

Reflections on Cal DeWitt's 2012 Book *Song of A Scientist* (published by Square Inch, Grand Rapids, Michigan): Alternate Melodies and Harmonies?

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Introduction

Song of a Scientist is, as I said in the accompanying book review, a lovely book by a lovely man. Many parts make the heart sing. It is more a cycle of songs than a single one—each song having its own admirable melody and harmony. Cal's reverence for the Creator, his love for the creation, his yearning to understand the books of Scripture and creation alike and to practice the good stewardship that results from good science and good ethics—all of these are clear. I wish I had gone on field trips with him, for I would certainly have learned much, and, as brothers in Christ, I'm sure we would have had good fellowship together.

Alternate Melodies and Harmonies?

And after all this, I wish there were some way other than “But ...” or “However ...” to introduce points of disagreement. Both words sound too harsh—like acid rock against gentle folk music. But there we are. As Cal so aptly said, “it is ... possible for us to ignore or to misread the great book” of the creation—and of Scripture. Why else do any two people ever disagree about anything?

So, as I trust that Cal sought lovingly to correct what he considers misreadings by some others, let me venture, lovingly, to correct what I think are some misreadings in *Song of a Scientist*. My comments are neither systematic nor comprehensive. I shall instead try to highlight some problems that I think predispose to additional ones.

Troubling Accompanists

I'm troubled by what seems to me Cal's hagiographical approach to his environmentalist role models—a tendency to emphasize whatever might make them appear to have been orthodox, devout, even Reformed Christians, and to ignore contrary evidence. This is not solely a matter of picky detail. Cal portrays them as Christians with a purpose: as evidence that they are trustworthy guides about earth stewardship. But it is one thing to have grown up as a child in a Christian family. To the grief of every parent who has seen a child stray from the faith, it is something else to *be* a Christian—and something else yet to be a Biblically informed Christian.

Perhaps it exists somewhere, but my efforts so far to find evidence that Rachel Carson held onto the Presbyterianism in which she grew up have come up empty handed. To have written a letter upon entry to a Presbyterian women's college at age eighteen describing herself as a Presbyterian girl—which is what Cal offers as evidence of her deep Presbyterian roots—is one thing. To have maintained Presbyterian or even broadly Christian convictions through her career is another, and so far I can find no evidence that she did. Instead, what little evidence of her religious perspective can be found indicates that she was a disciple of Albert Schweitzer, whose “reverence for life” mysticism coexisted with his belief that Jesus was tragically mistaken about being the Messiah, that He tragically believed a false eschatology, and that He did not rise from the dead. [Philip Cafaro points out](#), “*Silent Spring* is dedicated to Albert Schweitzer and Carson's biographer, Linda Lear, reports that a handwritten letter and inscribed

portrait from Schweitzer were Carson's most prized possessions in her last years. In her foreward [sic] to Ruth Harrison's *Animal Machines* ... Carson wrote of the need for a 'Schweitzerian ethic that embraces decent consideration for all living creatures--a true reverence for life.'" Bron Taylor, author of *Dark Green Religion* and one of the world's preeminent scholars on religious environmentalism, calls Carson's "[The World Around Us](#)," an address by Carson in 1954 to over 1,000 women journalists, "one of the most forthcoming expressions of Rachel Carson's spirituality available in print." Yet in that and in [a memo she wrote](#) to someone in the marketing department of the publisher of her book *Under the Sea Wind*, which Taylor offers as another indicator of her religious persuasion, one searches in vain for any hint of specifically Christian commitment as distinct from Schweitzerian "reverence for life." The [article on Carson in the Encyclopedia of Religion and Nature](#) (edited by Taylor) provides no further evidence of specifically Christian commitment. But it does quote words from Carson's *The Sea Around Us* that could be understood as evidencing a pantheistic idolatry of oceans:

The sea lies all about us. The commerce of all lands must cross it. The very winds that move over the lands have been cradled on its broad expanse and seek ever to return to it. The continents themselves dissolve and pass to the sea, in grain after grain of eroded land. So the rains that rose from it return again in rivers. In its mysterious past it encompasses all the dim origins of life and receives in the end, after, it may be, many transmutations, the dead husks of that same life. For all at last return to the sea—to Oceanus, the ocean river, like the ever-flowing stream of time, the beginning and the end.

"The beginning and the end." The Bible reserves that title for Someone Else. The article also describes as "the most powerful themes in Carson's work: a religious reverence for the sea, the womb of life, and a belief in the connectedness of all living things"—and if those are the most powerful themes, what does that imply about the place in her thought of any of the doctrines taught in, e.g., the Apostles' Creed, the Nicene Creed, or the Symbol of Chalcedon, not to mention the more gospel-focused and specifically Reformed Belgic Confession, Heidelberg Catechism, Canons of Dort, or Westminster Confession and Catechisms?

More disturbing is Cal's treatment of John Muir. True enough, Muir grew up in a (Campbellite splinter) Presbyterian home. Like so many Scottish children, he no doubt memorized the Shorter Catechism and many Bible passages. Certainly he displayed a great reverence for creation and, as Robert Nelson puts it, "never lost the traditional Calvinist celebration of nature as a direct conduit to the mind of God." But Muir also had "less confidence in the Bible than did his Calvinist predecessors [and] was preoccupied with nature, the *one remaining source* for him of direct communication with God." (What has become of the Bible?) He was heavily influenced by the American transcendentalists Ralph Waldo Emerson and Henry David Thoreau. "Having left behind the Calvinist understanding of original sin," Muir loses "the meaning of the great sacrifice of Jesus on the cross." Even as Muir's journals are filled with descriptions of finding a reflection of God in nature, there is little mention of the Bible." Apparently having lost faith also in the Biblical gospel of salvation by grace alone through faith alone in Christ alone, Muir came to believe, writes Nelson, that "The sinners of the world can be saved, if only they will go to wild nature to see God's creation there." "As a religion," writes Nelson, "the result might no longer be recognizably Christian, but it nevertheless retained strong Calvinist elements"—those elements being, essentially, that nature reflects God's glory and sinful man both fails to see it and tarnishes it by abusing nature.ⁱ

[Mark Stoll writes](#) that Muir

departed from his strict Scottish evangelical background for a religious view of nature so different as to lead some to believe that he had abandoned Christianity altogether. Emerging from the religious revivals in Europe and America of the 1820s and 1830s, Protestantism experienced during Muir's youth the shocks of the rapid advances of science, the scrutiny of higher criticism, and the defection of the Romantics and transcendentalists. Muir's thought combined those elements--evangelical Protestantism, science, Romanticism and transcendentalism The new amalgam ... was forged in the fiery religion and strict discipline of his father, Daniel Muir, whose specter haunted Muir's entire life."

His father, whose rule in the household Stoll describes as tyrannical, was attracted to "sects which rejected orthodox Calvinism" and settled with the Campbellites. Clearly Muir's Calvinist roots differed significantly from Cal's--and mine.

According to Stoll,

The main intellectual influences of his life appeared in his journals and publications ...: from the university he acquired a scientific appreciation for the workings and wonders of nature; from Humboldt a sense of the ecological interconnectedness of things; from the transcendentalists and Romantics the beliefs in nature's connection with higher impulses and powers, and in a *near pantheistic immanence*; from liberal Christianity a feeling for a benign God of love; and from evangelical Christianity a desire to preach salvation to the nations, albeit not a heavenly but a wilderness salvation. [emphasis added]

Muir's conception of human beings in relation to other creatures was certainly anti-Biblical, for he wrote, "Why ought man to value himself as more than an infinitely small composing unit of the one great unit of creation?"ⁱⁱ How can that be reconciled with Scripture's declaration in Psalm 8 that God "made [man] a little lower than the heavenly beings and crowned him with glory and honor," gave him "dominion over the works of [God's] hands; [and] ... put all things under his feet, all sheep and oxen, and also the beasts of the field, the birds of the heavens, and the fish of the sea, whatever passes along the paths of the seas," or with God's own words in Genesis 1:26, "Let us make man in our image, after our likeness. And let them have dominion over the fish of the sea and over the birds of the heavens and over the livestock and over all the earth and over every creeping thing that creeps on the earth"?

Aldo Leopold, who though he "did not profess an adherence to any organized religion ... did apparently enjoy reading the Bible,"ⁱⁱⁱ is nonetheless an even less likely candidate than either Carson or Muir for being considered an orthodox, believing Christian—let alone a Calvinist.

In his extensive published and unpublished corpus, Leopold rarely alluded to his personal religious beliefs. He grew up in Burlington, Iowa, in an ostensibly Lutheran family of German descent, but he was not a churchgoer. His wife, Estella, whom he met while working as a young forester in the American Southwest, was a devout Catholic, but the Church played a minor role in their married life and the lives of their children.^{iv}

His youngest daughter reports that when she asked him, late in his life, what he thought about God,

He replied that he believed there was a mystical supreme power that guided the universe, but this power was not a personalized God. It was more akin to the laws of nature. He thought

organized religion was all right for many people, but he did not partake of it himself, having left that behind him a long time ago.^v

His son wrote, “I think he ... was kind of pantheistic. The organization of the universe was enough to take the place of God, if you like The wonders of nature were, of course, objects of admiration and satisfaction to him.”^{vi}

It seems plausible that, despite his racism and other ethical flaws, Theodore Roosevelt was a sincere Christian,^{vii} and perhaps a better case can be made for George Perkins Marsh (though the evidence is slim, he at least wrote and spoke admiringly of the Puritans—so much so that a minister friend corrected him, saying that with his broad and independent views he would find life with them difficult),^{viii} than for Carson, Muir, or Leopold. What is troubling is how confidently Cal presents these five as examples of genuinely Christian, even specifically Reformed, thinkers on religious environmentalism despite the strong contrary evidence in the cases of Carson, Muir, and Leopold, and the weakness of evidence in the case of Marsh. I can find no evidence that any of them ever either openly professed the gospel of Christ or sought to spread it—two activities that naturally come with faith. As Cal himself put it, “an evangelical is someone who has such good news that they simply cannot keep it to themselves” (144). The danger, of course, is that if we treat these thinkers as orthodox Christians we let down our guard and risk accepting uncritically much that they say about God’s creation and man’s role in it that might turn out to be unbiblical.

Perhaps even more important, let us grant for the moment that all five were sincere Christian believers. Is there any evidence that any intentionally sought to derive an environmental ethic from exegetical or theological use of Scripture? Does the simple fact of being a believing Christian guarantee that one’s understanding of environmental science, ethics, and praxis will be sound? Not sincerity alone, but also competence in the relevant sciences (both natural and social—especially political philosophy and economics) and Biblical hermeneutics are important conditions.

Different Singers, Different Interpretations

This leads me to discuss four examples of Cal’s interpretation of Scripture and his application of it to environmental ethics and practice that are dubious.

Music Has Rests, Too

First, in chapter 1 Cal admiringly tells the story of a farming family in Neerlandia who “allowed barley fields to lie fallow every second year, providing rest for the land ... because the Bible teaches it” in Exodus 23:10: “For six years you are to sow your fields and harvest the crops, but during the seventh year let the land lie unplowed and unused. ... ‘But why every second year instead of every seventh?’ [Cal] asked. To which the farmer replied, ‘You remember Christ’s teaching about how the Sabbath is made for people, and not the other way around? The same is true for the land. The Sabbath is made for the land, not the land for the Sabbath.’ Again [Cal] asked, ‘But why every second year?’ He replied, ‘Because that is what this land needs” (27–28). While with the Westminster Confession and Catechisms, and presumably with Cal, I agree that the weekly Sabbath (though after Christ’s resurrection changed from the seventh to the first day of the week) remains in force, the Sabbatical (and Jubilee) Year laws appear to have been part of what the Confession and Catechisms would have defined not as moral law (the Ten Commandments and their implications) but either ceremonial (WCF 19.3) or, less likely, judicial (WCF 19.4). The “ceremonial laws are now abrogated under the new testament,” and the judicial

“expired together with the state of that people, not obliging any other now, further than the general equity thereof may require.” If one thinks the Sabbatical (and Jubilee) Year laws are judicial, perhaps one can make a case that their “general equity” requires that “nothing in creation must be relentlessly pressed” (Cal’s summary of the Sabbath Principle; 105), that immediately invites the question, “And if by adding nutrients to the soil its health can be maintained without ever leaving it fallow, have we fulfilled the general equity of that law?” Might God have given the Sabbatical (and Jubilee) Year laws to Israel specifically in its unique role as “a body politic” (WCF 19.4) that was also “a church under age” (WCF 19.3)—a combination that has applied to no nation since—to convey lessons about the special grace of God showered upon His elect, covenant people that would be unsuitable to any other nation? The very fact that the Jubilee Year law, which is part of the same corpus with the Sabbatical Year law, could only apply to Israel in light of the divinely mandated division of the land to the twelve tribes strongly suggests that any application beyond ancient Israel is illegitimate—and if that is so of Jubilee, then for hermeneutical consistency’s sake shouldn’t it be so of the Sabbatical Year law as well?

I press this point not in isolation but because it relates to an important principle in New Testament ethics. While the weekly Sabbath—at least according to the Reformed standards Cal and I both embrace—remains in force (though, sad to say, ignored even by most Reformed Christians today), the other Sabbaths of Old Testament law are no longer in force, precisely because they were given to Israel as “a body politic” and “a church under age.” Hence the Apostle Paul instructs Christians, “... let no one pass judgment on you in questions of ... a festival or a new moon or a Sabbath. These are a shadow of the things to come, but the substance belongs to Christ” (Colossians 2:16–17; see also Romans 14:5–6)—not, the Reformed tradition understands, the weekly Sabbath but other Sabbaths of the Old Testament ceremonial law. (Some non-Reformed Christians would even argue that the New Testament in these passages abrogates even the weekly Sabbath, despite its being one of the Ten Commandments—but that would not help Cal’s case for still observing the Sabbatical Year.) Paul’s instruction comes in a broader context:

[Christ] disarmed the rulers and authorities and put them to open shame, by triumphing over them in him. Therefore let no one pass judgment on you in questions of food and drink, or with regard to a festival or a new moon or a Sabbath. These are a shadow of the things to come, but the substance belongs to Christ. Let no one disqualify you, insisting on asceticism and worship of angels, going on in detail about visions, puffed up without reason by his sensuous mind, and not holding fast to the Head, from whom the whole body, nourished and knit together through its joints and ligaments, grows with a growth that is from God. If with Christ you died to the elemental spirits of the world, why, as if you were still alive in the world, do you submit to regulations—“Do not handle, Do not taste, Do not touch” (referring to things that all perish as they are used)—according to human precepts and teachings? These have indeed an appearance of wisdom in promoting self-made religion and asceticism and severity to the body, but they are of no value in stopping the indulgence of the flesh. [Colossians 2:15–23]

Is the environmental movement—even the evangelical creation care movement—with its common demands to regulate

- what people eat (whether localism, vegetarianism, or veganism),
- what they drive (“What would Jesus drive?”—a high-mileage car that can accommodate no family with more than three children [which means taking two vehicles to accommodate more] and that because of its light weight results in more fatalities and serious injuries to its occupants in accidents, or a lower-mileage, higher carrying-capacity car or van that can accommodate

husband and wife plus four, six, ten, or even thirteen children—who are gifts from the Lord, His reward, making happy the man whose quiver is full of them [or is that, unlike the Sabbatical Year law, an Old Testament teaching that no longer applies, and now children, at least those past number 2, are just carbon footprints?] and that because of its greater weight provides more protection in a crash? Is the answer really so obvious as to have justified a nationwide marketing campaign by the Evangelical Environmental Network?),

- what kind of light bulbs they use, and
- a myriad of other details

—is the creation care movement in danger of promoting precisely the kind of legalistic asceticism that the Holy Spirit speaking through Paul says is “of no value in stopping the indulgence of the flesh”?

What a Wonderful World?

Second, Cal believes *kosmos* in John 3:16 denotes the physical world, the planet, the biosphere, and uses this as a motivation for our loving it. I have no doubt that we should love and admire God’s creation, but John 3:16 doesn’t teach that. *Kosmos* has a semantic range that includes “the universe as an ordered structure”; “the surface of the earth as the dwelling place of mankind”; “world system,” “the system of practices and standards associated with secular society (that is, without reference to any demands or requirements of God)”; “people associated with a world system and estranged from God”; “adorning”; “adornment”; and “a tremendous amount,” “a great sum of something, implying an almost incredible totality.”^{ix} One cannot simply pick one of these senses that happens to fit one’s preferred understanding of a verse and insist that that is its sense there.

In the Johannine corpus, *kosmos* usually has the sense of “people associated with a world system and estranged from God,” coupled with “the system of practices and standards associated with secular society (that is, without reference to any demands or requirements of God)”—i.e., it denotes people in rebellion against God, living as if He didn’t exist or were irrelevant.^x The context of John 3:16 clearly favors this sense.

In verse 14–15, Jesus has just said, “... as Moses lifted up the serpent in the wilderness, so must the Son of Man be lifted up, that whoever believes in him may have eternal life.” The reference is to a time when the people of Israel spoke against God and Moses, and God sent fiery serpents among them, whose bite was deadly. When the people confessed their sin and Moses interceded for them in prayer, God instructed him to make a “fiery serpent and set it on a pole, and everyone who is bitten, when he sees it, shall live” (Numbers 21:4–9). Moses’ lifting up the serpent in the wilderness perfectly illustrated Jesus’ lesson that “eternal life” (that is, reconciliation with God the Father—John 17:3) is by faith, not by works, for all a bitten Israelite had to do to be healed was to *look* at the serpent—not touch it, not build one himself, not tell others about it, not do anything else, just *look* at it. God sent the serpents as a judgment on the Israelites’ sin of impatience and complaint against Him. For that sin they deserved to die. They were acting like the *kosmos*, “people associated with a world system estranged from God.”

In John 3:17–19, Jesus clearly associates His use of *kosmos* with sin: “For God did not send his Son into the world to condemn the world, but in order that the world might be saved [from what?] through him. Whoever believes in him is not condemned, but whoever does not believe is condemned already, because he has not believed in the name of the only Son of God. And this is the judgment: the light has come into the world, and people loved the darkness rather than the light *because their deeds were evil*” (emphasis added). What is amazing about the love of God in John 3:16 is not that it is expansive enough

to encompass the universe—for in comparison with the infinite God the whole universe is like a piece of dust, and less than nothing: “heaven, even highest heaven, cannot contain him” (2 Chronicles 2:6). It is nothing for God to be able to love the whole universe. What is astounding is that the holy God loves sinful rebels who make up this world. To insist that *kosmos* in John 3:16 denotes the physical earth rather than sinful humanity is not only mistaken exegetically but also tragic because it obscures this awesome wonder.

If Cal insists, contrary to context, that *kosmos* in John 3:16 means the physical world, may others insist that it means the same in 1 John 2:15: “Do not love the world or the things in the world. If anyone loves the world, the love of the Father is not in him”?

Dies Irae?

Third, Cal thinks Revelation 11:18 (“The time has come ... for destroying those who destroy the earth.”) addresses the “extreme opposite of earthkeeping.” While no doubt abusing the earth (truly abusing it, as Scripture would define that—which might not include everything any given environmentalist claims) is sinful, it is quite likely that *the earth* in this verse does not denote the planet or the biosphere or its ecosystems. Rather, as G. K. Beale has argued persuasively in his masterful commentary *The Book of Revelation*, *ge* in Revelation not always but frequently denotes “God’s people,” and in this particular context that is its most likely sense.^{xi}

As above with regard to the Sabbatical Year law, I press this point not as an isolated, technical question of how to interpret a particular verse but because it ties to a larger question related to environmental ethics—or, rather, to the ethics that prevail among many environmentalists. Many of them tend to denounce emphatically practices the sinfulness of which is at least debatable (e.g., high-tech farming, genetic modification of crops, use of fossil fuels for fuel, damming of rivers, irrigation of deserts, eating meat or foods imported from afar, etc.) while being silent, or nearly so, regarding practices the sinfulness of which Scripture leaves in no doubt (e.g., actions most obviously forbidden in the Ten Commandments). Perhaps some of the “eco-sins” they name really are sins, but if Scripture is our example, they don’t seem to be the sins God most frequently and vigorously condemns and punishes.

Worse, sometimes they will identify sins instanced in Scripture as ecological when they are not. For example, some interpret Jeremiah 2:7 (“I brought you into a plentiful land to enjoy its fruits and its good things. But when you came in, you defiled the land and made my heritage an abomination.”) as pointing to water or soil pollution or the abuse of soil by overly intensive farming. But nothing in Jeremiah seems to point to that. In Jeremiah, what “defile the land” are never once unsteadwardly farming practices but—taking just the first dozen or so chapters to illustrate—

- idolatry (1:16; 2:5; 3:6; 7:9, 18; 8:19; 10:2; 11:10; 16:18; 17:2),
- forsaking Jahweh and worshiping pagan gods, which God called spiritual adultery (1:16; 2:11, 17, 20; 3:1, 2–3, 9, 20; 5:7, 18; 7:30; 9:2, 13; 11:10, 17; 13:10, 25, 27; 14:10; 15:6; 16:11),
- prophets speaking in the name of false gods (2:7),
- absence of the fear of God (2:19),
- rejecting and killing God’s prophets (2:30),
- forgetting God (2:32),
- murder (2:34; 4:31; 7:9),
- injustice (5:1; 7:5),

- falsehood and lies (5:1, 12; 6:13; 7:9; 8:8, 10; 9:3),
- deception (9:8),
- oppression (5:25–29, 6:6; 7:6; 9:8; 17:11),
- fraud (5:27),
- false priests and prophets “and My people love to have it so” (5:30; 14:15),
- rejection of God’s Word (6:10, 19; 8:9; 9:13; 11:10; 13:10),
- covetousness (6:13; 8:10),
- religious formalism and presumption (7:3–4),
- stealing (7:8–9),
- sexual adultery (7:9; 9:2),
- general disobedience to God’s law (7:28),
- child sacrifice (7:31),
- worship of nature (8:2),
- covenant breaking (11:3),
- general wickedness (12:4),
- complaint against God (12:8),
- pride (13:8),
- trusting in man instead of in God (17:5), and
- Sabbath breaking (17:21).

Jesus once chastened the Pharisees because they “tithe mint and dill and cumin, and ... have neglected the weightier matters of the law: justice and mercy and faithfulness. These you ought to have done, without neglecting the others” (Matthew 23:23). Though sin is sin, we cannot deny that the Bible distinguishes between greater and lesser sins, partly by distinguishing intentional from unintentional sins (Leviticus 5:15–19); partly by assigning greater punishments and sacrifices for some sins than for others (e.g., capital punishment for murder, Genesis 9:6); and partly by describing some, but not all, as shameless or abominable because they are so clearly against nature itself (e.g., homosexuality, Leviticus 18:22; 20:13; Romans 1:26–27; idolatry, Deuteronomy 7:25; 13:14; child sacrifice and witchcraft, Deuteronomy 10:10–12, etc.). Might our brothers in the creation care movement be bordering on Pharisaism by carefully tithing mint and dill and cumin (using compact fluorescent light bulbs, keeping the thermostat above 76 in the summer and below 68 in the winter, driving a hybrid vehicle, eating only locally grown foods, using paper instead of plastic grocery bags, or cloth instead of paper, using cloth instead of disposable diapers, etc.) and condemning those who don’t, while remaining silent in the face of clear violations of many of the Ten Commandments—the murder of children in the womb, sexual promiscuity and homosexuality, theft in its many forms (including through political process?), lying, and covetousness (just to mention the Second Table)?

Singing Off Key?

Fourth, the most serious and consequential of all Cal’s hermeneutical errors comes in his treatment of Genesis 2:15. I addressed this in my book *Where Garden Meets Wilderness*,^{xii} but it is so important it bears fuller treatment here.

After quoting in full four translations of Genesis 2:15 (*New International Version*, *Darby Bible*, *New Revised Standard Version*, and *King James Version*), Cal writes, “In these versions of Genesis 2:15, the Hebrew word ‘avad is variously translated ‘work,’ ‘till,’ ‘guard,’ ‘dress,’ and ‘serve.’” That’s curious,

because that's five translations, not four—and none offers *serve*. Six translations of '*avad*' appear in the 18 English translations in my (confessedly old version of) BibleWorks software:

1. Dress^{xiii} (American Standard Version, Douay-Rheims American, Geneva, Webster),
2. Work (Bible in Basic English, English Standard Version, New International Version [British], New International Version [American]),
3. Till (Darby, New Revised Standard Version, Revised Standard Version),
4. Cultivate (New American Bible, New American Standard, New Jerusalem Bible),
5. Tend (New King James, New Living Translation, Revised Webster), and
6. Serve (Young's Literal Translation).

Of these six translations of *avad*, Cal chooses one that appears in only one of these 18 English versions. Cal is a scientist. If he were offering empirical evidence for one of six competing scientific claims, and there were 18 databases from which he could choose, two of those options were represented four databases apiece, three options in three databases apiece, and one option in only one database, and he embraced the last, would other scientists suspect cherry picking or confirmation fallacy? Doesn't the same objection apply to his choice among Bible translations? Further, what if the quality of the one database from which he drew his alleged fact were poor by comparison with the others? That is the case with *Young's Literal Translation*. Its strict literalism often results in wooden, unnatural expressions that fail to account for nuances in either Hebrew or English. That is certainly so in its translating *abad* as *serve* in Genesis 2:15. Although *abad* may rightly be translated to *serve* or *work for* another in some contexts, it is properly translated so *only* when it is followed by the accusative of a person or persons. When it is followed by the accusative of things, it is properly translated *to labor, work, or do work*, e.g., to till the ground, a vineyard, or a garden, or to work in flax.^{xiv}

Why is this disagreement over translation so important? Because on the foundation of his choice of translation, Cal builds the whole edifice of his understanding of man's relationship with the creation as one of service to the earth rather than dominion over it.^{xv} To achieve this, he must not only—in opposition to almost all English Bible translations and to standard Hebrew lexicons—choose *serve* rather than *cultivate, dress, work, till, or tend* to translate *avad*. He must also treat Genesis 2:15, not 1:28, as “the most fundamental and important biblical text” on environmental stewardship (47). And that raises the necessity of discussing two more problems: (1) Which of these two verses is more fundamental—which provides the real paradigm—for earth stewardship? (2) What significant differences are there between what these two verses teach? For ease of conceptual grasp it will be helpful to address those in reverse order.

First, what significant differences are there between what the two verses teach? It will be helpful to consider the two verses with reference to the respective spheres in which Adam (in 2:15) and Adam and Eve (in 1:28) are instructed to act, and with reference to the different activities mandated in them.

Consider 2:15 first: “The LORD God took the man and put him in the garden of Eden to work it and keep it.”

With respect to the sphere in which Adam is to act, Cal and other evangelical creation care advocates routinely expand the scope of the instruction in 2:15 from the garden to the whole earth. Are there good reasons not to? Yes. The verse is part of the second telling of the creation story (Genesis 2:4–25). In contrast to the first telling (1:1–2:3), which embraced the whole of creation (“the heavens and the earth,” 1:1), but focused on the earth and all its living creatures, climaxing in man but not focusing on

him, this second telling narrows the focus not just to the earth but to one small part of it, the Garden of Eden, and one particular resident, the first man, Adam. It mentions other parts of the earth, and it mentions other living creatures, and it mentions the first woman, Eve, but all are—not unimportant but—ancillary, discussed only in relationship to the Garden and the man God put in it. The Garden is “in the east, in Eden” (2:8). A river watering it “divided and became four rivers” (2:10) that flowed out into other parts of the earth. So the context explicitly distinguishes the sphere and object of Adam’s activity—the garden^{xvi}—from the rest of the earth. It is the garden specifically, not the earth as a whole, that is the sphere and object of whatever activity God here mandates for Adam.^{xvii}

With respect to the activity God mandates for Adam, it is to *avad* and *shamar* the garden. As we have just seen, the proper sense of *avad* in this context, granted that its object is the impersonal garden, not God or some other person, is to work or tend in the sense of cultivating or tilling. *Shamar* means to keep, watch, or preserve.^{xviii}

So Genesis 2:15 reveals a mandate for Adam to cultivate and keep the Garden of Eden.

Now consider 1:28: “And God blessed them. And God said to them, ‘Be fruitful and multiply and fill the earth and subdue it and have dominion over the fish of the sea and over the birds of the heavens and over every living thing that moves on the earth.’”

With respect to the sphere in which man (male and female—for in contrast to 2:15, God in 1:28 addresses both Adam and Eve) is to act, the object on which he is to act, it is “the earth” and everything that lives in it. He is to fill “the earth” and “subdue it,” and he is to “have dominion over” everything living thing in seas, sky, and land. This sphere is clearly distinct from the Garden of Eden—it is the whole earth. The objects, too, are distinct: the whole earth, and all the living creatures not just in the Garden of Eden but everywhere.

With respect to the activity God mandates for Adam and Eve, it is to “subdue” and “rule.” *Subdue* translates the Hebrew *kabash*, to subdue, to bring into bondage, from a primitive root meaning to tread down or beat down, to make a path, to press or squeeze or knead, or to attack or assault.^{xix} *Rule* translates *radah*, to have dominion, chastise, tread, trample, or prevail against.^{xx}

So Genesis 1:28 reveals a mandate for Adam and Eve and their descendants to fill and subdue the earth and to have dominion over all of its other living creatures. These actions differ significantly from those mandated in 2:15. These presuppose an object that begins in opposition and is brought into submission; those presupposed an object already in submission but that needs to be cultivated and preserved to keep it so. The verbs in 1:28 are strong and forceful; those in 2:15 are more tender and gentle.

Second, in light of these differences between the mandates in 1:28 and 2:15, which is the more fundamental? It seems clear that it is Genesis 1:28 because (a) it mandates Adam’s activity with respect to the whole earth, not just one small part of it; (b) it addresses not only Adam but also Eve (who had not even been made before the mandate of 2:15); and (c) it remains applicable after God banishes mankind from the garden.

Does this mean the mandate to cultivate and keep is abrogated? No. Reflection on the two different mandates and on the relationship between the garden and the whole earth strongly suggests that subduing and ruling the earth results in its transformation into garden, and so subduing and ruling should metamorphose gradually into tilling and keeping the garden. This metamorphosis in treatment is

even reflected in the creation accounts in Genesis. It is not difficult to conceive of the forcefulness of God's handling of the newly created heavens and earth when, for instance, He separated light from darkness, made an expanse between the waters, and separated the waters from the dry land. A gentler action seems inherent in His calling forth vegetation from the ground and then commanding the land to produce living creatures. A still more delicate action occurs when He plants a garden in Eden. And the most gentle and intimate action takes place when the God forms man out of the dust of the ground and breathes into his nostrils the breath of life.

The themes of wilderness and garden are set in direct contrast in Psalm 107:33–38, which tells of what God does with the land of the wicked and the land of the righteous. With the land of the wicked, “He turns rivers into a desert, springs of water into thirsty ground, a fruitful land into a salty waste, because of the evil of its inhabitants” (verses 33–34). But with the land of the righteous, “He turns a desert into pools of water, a parched land into springs of water. And there he lets the hungry dwell, and they establish a city to live in; they sow fields and plant vineyards and get a fruitful yield” (verses 35–37). The psalmist connects God's blessing on the land of the righteous with bringing water to the desert, making the hungry establish a city there and sow fields and plant vineyards and reap a fruitful harvest, and multiplying them and their livestock. But he connects God's cursing a land with His emptying it of human population and domestic animals, returning it to the wild beasts.

In short, Genesis 1:28 is more fundamental to earth stewardship than 2:15 because enacting 1:28 is a precondition of enacting 2:15.

Despite my agreement with a great deal of *Song of a Scientist*, the critiques above cover only a handful of many concerns. I will conclude by raising four final ones.

A Final Quartet

All that Jazz—The Joys of Spontaneity

First, as I quoted above, Cal urges “the necessity of caution in all operations which, on a large scale, interfere with the spontaneous arrangements of the organic or the inorganic world.” While surely no one could disagree with that, I can't help wishing Cal and other environmentalists were as cautious in all operations that interfere with the spontaneous arrangements of the human *oikos*, including the family (which so many environmentalists want to subdue and rule—even dominate—through government-run family planning and population control, sometimes using coercive measures) and the economy (which so many environmentalists want to subdue and rule by central planning and overregulation). Why are they so respectful of spontaneous order in the subhuman world but not in the human world? I don't mean to imply here that Cal would support coercive family planning and population control, but reading his discussion of the planning operations of his Town of Dunn I couldn't help thinking they evidenced some of that desire to lord it over others that Jesus said characterizes non-Christian rulers but shouldn't characterize Christians:

Like players in a chess match, we need to plan many moves ahead. But the opponents of responsible land stewardship [Catch the question begging there?] may not be sitting across the table. This absence of opposing players presents both a problem and an opportunity. The problem is the temptation to be lulled into inaction. If there are no opponents, why play the game? The opportunity, however, is to plan strategies that can prevent potential opponents from entering the “game”—to defeat them before they can make a move. By creating our land

stewardship plan and its supporting subdivision ordinance rather quickly, we found that we had already addressed potential future “spoilers.” [119–120]

Ironically, Cal also affirmed, as I quoted above, the need for freedom and the “rule of law” (143). But one wonders, because he seems so favorable to minute government dictate of human action along environmental lines, what he means by it. In the narrowest sense, “the rule of law” is “the supremacy of law,” a legal principle—or bundle of principles—that “provides that decisions should be made by the application of known principles or laws without the intervention of discretion in their application.”^{xxi} More broadly, it is a synonym for justice: the impartial application to all people of transcendent law. It is to be distinguished from mere legislation or legality, positive (legislatively adopted) laws being themselves sometimes contrary to the rule of law (and so bad laws). It may also be distinguished from mere legislation as formal laws from substantive rules. “The difference between the two kinds of rules is the same as that between laying down a Rule of the Road ... and ordering people where to go; or, better still, between providing signposts and commanding people which road to take.”^{xxii} The rule of law “means that government in all its actions is bound by rules fixed and announced beforehand—rules which make it possible to foresee with fair certainty how the authority will use its coercive powers in given circumstances and to plan one’s individual affairs on the basis of this knowledge.”^{xxiii} “General rules, genuine laws as distinguished from specific orders, must therefore be intended to operate in circumstances which cannot be foreseen in detail, and, therefore,” writes Friedrich Hayek, “their effect on particular ends or particular people cannot be known beforehand. It is in this sense alone that it is at all possible for the legislator to be impartial.” I don’t assume that Cal approves of most Environmental Protection Agency regulations, but many of them clearly violate this standard, as does a great deal of government planning.^{xxiv}

I’d Like to Teach the World to Sing in Perfect Harmony

Second, in the appendix Cal writes, “Having been created justly and rightly by God, the creation is in many ways normative, and its normativity should be observed in ways that inform its observers how it works and (for correcting human degradation of creation) how it ought to work” (214–215). For someone who loves the Dutch Reformed theologian Abraham Kuyper as much as Cal does, this is a startling statement, for one of the ways in which Kuyper contrasted the Calvinist worldview from the non-Calvinist was as Abnormalism versus Normalism.^{xxv} Fully appreciating that man’s fall into sin and God’s ensuing curse (Genesis 3:17–19) affected not only humanity but also the whole cosmos, Kuyper insisted that nothing but the God-inspired, inerrant Scripture is normal and, hence, normative. That is why deriving “ought” from “is” is fallacious—the is/ought fallacy.

Granted, Cal writes only that “the creation is *in many ways* normative”—not “in all ways.” But for Kuyperians, creation—earthly creation (whether the effects of fall and curse exceed earth’s bounds is a different question)—is never normative. Cal’s statement and the general tone of his *Song of a Scientist* in its depiction of nature *so long as it is unaffected by human action* reflect a marked tendency among evangelical environmentalists to ignore or underestimate the significance of the curse. One of the great failings of much of the evangelical creation care movement is, I believe, its failure to confront and correct the common secular environmentalist notion expressed in the third of Barry Commoner’s “Four Laws of Ecology”: “Nature knows best.” From such thinking stems the common perception that any change brought to an ecosystem by man will be for the worse—unless it is to reverse previous change and return the system to its “natural” state—a notion that feeds the totalitarian tendency so prevalent in a movement whose very name means “everythingism.”

That Old-Time Religion?

Third, Cal repeatedly celebrates E. O. Wilson's joining with him in seeking to restore the term "the creation" to scientific (and religious—though I'm not sure how much it had disappeared from that) discourse. Reviving this term, he is confident, will mean scientists and evangelicals are "speaking the same language." But though the *semeia*, the symbols, are the same, the meanings are diametrically different. As Cal himself reports, Wilson's embrace of the word *creation* doesn't mean he's returned to his Southern Baptist roots. In his book *The Creation* Wilson [describes his position as "provisional deism,"](#) though he's [often considered an atheist](#). More important, Wilson wants outright atheists and Christians alike to speak of "the creation." The trouble is that an atheist cannot possibly mean the same thing by "the creation" that an evangelical does. By "the creation" an evangelical means the product of God's creative activity. The atheist by definition cannot mean that.

As I read the first passage in which Cal celebrated Wilson's overture, I shuddered. What came instantly into my mind was a passage in C. S. Lewis's *Perelandra* in which the antagonist, Weston, explained to the protagonist, Ransom, his metamorphosis from gross materialism to belief that Spirit was the underlying essence of all things—"I might say, borrowing language which will be more familiar to you, the Holy Spirit."

"Now what exactly do you mean by that?" asked Ransom.

"I mean," said Weston, "that nothing now divides you and me except a few outward theological technicalities with which organized religion has unhappily allowed itself to get incrustated. ..."

"I don't know much about what people call the religious view of life," said Ransom, wrinkling his brow. "You see, I'm a Christian. And what we mean by the Holy Ghost is not a blind, inarticulate purposiveness."^{xxvi}

Requiem Aeternam?

Finally, let me interact with Cal's reading of the Book of Creation with regard to fossil fuels. While some people think of fossil fuels as energy sources, his reading of the Book of Creation led to what he called "a more profound understanding of peat, coal, petroleum, and natural gas as the great system whereby carbon is removed from the atmosphere to maintain atmospheric carbon in concentrations that sustain our biosphere as habitable The ancient carbon stores of the earth are great stabilizers of earth's climate" (204–206).

As there are different interpretations of the Book of Scripture, so there are different interpretations of the Book of Creation. Let me offer one here—one that reflects the judgment, in the parable of the talents, on the servant who buried the money his master had entrusted him and returned it to him without profit.

From a few generations after the flood in Noah's day, for the rest of the thousands of years of human history until just two hundred years ago, almost all people everywhere lived in abject poverty—on less than the equivalent of \$1.25 a day. Their main cooking and heating fuels were wood and dried dung. Almost all transportation was by foot—and what wasn't had accidental injury and death rates sky high compared with today's. Slash-and-burn was the main agricultural method, resulting in terrible deforestation like what transformed Lebanon, famous in David and Solomon's times for its magnificent

cedar forests, into a desert. Water-borne, smoke-borne, insect-borne, and rodent-borne diseases, along with hunger, stalked every land on Earth. Nearly half of all children died before their first birthday, and life expectancy at birth was around 27 or 28 years. These things were as true of the “rich” as of the poor. No one enjoyed the benefits of water purification, sewage sanitation, antibiotics or other medicinal drugs, or electricity and all the wonders that come with it—from lights to work and learn by, to power to run assembly lines, to refrigeration and air conditioning, to MRI’s and computers.

In the two centuries since then, in developed countries, real income has increased by a factor of about sixteen—and the standard of living it can buy has increased by a factor of about 190. That is, the average person in developed countries today is about 190 times better off than almost every person on Earth two centuries ago. While some abject poverty continues, and it should move our hearts to compassion and our hands to action, we can rejoice that the percentage of the world’s population that is poor is lower than at any time in history and rapidly declining—though much environmental policy threatens to reverse that trend. The share of the world’s people living in extreme poverty, and particularly the share suffering malnutrition or hunger, has fallen from nearly one-half in 1990 to under one-fifth today. Our main cooking and heating fuel now is clean electricity (mostly from natural gas, coal, and nuclear—all of them hundreds, and nuclear thousands, of times cleaner than wood and dung). Almost all transportation is by car or truck, plane, train, or ship—and much safer and scores to hundreds of times faster. Cropland in developed countries has been improving in quality for over seventy years and is hundreds of times more productive, and net deforestation has essentially ceased on a global basis—though it continues in specific locations. Because we’ve greatly reduced hunger, malnutrition, and other causes of diseases that brought the most deaths two centuries ago, life expectancy is near 80 years in high-income countries, over 65 in low-income countries, and nowhere is below 40.

Energy from fossil fuels—whose energy density is vastly greater than that of wind, solar, wood, dung, or biofuels, and therefore vastly more affordable—has been one of the key instruments by which such great strides in human wellbeing have been achieved. Quite literally, these fuels have been crucial the vast increase of human life—in both numbers (from perhaps half a billion in 1700 to perhaps 7 billion today) and longevity.

How did the fossil fuels get where they are? They are the remains of trillions of dead plants and animals, buried under vast layers of sedimentary rock and transformed by heat and pressure into coal, oil, and natural gas. Many young-Earth geologists think they died and were buried in the universal flood of Noah’s time, when God’s judgment on man’s sin led to His wiping out almost all life on Earth. Whether that is so, I leave for discussion at some other time. The fact is that they died and were buried. All but the humans were innocent. They were not sinners. If they died in the flood, they bore God’s judgment on a sin not their own.

They died. They were buried. And now they are being lifted out of the ground and transformed from matter into energy, leaving a gas, carbon dioxide, as a byproduct. Carbon dioxide is essential to all life. Plants use it in photosynthesis, and the higher its concentration, the better they grow. For every doubling of CO₂ concentration in the atmosphere there is, on average, a 35 percent increase in plant growth efficiency. With more carbon dioxide, plants grow better in hotter and colder temperatures, in drier and wetter soils. They make more efficient use of nutrients, allowing them to grow in soils that once couldn’t support them. Since all other life depends on plants for food—either directly—this boon to plants is a boon to the rest of life, too. The increase in atmospheric CO₂ concentration over the past sixty years or so seems likely to account for some 12 to 15 percent of the increase in average crop yields

per acre during that period—contributing significantly to the increasing abundance and affordability of food, with the poor benefiting more than anyone else.

Now, I know Cal thinks there is a terrible danger tied to this increase in atmospheric carbon dioxide. He thinks it portends potentially catastrophic warming that will lead to more frequent and intense hurricanes, tornados, heat waves, cold snaps, droughts, floods, and other severe weather; to the spread of tropical disease-carrying insects to more of the world; to crop failures; and perhaps most devastating of all, the melting of glaciers, causing sea level to rise and so flooding coastal regions in which hundreds of millions of people live. I think his fears are unwarranted, but I know they're common. For a general response to them, see the Cornwall Alliance's [*A Renewed Call to Truth, Prudence, and Protection of the Poor: An Evangelical Examination of the Theology, Science, and Economics of Global Warming*](#), the work of 29 evangelical scholars including roughly equal numbers of theologians, scientists, and economists with particular expertise in the field. Here, however, I'd like to say just a little bit about what Cal views as the dangerous increase of atmospheric CO₂ concentration.

Atmospheric CO₂ levels have been many multiples higher than they are today at various times in geologic history, including some of the most verdant. Just prior to the rise in CO₂ caused partly by the Industrial Revolution, its concentration was at or near the lowest it's ever been, and near the lower threshold at which many plants can thrive. The fear that rising CO₂ will cause disastrous consequences depends on some assumptions that I, along with many well-qualified climate scientists, think are wrong. Our basic understanding of black-body radiation leads to the conclusion that, in the absence of any greenhouse effect, Earth's average surface temperature would be about -18° C. With the concentration of greenhouse gases that prevailed about two hundred years ago, but without any feedbacks, it would be about 60° C (an increase of 78 C°); with that greenhouse effect and the feedbacks, however, it was about 15° C (an increase of 33 C°). It follows that the total feedbacks—no matter what individual ones of them did (and about some we remain quite ignorant to date)—eliminate about 58 percent of the warming from greenhouse gases (78 – 58% = 33). The assumption behind the fears Cal embraces, however, is precisely the opposite: that feedbacks multiply greenhouse warming by 250 percent or more.

Basic physics (the Stephan-Boltzman equation) again tells us that for every doubling of CO₂ concentration in the atmosphere, warming before feedbacks will be about 1.2 C°. Multiplying that by 250 percent would yield about 3 C° for every doubling of CO₂ after feedbacks. Thus, on that assumption, going from about 270 ppm (the pre-industrial level) to 540 ppm (which we might reach late in this century—we're now at about 395 ppm) would raise global average temperature by about 3 C°; doubling it again, to 1,080 ppm, would raise temperature another 3 C°; doubling it again, to 2,160 ppm, would raise it by 3 more; and doubling it once more, to 4,320 ppm, would raise it by 3 more, for a total of 12 C° from raising CO₂ to 16 times its present level (which will still be below some of its past levels during verdant periods of geologic history). That result would indeed cause the loss of vast amounts of land ice and consequent major increase in sea level—over a period of many centuries, if it ever were to happen (which is unlikely because of changes in technology and, beginning around the middle of this century, the likely decline of population, both of which will reduce CO₂ emission rates). But remember, that assumption is precisely the opposite of what we already *know* feedbacks do to the overall greenhouse effect. There's no reason to think they'll do anything different to increased CO₂.

Now let's switch to the other assumption—the one that's consistent with what feedbacks do to overall greenhouse warming—namely, reduce it by 58 percent. For the first doubling, from 270 to 540 ppm, average temperature would rise not 3 C° but about 0.5 C°. For the next, to 1,080 ppm, it would rise

another 0.5; for the next, to 2,160, another 0.5; and for the fourth, to 4,320 ppm, another 0.5—for a combined 2 C°—spread over the many centuries it would take (if ever) for us to raise CO₂ concentration that much. But 2 C° of warming is actually an amount that most studies indicate would be overall beneficial—lengthening growing seasons, spreading agricultural lands into higher latitudes and altitudes, reducing deaths from cold snaps (which, on a *per diem* basis, kill ten times as many people as heat waves).

So now you understand why I don't share Cal's fears of catastrophic consequences from rising carbon dioxide. Let us return, then, to considering the fossil fuel story—and with these few short thoughts I close.

Stop and think for a moment. Innocent creatures die, are buried, are brought up out of the ground, and bring life to others.

Haven't you heard that story before? Of course you have. It is the basic summary of the gospel: Christ (who knew no sin but became sin for us that we might be made the righteousness of God in Him; 2 Corinthians 5:21), died for our sins according to the Scriptures; He was buried; He rose again from the dead on the third day according to the Scriptures. At death the human body "is sown a natural body; it is raised a spiritual body. If there is a natural body, there is also a spiritual body. Thus it is written, 'The first man Adam became a living being'; the last Adam became a life-giving spirit" (1 Corinthians 15:3–4, 44–45).

May I beg to read the Book of Creation, as on some points I do the Book of Scripture, differently from Cal? May I assert that, rather than seeing fossil fuels as simply carbon sequestration, we see them, when transformed into energy, as both literally giving life—long and healthy life—to billions of human beings who are not carbon footprints but the footprints of carbon, on the one hand, and, on the other hand, a beautiful picture of the death, burial, and resurrection of our Lord and Savior Jesus Christ? May we think not of the carbon dead end (Cal's reading of the Book of Creation) but of the carbon life cycle? Why, if we recognize and celebrate the beautiful design of the water cycle, ought we not also to celebrate the beautiful design of the carbon cycle? And might I even venture that this could be one way in which the Book of Creation points to the gospel in the Book of Scripture, and that by embracing this understanding we might not only bring enormous benefit to human health and prosperity to the world's poor but also enlarge our effectiveness in reaching some of its lost and dying people?

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ⁱRobert H. Nelson, *The New Holy Wars: Economic Religion vs. Environmental Religion in Contemporary America* (University Park, PA: The Pennsylvania State University Press, 2010), 151–153.

ⁱⁱJohn Muir, *The Eight Wilderness Discovery Books* (Kennoway, Fife, UK: Diadem Books, 1992), 160–161.

ⁱⁱⁱMarcia Bunge, “Christian Faith and Environmental Ethics: Aldo Leopold’s *Sand County Almanac* and Luther’s *The Freedom of a Christian*,” talk given at Luther College, Decorah, IA, January, 1994, published in *Agora*, Spring 1994, online at www.valpo.edu/services/recycling/leopold.doc.

^{iv}Curt Meine, “*Leopold, Aldo*,” in *Encyclopedia of Religion and Nature*, 2 vols., ed. Bron Raymond Taylor (New York: Continuum, 2008), 1005–1008, at 1006; see also Curt Meine, *Aldo Leopold: His Life and Work* (Madison, WI: University of Wisconsin Press, 1988).

^vMeine, *Aldo Leopold*, 506–507, cited in Meine, “Leopold, Aldo,” 1006.

^{vi}*Ibid.*

^{vii}George Grant, *Carry a Big Stick: The Uncommon Heroism of Theodore Roosevelt* (Nashville, TN: Cumberland House, 1997).

^{viii}See Caroline Crane Marsh, *Life and Letters of George Perkins Marsh*, 2 vols. (New York: Charles Scribner’s Sons, 1888) and David Lowenthal, *George Perkins Marsh: Prophet of Conservation* (University of Washington Press, 2003).

^{ix}J. P. Louw and Eugene Albert Nida, *Greek-English Lexicon of the New Testament Based on Semantic Domains*, 2 vols. (United Bible Societies, 1999), s.v. *kosmos*.

^xFor examples, see John 1:9–10, 29 [“the Lamb of God, who takes away the sin of the world!”]; 4:42; 6:33, 51; 7:4, 7; 8:12, 23, 26; 9:39; 12:19, 25, 31, 46–47; 13:1; 14:17, 19, 22, 27, 30–31; 15:18–19; 16:8, 11, 20–21, 28, 33; 17:6, 9–25; 18:36–37; 1 John 2:2(?), 15–17, 3:1, 13; 4:1–5, 9, 14, 17; 5:4–5, 19; 2 John 7; Revelation 3:10; 11:15; 12:9, 16:14. For examples in the Gospel John where *kosmos* probably does denote the universe or the Earth, see John 9:32; 17:5.

^{xi}G. K. Beale, *The Book of Revelation*, New International Greek Testament Commentary (Grand Rapids: Eerdmans, 1999), 615.

^{xii}E. Calvin Beisner, *Where Garden Meets Wilderness: Evangelical Entry into the Environmental Debate* (Grand Rapids: Eerdmans/Acton Institute, 1997), 15–16.

^{xiii}In its older usage, which these versions represent, *dress* meant not to clothe or attire but, according to the *Oxford English Dictionary*, “to make straight or right,” “to place or set in position,” “to draw up in proper alignment,” “to make ready or prepare.”

^{xiv}Francis Brown, S. R. Driver, and Charles A. Briggs, eds., *A Hebrew and English Lexicon of the Old Testament ... Based on the Lexicon of William Gesenius* (Oxford: Clarendon Press, 1978), 712.

^{xv}It is relevant also to one of Cal’s word plays. Having concluded that Genesis 2:15 tells us to serve the earth, he then finds *serve* in the words *conserve*, *conservancy*, and *conservation* (106, 119–124, 214), inferring that we are “con-servants with creation,” a seemingly happy etymological coincidence. The trouble is that this at first sight obvious etymology is mistaken. The word *conserve* comes from the Latin *conservo*, “to retain, keep something in existence, to hold up, maintain, to preserve, leave unhurt or safe.” *Conservo*, in turn, comes from *servo*, which means (A) not to serve but (a) in general, to save, deliver, keep unharmed, preserve, protect, etc.,” and in particular “to keep, lay up, preserve, reserve for the future or for some purpose.” By transference from the idea of the attention’s being turned to any thing, *servo* means “to give heed to, pay attention to; to watch, observe any thing (syn[onym] *observe*),” in particular, in religious language, “to observe an omen.” Or, (B), *servo* can mean “to keep to, remain in a place (i.e., to keep watch there); to dwell in, inhabit,” or (C) in late juridical Latin, “to get, obtain, receive.” (Charlton T. Lewis, *A Latin Dictionary* [commonly known as *Lewis & Short’s Latin Dictionary*; Oxford: Clarendon Press, 1879, 1993], 430, 1,683–1,684. *Conserve* simply does not mean to serve with.

^{xvi}The grammatical object of the verbs *cultivate* (*abad*) and *keep* (*shamar*), expressed in their pronominal suffixes, is almost certainly the garden. Recently a few scholars have argued that the object is God (John H. Sailhamer, “Genesis,” in *The Expositor’s Bible Commentary*, ed. Walter C. Kaiser and Bruce K. Waltke [Grand Rapids: Regency, 1990], *en loc.*, and Mark Liederbach and Alvin L. Reid, *The Convergent Church: Missional Worshipers in an Emerging Culture* [Grand Rapids: Kregel, 2009], 121–122), but if that is so, then whatever *avad* and *shamar* tell Adam to do, they tell him to do it to God, not to the earth or even the garden. Three things weigh heavily against this hypothesis: (a) The pronominal suffixes are feminine, and while almost never does Old Testament Hebrew use feminine pronouns to refer to God (and then only in keeping with a contextual metaphor), the Hebrew word for garden, *gan*, sometimes takes a feminine form, and that is its gender here. (Brown, Driver, and Briggs, *Lexicon*, 171.) (b) While it would make obvious sense for Adam to serve (or, as *abad* also sometimes is translated, worship)

God, it would make little sense for Adam to keep or guard God; on the contrary, God guards His people (e.g., Psalm 18:2). (c) The most obvious referent for the pronominal suffixes based on the context is the garden.

^{xvii}The Garden of Eden becomes symbolic in later parts of Scripture of the place of intimate communion with God, reflected in the Old Testament tabernacle and temple with the garden elements of their decoration, and in the garden city, New Jerusalem, at the end of the Book of Revelation. This becomes the basis of an important Biblical antithesis between garden and wilderness. See “The Garden and the Wilderness: Toward a Biblical Foundation for Environmental Ethics,” appendix 1 of *Where Garden Meets Wilderness* (113–128).

^{xviii}Brown, Driver, and Briggs, *Lexicon*, 1,036.

^{xix}Brown, Driver, and Briggs, *Lexicon*, 461. In addition to Genesis 1:28, see Numbers 32:20–22, 32:29, Joshua 18:1, and 1 Chronicles 22:17–19, the subduing of the land of Palestine, including the hostile nations in it, by Israel; 2 Chronicles 28:9–10, the subduing of Judah by Samaria to make them slaves; Nehemiah 5:5 and Jeremiah 34:11, 16, making slaves; Esther 7:8, to subdue or force a woman; Micah 7:19, subduing iniquities; Zechariah 9:15, subduing enemies in warfare.

^{xx}Brown, Driver, and Briggs, *Lexicon*, 921–922. In addition to Genesis 1:26, 28, see Leviticus 25:39, 43, 46, Israelites are forbidden to rule fellow Israelite bondslaves with rigor; 26:17, if Israel rebels its enemies will reign over it; Numbers 24:19, Messiah will have dominion, and destroy whoever remains of the city; Judges 5:13, Deborah had dominion over the mighty in battle; 1 Kings 4:24, Solomon had dominion over the land and kings from Tiphshah to Azzah; 5:16, 9:23, and 2 Chronicles 8:10, officers ruled over workers; Nehemiah 9:28, Israel's enemies had dominion over it; Psalm 49:14, the upright will have dominion over fools; 68:27, Benjamin had dominion; 72:8, (Messiah) the king will have dominion from sea to sea; 11:2, Messiah will rule in the midst of His enemies; Isaiah 14:2, 6, restored Israel will rule over its oppressors, who once ruled over it; 41:2, God subdues kings before the ruler from the east; Jeremiah 5:31, the priests bear rule in oppression over the people; Lamentations 1:13, Judah's conqueror prevailed against it; Ezekiel 29:15, humbled Egypt shall no more rule over the nations; 34:4, the shepherds of Israel ruled the people with cruelty.

^{xxi}Henry Campbell Black, *Black's Law Dictionary*, 5th ed. (USA: West Publishing Co., 1981), 1,196.

^{xxii}Friedrich A. Hayek, *The Road to Serfdom* (Chicago: University of Chicago Press, 1994), 74.

^{xxiii}*Ibid.*, 72

^{xxiv}For discussion of how the rule of law and much government planning often conflict, see Hayek, *Road to Serfdom*, chapter 6, “Planning and the Rule of Law”; Bruno Leoni, *Freedom and the Law*, 3d ed. (Indianapolis: Liberty Fund, 1991), chapter 3, “Freedom and the Rule of Law”; A. V. Dicey, *Introduction to the Study of the Law of the Constitution*, 8th ed. (Indianapolis: Liberty Fund, [1885; 1915] 1982), Part II, “The Rule of Law.”

^{xxv}Abraham Kuyper, *Christianity as a Total World and Life System* (1898 Stone Lectures at Princeton Seminary; Marlborough, NH: Gilliland Press/Plymouth Rock Foundation, 1996), 88–89.

^{xxvi}C. S. Lewis, *Prelandra*, Book Two of The Space Trilogy (New York: Macmillan, 1944), 91.