ancient Greek concept of time,<sup>89</sup> early Reformers did not feel compelled, as Augustine did, to force the six days of creation into an instant of time. This is probably why early Reformers readily accepted a creation of six earth rotation days in length. This, in turn, results in created things being at most only five days older than was believed by those who accepted Augustine's instantaneous creation. In all other ways, the Reformers seem to have embraced an Augustinian theodicy.

### **Post-Reformation Theodicy**

Beginning in the middle of the eighteenth century, old ages began to be inferred from the geological record. As the age of the geologic record was increased, the biblical account was successively re-interpreted to accommodate the time, almost always by inserting increasing amounts of time into the creation account of Genesis one. And, as even greater ages were eventually assigned to astronomical bodies, Genesis 1:14-19 was re-interpreted to accommodate the origin of heavenly bodies before the creation of the earth.

As the age of the rocks was increased, less and less of the geologic record was assigned to Noah's flood.<sup>90</sup> By the second decade of the nineteenth century, Noah's flood was used to explain only the 'diluvium'—at most dozens of feet of gravel and boulder beds near the very top of the geologic column. Twenty years later, the diluvium had been re-interpreted as residue from the 'Ice Age', and the globality of Noah's Flood was rejected by virtually every geologist. In response, a variety of re-interpretations arose for Genesis 6-9 in order to accommodate a local flood.

Very quickly following the publication of Darwin's theory of evolution in 1859 a suite of re-interpretations of the biblical account arose in order to accommodate evolution. Soon after 1860, geologists began extending the length of *human* history. This led to re-interpretations of the Adamic account to accommodate 'ape-human'

87. Based, thus far in my research, upon Aquinas' *Summa Contra Gentiles* and *Summa Theologica*.

88. See the various footnotes earlier in this article to Augustine's theodicy, where citations of Aquinas' same claims are also included.

89. The Ancient Greeks defined time as 'change'. Augustine believed this prevented an unchanging God from operating 'in' time and thus creating over time (e.g., over six days).

90. For histories of this transition see Nicolaas A. Rupke, *The Great Chain of History: William Buckland and the English School of Geology, 1814-1849* (New York: Oxford University Press, 1983) and Charles Coulston Gillispie and Nicolaas Rupke, *Genesis and Geology: A Study of the Relations of Scientific Thought, Natural Theology, and Social Opinion in Great Britain, 1790-1850* (Cambridge, MA: Harvard University Press, 1996).

fossils, arguments for fluidity in the genealogies of Genesis 5 and 11 to accommodate tens and hundreds of thousands of years of human history,<sup>91</sup> and various re-interpretations of Babel to allow for prolonged origin of human language diversity.<sup>92</sup>

As secular geologists gathered evidence of an older and older earth, a majority of the educated believers accepted the earth's antiquity. As they did, they implicitly—and undoubtedly in most cases unwittingly—accepted an exponentially increasing amount of old-age paleoevil. Paradoxically, even though Augustine's free-will theodicy cannot accommodate either old-age or evolutionary paleoevil, his theodicy continued to be the dominant theodicy among believers until at least the middle of the twentieth century.<sup>93</sup>

### More Recent Theodicies

Some believe that Christian theodicy was saved from the attacks of atheologians in the second half of the twentieth century by Alvin Plantinga's free-will defense.<sup>94</sup> To explain natural evil—and implicitly old-age paleoevil—Plantinga suggests that the possibility that angels fell in the distant past, combined with the possibility that fallen angels can directly cause natural evil, makes an explanation for natural evil possible in a Christian perspective of the world.<sup>95</sup> Plantinga claims that both of these possibilities were believed by the Church Fathers and by Augustine in particular.<sup>96</sup> As clarified above, Augustine believed neither of these claims. Furthermore, as Augustine pointed out, a straightforward understanding of Ezekiel 28 would suggest that Satan was still unfallen in the Garden of Eden. Yet the Garden of Eden was not created until Day 6 of

91. And, ultimately, at least two million years of human history.

92. The reinterpretation of Genesis brought about by an old-age interpretation of earth history led Barry Whitney, in his bibliography of theodicy, to claim (Whitney, *Theodicy*, 16) that "...the vast majority of philosophers and theologians who fill the annotated chapters of this bibliography do not base rational theodicy upon the Adamic myth."

93. Similarly, a certain percentage of educated believers have accepted natural selection-driven evolution as the mechanism by which God created organisms. As this view of biology has been embraced, not only does old-age paleoevil have be accepted, but evolutionary paleoevil has to be accepted as well.

94. Barry Whitney, in his bibliography of theodicy (Whitney, *Theodicy*, 17) admits that Plantinga's works were seminal for the generation of theodicies based upon an old-age perspective of earth history.

95. Alvin Plantinga, "The free will defence[sic]" in *Philosophy in America*, ed. Max Black (Ithaca, NY: Cornell University Press, 1965), 204-20; Alvin Plantinga, "The Free Will Defense" in *God and Other Minds: A Study of the Rational Justification of Belief in God* (Ithaca, NY: Cornell University Press, 1967), 149-51; Alvin Plantinga, "God, Evil, and the Metaphysics of Freedom" in *The Nature of Necessity* (Oxford: Oxford University Press, 1974), 164-95; Reprinted in *The Problem of Evil*, ed. Marilyn McCord Adams and Robert Marrihew Adams (New York: Oxford University Press, 1990), 82-109; Alvin Plantinga, "The Problem of Evil" in *God, Freedom, and Evil* (Grand Rapids, MI: William B. Eerdmans, 1974), 7-64; Alvin Plantinga, "Reply to the Basingers on Divine Omnipotence," *Process Studies* 11, no. 1 (1981): 25-29.

96. Plantinga, "God, Evil, and the Metaphysics of Freedom," 191; Plantinga, "The Problem of Evil," 58.

the Creation Week (Gen 2:6). As we inferred Augustine to have believed, this would suggest that angels did not fall before the creation of man, so fallen angels cannot be used to explain old-age paleoevil. Plantinga's free-will defense does not aid in the development of a biblically-based theodicy for old-age paleoevil. In the light of an old earth, Plantinga's theodicy and all theodicies based upon it, appear to be vulnerable to the atheologian's challenge of the existence of pre-human natural evil.

Plantinga's trans-world depravity defense also seems inadequate for the development of a biblical theodicy. In his trans-world argument,<sup>97</sup> Plantinga suggests that it may not have been within the power of God to create a world where a free-will being will *always* choose good. In other words, Plantinga suggests that *all* free-will beings suffer from 'trans-world depravity'—that is to say that all free-will beings would have chosen evil at least once in every possible created world. This means at least *some* moral evil *must* exist in every possible created world (thus, Plantinga concludes that this world, out of all the possible created worlds, is the one which possesses the minimum amount of evil for its contained good). Yet, unlike as Plantinga suggests, unfallen angels—rational beings who always have chosen good and presumably will always choose good—seem to be examples of beings not subject to trans-world depravity. Therefore, God could have created a universe where the only rational beings were the unfallen angels. Plantinga's argument might be saved by suggesting that perhaps all human-like rational beings suffer from trans-world depravity, but another problem exists for Plantinga's theodicy. Plantinga believes in old-age paleoevil, and even the possibility of theistic evolution—thus also evolutionary paleoevil. This kind of a creation contains many orders of magnitude more natural evil than that believed by the Church for most of its history—namely a recent creation originally lacking natural evil. Given that God *could* have created the world without evolutionary and old-age paleoevil (as those who accept a young age of the earth believe), it seems it would be very difficult to argue that God could not have created a world with less evil than an old creation would contain. Once again, Plantinga's defense is not helpful to the development of a biblical theodicy to explain old-age and evolutionary paleoevil.

More recently, William Dembski<sup>98</sup> offered a distinct theodicy for natural evil. Like Augustine's theodicy Dembski posits that natural evil is a consequence of human sin, but unlike Augustine, he suggests that God introduced natural evil into the creation pre-emptively. God introduced natural evil into the world, knowing that man would (eventually) fall, and desiring that when man was expelled from the Garden of Eden, man would feel the full brunt of the effects of his sin immediately (and thus

97. Alvin Plantinga, "Which Worlds could God have Created?" *The Journal of Philosophy* 70, no. 17 (1973): 539-52; Plantinga, "God, Evil, and the Metaphysics of Freedom," 184-89; Plantinga, "The Problem of Evil," 45-53.

98. William A. Dembski, "Christian Theodicy in the Light of Genesis and Modern Science," 2006, accessed March 20, 2017, available at [https://billdembski.com/documents/zz2006.04.christian\\_theodicy.pdf](https://billdembski.com/documents/zz2006.04.christian_theodicy.pdf).

understanding the full depth of the evil of his sin). Dembski offers biblical examples of God's pre-emptive action, but they are all examples of pre-emptive grace. Since grace is unmerited, it is not unreasonable for God to grant us grace before we respond favorably to it. On the other hand, punishment of a man, or of a man's dominion, prior to that man's sin seems on the face of it to be neither reasonable nor evidenced in Scripture. And, even if God intended natural evil to be fully realized by the time Adam was displaced from the Garden, it is not clear that he should have required any time to make it happen, or if so, that it had to be introduced very much before the expulsion of Adam and Eve. One half billion years of old-age paleoevil before the expulsion of Adam and Eve from the Garden of Eden seems completely unjustified.

### Conclusion

A young-age interpretation of earth history dominated Jewish and Christian thought until the nineteenth century.<sup>99</sup> For the latter part of this period and most of Church History, the dominant explanation for the existence of moral evil was the theodicy of Augustine. Augustine's theodicy also provides explanation for present natural evil and both baseline and young-age paleoevil. However, given its dependence on an instantaneous creation in Genesis one, Augustine's theodicy is not consistent with an old earth interpretation. Furthermore, an old earth interpretation of earth history requires paleoevil which Augustine's theodicy cannot in principle explain—or be made to explain. This leaves Augustine's theodicy thoroughly unable to address the additional problem of the sheer magnitude of old-age paleoevil (let alone the even-greater magnitude of evolutionary paleoevil). A theodicy of a radically different form than that proposed by Augustine is necessary to explain old-age paleoevil—or the evolutionary paleoevil which is a further amplification of it.

If Christians are to accept an old-age or evolutionary interpretation of earth history, a theodicy is needed that provides explanation for old-age or evolutionary paleoevil. Theodicies which focus only on moral evil or *human* suffering due to natural evil<sup>100</sup> are inadequate because they fail to address the issue of paleoevil at all. Theodicies like that of Augustine are inadequate because they are able to address only the paleoevil following the Fall of humans. Such theodicies come nowhere close to explaining more than five orders of magnitude more natural evil that is assumed in an old-age interpretation of earth history—all *before* the Fall of man. Theodicies that suggest natural evil arose from some sort of angelic source—like the theodicy of Plantinga—are not consistent with biblical angelology. Theodicies that suggest natural evil was introduced by God before human sin are not consistent with biblical theology. It seems we are forced to conclude that God himself is directly

99. This is simply because this is consistent with the most natural reading of the biblical account.

100. E.g., Diogenes Allen, *The Traces of God in a Frequently Hostile World* (Cambridge: Cowley, 1981).

responsible for the paleoevil dating before the Fall of humanity, something which seems inconsistent with him being all good.

All the suggested theodicies fail even more in explaining evolutionary paleoevil. In fact, the natural evil assumed in evolutionary theory is so deeply imbedded in the nature of world—at least the biological world—that there is a sense in which natural biological processes would be intrinsically evil. So deeply imbedded is natural evil in an evolutionary perspective that there seems to be difficulty in accepting Jesus's incarnation (i.e., it seems impossible that an infinitely good God could take on matter which is operating under such an evil set of principles).

In short, an Augustinian theodicy—or something similar to it—provides adequate explanation for natural evil in a young-age view of earth history. However, a reasonable theodicy for old-age paleoevil and evolutionary paleoevil does not seem to exist, making old-age and evolutionary theories of earth history extremely vulnerable to atheological criticisms.