AN APOLOGETIC TO SCIENTISTS AND ENGINEERS DERIVED

FROM A BIBLICAL AND THEOLOGICAL MODEL

OF GOD AS ENGINEER

By

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DISCLAIMER

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ABSTRACT

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An Apologetic to Scientists and Engineers Derived from a Biblical and Theological Model of God as Engineer

Jeffrey Lamp, Ph.D.

How should God's role of Creator be understood in light of current science and technology? Romans 1:18-21 and other relevant passages speak of God's engineering expertise in manifesting Himself to human beings through their experience of the natural realm. Through reverse engineering activities, humans unravel the mysteries that underlie the creation, and observe the wisdom of God. It is hoped that biblical and theological analyses of these concepts will lead to deeper worship among believers, and a more effective presentation of the Gospel among scientifically literate people groups.

Chapter 1 introduces the idea that God can be partially known from nature. Chapter 2 investigates the biblical basis for a proper natural theology, and explores a model of God as Engineer, as well as the concept of humans as reverse engineers. The theological implications of these ideas are explored in Chapter 3, along with a summary and conclusion.

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DEDICATION

This thesis is dedicated to my wife and best friend, Kate, whose steadfast love undergirded and inspired its completion.

ACKNOWLEDGMENTS

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CHAPTER 1

INTRODUCTION TO A MODEL OF GOD AS ENGINEER

Statement of the Problem and Background

Significant disagreement among Bible scholars and theologians exists today regarding the extent and nature of God's self-revelation in creation. Should God be viewed as a cosmic engineer, or does this model of God do more harm than good? Furthermore, might this view of God serve as an effective apologetic to scientists and engineers? This thesis will explore the revelatory aspects of nature in an effort to assess the validity and apologetic utility of a model of God as engineer, with the corollary concept of humans as reverse engineers (in regard to their analysis and comprehension of creation–see below), as described in Romans 1:18-21 and other relevant passages. This investigation is conducted to assist in the development of a more accurate and effective presentation and defense of a Christian worldview to scientifically literate people groups, ultimately encouraging them to hope and trust in their ingenious and loving Creator.

The Bible presents God as the Creator of all things (Gen 1-2), and His Creation serves multiple purposes. One of the primary purposes of the natural realm is to provide a partial revelation of God to human beings. This revelation is known as the General Revelation (God's revelation through the natural realm–see below), because it is generally accessible to all people at all times and places. The Apostle Paul writes in Romans 1:20 that God's invisible attributes–His eternal power and divine nature–have been clearly seen, being understood through what has been made, so that humanity is

without excuse.[1] Bible scholars and theologians have written much on this, and the

surrounding verses, over the years. In the sense that God has creatively and wisely

arranged His creation to accomplish the purpose of self-revelation, He is a kind of divine

engineer. In other words, He creatively employs knowledge and understanding with

resourcefulness to solve a problem or achieve His purposes.[2] This model of God allows

humans, who are made in His image (Gen 1:26), and hence, also engage in engineering

activities, to relate to Him through this common creative pursuit. Furthermore, when

human beings engage in reverse engineering (analytical dissection to facilitate

understanding–see below) activities with regard to the creation, through scientific and

philosophical investigation, it is believed that they uncover significant information

regarding God's existence and attributes.[3]

 However, some scholars are opposed to such a modeling of God, arguing that it

imposes an improper domestication of transcendence (beyond the things of this universe

– see below), often resulting in theological error. In *Chance or Purpose? Creation,*

Evolution, and a Rational Faith, Cardinal Christoph Schonborn writes:

> The never ending debate, as to whether there is something like a "design" in
> creation, thus goes round in circles, perhaps because nowadays, whenever people

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[1]Unless otherwise indicated, all English Bible references in this paper are to the New American Standard Bible (NASB) (La Habra, CA: The Lockman Foundation, 1977).

[2]Raymond B. Landis, *Studying Engineering: A Road Map to a Rewarding Career* (Los Angeles: Discovery Press, 2007), 35-36, 335-337.

[3]Dominic Halsmer, Jon Marc Asper, Nate Roman, and Tyler Todd. "The Coherence of an Engineered World," *International Journal of Design & Nature and Ecodynamics* 4, no. 1 (2009): 60-65.

talk about "design" and a "designer," they automatically think of a "divine engineer," a kind of omniscient technician, who-because he must be perfect-can, equally, only produce perfect machines. Here, in my view, lies the most profound cause of many misunderstandings-even on the part of the "intelligent design" school in the U.S.A. God is no clockmaker; he is not a constructor of machines, but a Creator of natures. The world is not a mechanical clock, not some vast machine, nor even a mega-computer, but rather, as Jacques Maritain said, "une republique des natures," "a republic of natures."[4]

Part of the problem here may arise because of people's (and perhaps even Schonborn's) confusion between the roles of engineer and technician. Viewing God as merely a technician is certainly a demotion, since the role of the technician is to assemble or maintain a device or system whose creation has been previously specified in detail by the engineer.[5] The technician would typically have no knowledge (or very limited knowledge) of the design principles that went into the engineering of the device or system. The designing engineer, on the other hand, has intimate knowledge of the deepest secrets regarding the inner workings of the device or system since he or she was involved in its creation and development from its inception. Indeed, the engineer is rarely involved in the details of constructing the device or system, which is left to the hands of the technician, with some oversight. In this sense, then it is appropriate to say that God not only creates human natures, but also *engineers* human natures, because He has established them with wisdom and understanding in order to accomplish His purposes. This is in no way intended to constrain God as to *how* He engineers human natures, which largely remains a mystery. Although through science (the methodical and

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[4]Christoph Schonborn, *Chance or Purpose? Creation, Evolution, and a Rational Faith* (San Francisco: Ignatius Press, 2007), 98.

[5]Landis, 93-101.

systematic study of nature),[6] humans are learning more about this every day by taking a

reverse engineering approach to unraveling the mysteries behind natural systems.

John Polkinghorne and Nicholas Beale share similar concerns about thinking of

God as an Engineer (or Designer) when answering a recent question about intelligent

design. Claiming confirmation from the Bible, they write:

> God is never spoken of as a "designer" in the Bible: he is Creator and Father, and a Father does not "design" his children. Even a great creative writer does not exactly "design" her or his characters, and in any performance, whether of a play or a piece of music, the individual decisions and actions of the performers are vital elements in addition to the intentions of the playwright or composer. By endowing us with free will and giving us the capacity to love, God calls us to be in a limited but very important sense co-creators.[7]

The author disagrees that God is never spoken of as a designer, or engineer, in the Bible.

As will be seen in numerous passages discussed in the following sections of this thesis,

the Bible is replete with examples that refer to God in this role. One clear example is

from Psalm 139:13, where the Psalmist writes, "For you created my inmost being; you

knit me together in my mother's womb." Another is found in 2 Samuel 14:14 where the

Wise Woman of Tekoa speaks of how God "devises ways so that a banished person does

not remain estranged from him." This appears to be a clear reference to how God even

engineers humanity's salvation. Certainly, by endowing humans with free will (Rom 2:7-

8), He has also given them a limited capacity to create, but that does not negate God's

characteristic as a creative engineer. Obviously, His creative capacities are well above

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[6]Landis, 36.

[7]John Polkinghorne and Nicholas Beale, *Questions of Truth: Fifty-one Responses to Questions About God, Science, and Belief* (Louisville: Westminster John Knox, 2009), 57.

and beyond those of humans, but by making people in His image, He has given them the

capacity to relate to Him as a creative problem solver. By denying that God engages in

these kinds of activities, humans miss the opportunity to relate to Him on that level.

William C. Placher, in *The Domestication of Transcendence: How Modern

Thinking about God Went Wrong*, appears to caution Christians against applying any

human categories to God, writing:

> Before the seventeenth century, most Christian theologians were struck by the
> mystery, the wholly otherness of God, and the inadequacy of any human
> categories as applied to God. That earlier view never completely disappeared, but
> in the seventeenth century, philosophers and theologians increasingly thought
> they could talk clearly about God.[8]

Certainly, all models of God fall hopelessly short. But perhaps a proper biblical model of

God as engineer, and a view of humans as reverse engineers, may provide a useful means

of presenting and defending a Christian worldview in this modern, science-saturated

society of the twenty-first century. Strengths and weaknesses of this model will be

investigated in an effort to avoid error and improper applications. Theological

implications of this model will also be discussed for both believers and unbelievers.

<u>Purpose, Objectives, and Significance</u>

The purpose of this thesis is to assess a model of God as engineer by examining

scriptures that pertain to how God accomplishes His purpose of self-revelation through

the ingeniousness of His creation. Recent findings from the fields of science and

engineering will also be brought to bear on this question. Both kinds of evidence will be

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[8]William C. Placher, *The Domestication of Transcendence: How Modern Thinking About God Went Wrong* (Louisville: Westminster John Knox, 1996), 6.

analyzed with an engineering mindset, recognizing that human ability to do science and engineering follows from being made in God's image (Gen 1:26). Thus, viewing God as the Engineer of Creation may assist understanding of not only why the universe is the way it is, but also foster appreciation for God's great ingenuity and competency in accomplishing His purposes. Ultimately, this is for the purpose of inspiring believers to greater worship, and attracting unbelievers (especially those involved in science and technology) to a life of faith.

One of the primary objectives of this thesis is to assist in bringing reconciliation to the Body of Christ by advancing a proper biblical model of its Creator. The current relationship between science and theology suffers from a lack of understanding in both directions. Both scientists and theologians seek truth about the nature of reality, but many on both sides are suspicious and hesitant to reach across the aisle. Thus, mediating concepts are sought to facilitate mutual understanding. It is suggested that the fields of science and theology might be moved toward reconciliation by injecting concepts from the field of engineering. Much of the current dialogue in science and theology hinges on the concept of design.[9] This is the forte of the engineer. Thus, it is believed that Christian engineers have something significant to contribute to this conversation. It is hoped that Bible scholars and theologians with an interest in science will be attracted to this work, as well as scientists and engineers who are curious about how the Bible holds up in the face of modern science. It is believed that both groups will benefit from this analysis of God

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[9]Jimmy H. Davis and Harry L. Poe, *Chance or Dance? An Evaluation of Design* (West Conshohocken, PA: Templeton Foundation Press, 2008), 3. William A. Dembski, *Intelligent Design: The Bridge between Science and Theology* (Downers Grove, IL: InterVarsity Press, 1999), 72.

as engineer. It is also hoped that various Christian views of interpreting creation might be moved toward reconciliation through this work. Finally, it is hoped that believers will enjoy a greater knowledge and appreciation of their Creator, leading to deeper worship. And, that unbelievers will be moved to put their hope and trust in their ingenious and loving Creator.

<center>Definition of Terms</center>

Natural Theology is defined as those things that may be known about God through the observations and study of the realm of nature.[10] General Revelation is defined as knowledge of God, obtained through common human experience, which is available to all human beings, at all times, and in all places.[11] Special Revelation is defined as knowledge of God that is only accessible to a particular people or group of people, generally through the Bible.[12] An Engineer is defined as one who makes use of resources, knowledge, and skill, with creativity and wisdom, to accomplish a purpose or solve a problem.[13] A Reverse Engineer is defined as one who dissects and analyzes an object, with an engineering mindset, in order to understand the deeper secrets that underlie its

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[10]Alister E. McGrath, *The Open Secret: A New Vision for Natural Theology* (Malden, MA: Blackwell, 2008), 2.

[11]William Lane Craig and J. P. Moreland, *The Blackwell Companion to Natural Theology* (Malden, MA: Blackwell, 2009), 91.

[12]Walter A. Elwell, ed., "special revelation," *Evangelical Dictionary of Theology* (Grand Rapids: Baker, 2001), 419.

[13]Landis, 35-36, 335-337.

design.[14] Transcendence is defined as the quality, or state of being beyond time, space, and the material universe.[15]

<div align="center">Limitations, Delimitations, and Presuppositions</div>

This study will be limited to Christian concepts of Natural Theology, and will not consider a detailed treatment of how other religions and theologies view nature. This study will be limited to research that has been published in the English language. Although this study will include consideration of scripture passages throughout the Bible, a thorough exegesis of passages in the original (Greek) language will be restricted to the Book of Romans.

It is assumed that the laws of logical thinking[16] are valid and apply to reasoning in both scientific and theological disciplines. It is assumed that although human beings are fallen creatures living in a fallen world (Gen 3:1-19), they have still been endowed by God with the capacity to know Him, albeit in a limited way, through their experience of the natural realm (Rom 1:20). It is assumed that the Bible is inspired, inerrant and infallible; and therefore, eminently useful for establishing Christian faith and practice. It is also assumed that God gives the gift of the Holy Spirit to His people, to assist them in properly interpreting His message to human beings through the Scripture (John 16:13).

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[14]K. Otto and K. Wood, *Product Design: Techniques in Reverse Engineering* (Englewood Cliffs, NJ: Prentice-Hall, 2000), 17.

[15]Elwell, "transcendence," 1037.

[16]Craig and Moreland, 33.

Methodology

A careful and thorough literature search will be conducted to uncover previous and current thought regarding the revelatory aspects of nature. While mainly focusing on a hermeneutical and exegetical treatment of Romans 1:18-21, the Scripture will be searched to identify any other pertinent passages. In light of Scripture, a brief history of Jewish and Christian understandings of Natural Theology will be developed. Current thought on this topic will also be researched and analyzed, with regard to a biblical view. Pertinent information from the fields of science and engineering will also be considered, in an effort to assess the extent of consonance between science and theology on these issues.

The question of the validity of viewing God as a transcendent cosmic engineer will also be addressed as to its usefulness for Christian faith and practice. In particular, its applicability in evangelism and apologetics among scientifically literate people groups will be investigated. Its value for strengthening the faith of current believers will also be assessed. The results of this study will be summarized and recommendations will be made for developing a more articulate and compelling presentation and defense of a Christian worldview, especially when interacting with scientifically literate people groups, such as scientists and engineers.

The next chapter will present an exegesis of Romans 1:18-21, in particular, as it pertains to the idea that God has engineered the Creation to reveal Himself. It will be demonstrated that this is a key point in Paul's presentation of the Christian faith for the church in Rome. It will become clear that the universal recognition of God's hand in the

workings of the natural realm is a critical part God's plan to draw people back to

Himself; thus, enabling their reception and realization of His generous offer of salvation.

CHAPTER 2

A BIBLICAL BASIS FOR NATURAL THEOLOGY

Exegesis of Romans 1:18-21

During the Fall of 2012, Dr. Mark Rutland, in his final year before retiring as

President of Oral Roberts University, delivered a series of chapel sermons on the theme

of "Best Picture." He kept the students and faculty on the edge of their seats at each

chapel service by showing a trailer of a movie that had the distinction of winning the

Academy Award for Best Picture. In discussing each movie, he would inevitably find

important applications for living an authentic Christian life. But, he would also provide

insights on how the movie's message could help his audience obtain the very "best

picture" of God. In the author's personal opinion, he regularly accomplished this in a

captivating manner. Yet, how can movies help people to know God better? For that

matter, how can anything other than the special revelation of Scripture help people to

know God? It must be remembered that God not only reveals Himself in the person of

Jesus Christ, and in the Bible, but also in the general revelation of His creation. In

addressing Romans 1:19, John Calvin comments, "man was created to be a spectator of

this formed world, and that eyes were given him, that he might, by looking on so

beautiful a picture, be led up to the Author himself."[17] Calvin suggests that the realm of

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[17] John Calvin, *Commentaries on the Epistle of Paul the Apostle to the Romans*, trans. and ed. John Owen (Edinburgh: T&T Clark, 1849), 70.

nature has an important role to play in helping to reveal God to human beings. One might

even go so far as to assert that God has specifically engineered His Creation in order to

unmistakably reveal Himself to these creatures He has made in His own image (Gen

1:26).

This chapter will explore the revelatory aspects of nature, in an effort to assess the

validity/utility of a model of God as engineer, with the corollary concept of humans as

reverse engineers (in regard to creation). This investigation will be largely based on

exegetical and theological analyses of Romans 1:18-21, but will also consider other

relevant passages. It is hoped that this work will assist in the development of a more

accurate and effective presentation and defense of a Christian Worldview to scientifically

literate people groups, ultimately encouraging them to hope and trust in their ingenious

and loving Creator.

A variety of reasons have been offered as to why Paul wrote his letter to the

Romans. Although he probably had multiple reasons, it seems clear that Paul wrote to the

fledgling church at Rome in order to help resolve a conflict between Jews and Gentiles

with regard to keeping the Law. In addressing specifics, he needed to summarize the

basic contents of the Gospel.[18] In so doing, he points out that all people are without

excuse because everyone has some knowledge of God, based on an understanding of

what has been made. The passage regarding this idea is Romans 1:18-21, of which the

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[18]Thomas R. Schreiner, *Romans,* Baker Exegetical Commentary on the New
Testament (Grand Rapids: Baker, 1998), 15-16.

key verse, 20, is "critically certain."[19] The entire passage is shown below in the original

Koiné Greek:

> [18]Ἀποκαλύπτεται γὰρ ὀργὴ θεοῦ ἀπ' οὐρανοῦ ἐπὶ πᾶσαν ἀσέβειαν καὶ ἀδικίαν ἀνθρώπων τῶν τὴν ἀλήθειαν ἐν ἀδικίᾳ κατεχόντων, [19]διότι τὸ γνωστὸν τοῦ θεοῦ φανερόν ἐστιν ἐν αὐτοῖς· ὁ θεὸς γὰρ αὐτοῖς ἐφανέρωσεν. [20]τὰ γὰρ ἀόρατα αὐτοῦ ἀπὸ κτίσεως κόσμου τοῖς ποιήμασιν νοούμενα καθορᾶται, ἥ τε ἀΐδιος αὐτοῦ δύναμις καὶ θειότης, εἰς τὸ εἶναι αὐτοὺς ἀναπολογήτους· [21]διότι γνόντες τὸν θεὸν οὐχ ὡς θεὸν ἐδόξασαν ἢ ηὐχαρίστησαν, ἀλλ' ἐματαιώθησαν ἐν τοῖς διαλογισμοῖς αὐτῶν καὶ ἐσκοτίσθη ἡ ἀσύνετος αὐτῶν καρδία.[20]

> [18]For God's wrath is being revealed from heaven against all the ungodliness and unrighteousness of people who, in wickedness, try to suppress the truth, [19]because that which can be known about God is evident in them, for God has made it evident to them. [20]For since the creation of the world, His invisible qualities, His eternal power and divine nature have been clearly perceived, being understood through what has been made, so that they are without excuse. [21]Because although they knew God, they did not glorify Him as God, or give thanks, but they became futile in their thinking and their senseless heart was darkened.[21]

Attention will be focused mainly on verses 19-20, but it should be pointed out that

in verse 18, κατεχόντων has been translated as a tandential, or conative, participle,

indicating human inability to successfully suppress the truth about God in creation.[22]

Concerning this issue, C. E. B. Cranfield agrees: "It is the attempt to suppress it, bury it

out of sight, obliterate it from the memory; but it is of the essence of sin that it can never

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[19]John J. O'Rouke, "Romans 1:20 and Natural Revelation," *Catholic Bible Quarterly* 23, no. 3 (1961): 301. Textual issues with the remaining verses are insignificantly minor.

[20]All Greek references are from *The* UBS *Greek New Testament: A Reader's Edition*, Barbara Aland, et al; eds. (Stuttgart: Deutsche Bibelgesellschaft, 2007), 406.

[21]Author's translation.

[22]Cleon L. Rogers Jr. and Cleon L. Rogers III, *The New Linguistic and Exegetical Key to the Greek New Testament* (Grand Rapids: Zondervan, 1998), 316.

be more than an attempt to suppress the truth, an attempt which is always bound to prove

unsuccessful, futile, in the end."[23]

How is it that humans attain this relentless knowledge of God? This is an issue in

epistemology, the study of knowledge: what knowledge is and how it is acquired.[24] In

this regard, Joseph A. Fitzmyer points out the significance of Paul's use of φανερόν

(make evident)[25] instead of αποκαλύπτεται (reveal)[26] in verse 19:

> Yet Paul does *not* mean that "only by an act of revelation from above–God
> 'making it known'–can people understand God as he is." For precisely this reason
> he uses a different verb, *phaneroun*, "make evident," for example, in and through
> material creation itself, as distinct from *apokalyptein*, "reveal," namely, through
> the gospel. It is important to note this distinction. Paul admits that God's
> "uprightness" is *revealed* in the gospel, but he also maintains that people can
> perceive or come to a certain awareness of God's "eternal power and divinity"
> from reflection on what he has *made evident* in material creation.[27]

Although the majority of the Greek and Latin patristic interpreters understood all

knowledge of God as faith supported by God's grace,[28] these interpreters were addressing

a different audience and a different problem from Paul's; and in reality, have missed

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[23]C. E. B. Cranfield, *Romans: A Shorter Commentary* (Grand Rapids: Eerdmans, 1985), 30.

[24]Marta Cone, et al; eds., "epistemology," *New Oxford American Dictionary* (New York: Oxford University Press, 2010), 572.

[25]Author's translation.

[26]Author's translation.

[27]Joseph A. Fitzmyer, *Romans* (New Haven, CT: Yale University Press, 1993), 273.

[28]William Vandermarck, "Natural Knowledge of God in Romans: Patristic and Medieval Intepretations," *Theological Studies* 34, no. 1 (1973): 36.

Paul's point.[29] Ever since the Enlightenment, when philosophers tried to establish a religion of nature and reason to substitute for Christian revelation, some commentators have subconsciously reacted by denying the capability of humans to attain some knowledge of God from nature. Therefore, preoccupation with the Enlightenment has obscured what Paul is saying[30]–that God is intellectually perceived and known from created things.[31] While Paul expresses a strong Jewish tradition, regarding the inability to directly know God (Exod 33:20; Deut 4:12), he also seems to embrace the Hellenistic Jewish tradition that He has manifested Himself, to some degree, in what He has created (see for example, Wisdom of Solomon 13). In effect, Paul acknowledges what Greek and Roman philosophers before him (such as Plato, Aristotle, and Cicero)[32] had admitted about God.[33] That is, that although God cannot be seen directly with human senses, He is perceived in His works by the human mind, when that mind contemplates the created world.[34]

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[29]Fitzmyer, 273.

[30]Fitzmyer, 274.

[31]Fitzmyer, 277.

[32]David Sedley, *Creationism and Its Critics in Antiquity* (Berkeley, CA: University of California Press, 2007), 141.

[33]Fitzmyer, 279.

[34]Fitzmyer, 280.

What is it that humans perceive that results in this knowledge of God? It is His ποιήμασιν (works).[35] Jewish rabbinical scholars would have understood this word (in the Septuagint) to have special reference to God's work of creation, as seen in Psalm 103:22.[36] While it is not unusual for commentators to simply take for granted that this word refers to "created things," Erwin Ochsenmeier points out that this is actually rarely what the word means.[37] According to his research, almost all of the other occurrences of this word in Scripture refer to God's works throughout history. Furthermore, he claims that the word is not normally used in contexts that evoke God's creation.[38] He also points out that if Wisdom of Solomon 13 is a parallel passage to Romans 1, one should notice that the overall context in Wisdom of Solomon is of God's actions in history, especially in reference to the Exodus, where God showed His strength, power, and righteous rule.[39] After additional arguments, he concludes that from a lexical and grammatical perspective, one could read Romans 1:20 as meaning that God's power and deity can be seen by God's acts in history; and that, when these are properly understood, one gains a knowledge of God. However, he goes on to say that this should not be construed as

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[35]Author's translation.

[36]Bruce E. Shields, "The Areopagus Sermon and Romans 1:18ff: A Study in Creation Theology," *Restoration Quarterly* 20, no. 1 (1977): 36.

[37]Erwin Ochsenmeier, "Romans 1,20: Knowing God through His Acts in History," *Zeitschrift fur die Neutestamentliche Wissenschaft und die Kunde der Alteren Kirche* 100, no. 1 (2009): 49.

[38]Ochsenmeier, 51.

[39]Ochsenmeier, 54.

implying a radical separation in Paul's theology between God's acts in history and His

creation of the world.[40] It seems reasonable that both God's acts in history and His works

of creation could result in humans gaining significant knowledge of God.

Richard Alan Young writes that commentators have responded to this pericope by

describing three different understandings of this natural knowledge of God. The first,

typically called "natural theology," claims that the Creator left behind clues or "tracks" in

nature from which all persons can logically reason to a thematic knowledge of God. This

is reminiscent of Proverbs 25:2, in which God is glorified in concealing matters, and

kings are glorified in discovery. The second response claims that God personally reveals

the divine presence through the medium of creation to all persons. This position usually

asserts that only God's personal self-disclosure, though indirect, can rightfully be called

"revelation." The third response claims that all persons have a vague, unthematic

awareness of God by recognizing that they are finite creatures living in a contingent

world: "The recognition of creaturely finitude awakens a faint, intuitive awareness that

there is something beyond. It depends on neither ratiocination [the process of logical

reasoning] nor divine self disclosure."[41] After careful analyses, Young advocates this

unthematic awareness, since it constitutes a passive and spontaneous mental activity

based on observation, while stopping short of a deliberate rational process.[42] Young

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[40]Ochsenmeier, 56.

[41]Richard Alan Young, "The Knowledge of God in Romans 1:18-23: Exegetical and Theological Reflections," *Journal of the Evangelical Theological Society* 43, no. 4 (2000): 695-696.

[42]Young, 706.

writes, "Paul would have regarded this vague awareness as an inescapable fact of human existence by virtue of living as creatures in a created world."[43] Thomas R. Schreiner agrees that such natural knowledge is not the result of careful deduction, or a long process of reasoning; and thus, not just for those with unusually logical or astute minds. He adds that "God has stitched into the fabric of the human mind his existence and power, so that they are instinctively recognized when one views the created world."[44]

In this way, Paul establishes accountability apart from the Law of Moses. He does this "by appropriating the already ancient cosmological argument for the existence of God, according to which the Creator can be inferred from the created."[45] Others argue that the acquisition of this knowledge of God is more fundamental than an inference. Mats Wahlberg suggests "that biological nature could make knowledge of a creator of nature *perceptually* available."[46] In other words, "nature has some perceivable properties that are intrinsically connected to a creator in the sense that their instantiation presupposes the existence of a creator."[47] Specifically, Wahlberg defends the idea that "some perceptual experiences represent biological structures as *created*–as expressive of intent and intelligence–in much the same way that our experiences of other people's

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[43]Young, 707.

[44]Schreiner, 86.

[45]Leander E. Keck, "Romans 1:18-23," *Interpretation* 40, no. 4 (1986): 405.

[46]Mats Wahlberg, *Reshaping Natural Theology: Seeing Nature as Creation* (New York: Palgrave Macmillan, 2012), 4.

[47]Wahlberg, 4.

movements and sounds represent them as expressive of mental properties."[48] In addition,

he claims that this idea comports well with the sense of Romans 1:20 "since the verse

seems to give *perception* a crucial role."[49] The author agrees, but would add that such

structures in nature are not only expressive of intent and intelligence, but of a specific

type of intelligence, that of exquisite engineering expertise. This point will be explored

further in a future section of this chapter.

How should one understand the perception involved in apprehending a knowledge

of God from nature? According to James D. G. Dunn, Paul speaks of an intellectual

perception of the invisible things of God, "Paul is trading upon, without necessarily

committing to, the Greek (particularly Stoic) understanding of an invisible realm of

reality, invisible to sense perception, which can be known only through the rational

power of the mind."[50] Fitzmyer seems to agree since he writes that the unseen things,

which are invisible, are nevertheless perceptible by the human νους (mind).[51]

Wahlberg does a good job of laying out the interpretive options for νοουμενα

καθοραται (Rom 1:20), depending on whether νοουμενα is taken as an adverbial

modifier of καθοραται, as indicative of two distinct processes, or as a noun in its own

right.[52] According to Wahlberg, taking νοουμενα as an adverbial modifier of

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[48]Wahlberg, 147-148.

[49]Wahlberg, 136.

[50]James D. G. Dunn, *Romans 1-8* (Dallas: Word Books, 1988), 58.

[51]Fitzmyer, 280.

[52]Wahlberg, 136-137.

καθοραται, results in the idea of "being perceived by means of reason." But the occurrence of νοουμενα may imply that two distinct processes are involved. First, there is ordinary sense perception; and then, an intellectual process of understanding and insight. This idea is reflected in the familiar translation from the NIV: "have been clearly seen, being understood from what has been made," which seems to imply an inferential account. In other words, upon contemplation of what is seen, the implications are finally realized. Others argue that νοουμενα should be taken as a noun indicating "thoughts." In this case, the meaning is something like "His eternal power and divinity, just as his invisible thoughts, have since creation been seen in his . . . works." But then, this verse says nothing about the role of the human νους in acquiring knowledge of God.[53]

From the pre-modern Christian tradition, Thomas Aquinas and Calvin present two very different views on this issue. In quoting Romans 1:20 in support for his Five Ways, Aquinas seems to believe that this knowledge of God is obtained by way of argument.[54] Thus, Aquinas states his inferential view, "Meditation on [God's] works enables us, at least to some extent, to admire and reflect on God's wisdom . . . We are thus able to infer God's wisdom from reflection upon God's works . . . This consideration of God's works leads to an admiration of God's sublime power."[55] However, Calvin claims that knowledge of God through creation does not require a long and laborious train of

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[53]Wahlberg, 136-137.

[54]Wahlberg, 137.

[55]Alister E. McGrath, *The Science of God: An Introduction to Scientific Theology* (London: T&T Clark International, 2004), 71-72.

argument. Calvin claims that God has been pleased "so to manifest his perfections in the whole structure of the universe, and daily place himself in our view, that we cannot but open our eyes without being compelled to behold him."[56] He goes on to write, "None who have the use of their eyes can be ignorant of the divine skill manifested so conspicuously in the endless variety, yet distinct and well-ordered array of the heavenly host [i.e., celestial objects]."[57] But, Calvin was greatly impressed by the divine artistry and engineering of the human being. The human body "bears on its face such proofs of ingenious contrivance as are sufficient to proclaim the admirable wisdom of its Maker."[58] Thus, Calvin rejects the interpretation implied by Aquinas, and emphasizes the immediate character of the knowledge of God through creation, calling on Romans 1:20 for support.[59]

In addition, if Aquinas' interpretation is correct, then Paul is presenting a relatively weak argument. If knowledge of God through creation can only be obtained through a long and laborious train of argument, then it would seem that many people have a pretty good excuse for not honoring God. However, the situation is very different if, as Calvin says, "proofs which force themselves on the notice of the most illiterate

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[56]John Calvin, *Institutes of the Christian Religion* (Grand Rapids: Eerdmans, 1989), 51.

[57]Calvin, 52.

[58]Calvin, 52.

[59]Wahlberg, 137.

peasant" are made available.[60] Then Paul's argument would be relatively persuasive.

Wahlberg, therefore, concludes that "something like Calvin's interpretation of Rom 1:20

is preferable to that implied by Aquinas."[61] However, he is quick to note that "this does

not, of course, mean that Aquinas' version of natural theology is misconceived or

unchristian. It only means that Paul, in Romans, has something different in mind."[62]

Thus, natural revelation provides powerful evidence, whether by inference or

direct perception, even if it does not provide logical proof. It can lead humans to respond

to the power and majesty of God, but the universal dilemma of humanity's rebelliousness

presents a problem.[63] Douglas Moo comments that God discloses something of His

existence and nature to all people in the created world. But rather than bringing them into

relationship with God, it simply makes them guilty.[64] In the short term, this may be true.

But just as the Law of Moses points out the Jew's need for a savior, so also God's natural

revelation plays a similar role for the Gentile. Both are a part of the wisdom of God in

bringing people back into a loving relationship with Himself. This is beautifully depicted

by the Wise Woman of Tekoa who says in 2 Samuel 14:14, "Like water spilled on the

ground, which cannot be recovered, so we must die. But God does not take away life;

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[60]Calvin, 51.

[61]Wahlberg, 138.

[62]Wahlberg, 230.

[63]Richard H. Bube, "Natural Revelation," in *The Encounter between Christianity and Science*, ed. Richard H. Bube (Grand Rapids: Eerdmans, 1968), 69.

[64]Douglas Moo, *Romans*, NIV Application Commentary (Grand Rapids: Zondervan, 2000), 60.

instead, he devises ways so that a banished person may not remain estranged from him."

This model of God as a spiritual engineer,[65] whose wise creation plays a vital role in

reconciling to Himself those made in His image, will be explored in the next section.

Science and the Wisdom of God

Romans 1:21 makes it clear that the apostasy (rebellion or abandonment of

faith)[66] of humans is deliberate, and their continued unbelief is the act of a determined

will.[67] To illustrate this, Donald Grey Barnhouse writes:

> Suppose that there is a class in physics in which a professor is lecturing on atomic science. A student shakes his head and says stubbornly, "But I cannot see an atom, therefore I will not believe it." The professor then explains the observable effects of the movements of the atomic components. The boy continues to be stubborn, and will not submit himself to the evidence. On examination day, he flunks the course. He comes to the professor to explain, but he is without excuse. That which may be known of atoms and their parts is manifest, for physical investigation has revealed it. For the invisible things of atomic components are clearly seen, being understood by the effects that are manifested, so that the student is without excuse.[68]

Although this illustration is slightly out of date (since atoms have now been directly

observed with the scanning tunneling microscope), it can quickly be repaired by

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[65]Dominic M. Halsmer, "Why Engineers Make Good Apologists," in *Religion, Culture, Curriculum, and Diversity in 21st Century America*, ed. Mary Alice Trent (Lanham, MD: University Press of America, 2007), 85.

[66]Paul J. Achtemeier, ed., "apostasy," *Harper's Bible Dictionary* (San Francisco: Harper and Row, 1985), 40.

[67]S. Lewis Johnson Jr., "Paul and the Knowledge of God," *Bibliotheca Sacra* 129, no. 513 (1972): 69.

[68]Donald Grey Barnhouse, *Man's Ruin. Expository Messages on the Whole Bible, Taking the Epistle to the Romans as a Point of Departure* (Wheaton, IL: Eerdmans, 1952), 242.

replacing "atomic science" with "particle physics," and "atom" with "quark." This example powerfully illustrates the culpability of humans. Although God's attributes are invisible, His eternal power and deity are clearly apprehended in intelligent mental conception.[69] The verb καθορᾶται ("clearly perceived") in Romans 1:20 is intensive, meaning to discern clearly, and is, therefore, a further rebuke to humankind.[70]

Although humans might attempt to suppress this truth by closing their eyes to the verities of the outside world, they cannot close their eyes to the general revelation that has been placed within them. It should be remembered that in Romans 2:13-15, Paul claims that some of the Gentiles obey the law that is written on their hearts: "Natural knowledge of God, then, will come from two directions: from without, i.e., from the contemplation of the universe, and from within, i.e., as a moral imperative. The one demands the other."[71] Thus in general, one sees God's wisdom embedded in a triple revelation (external, internal, and special) to human beings. Walter C. Bouzard Jr. writes that the philosophical and theological roots, supporting this claim of a universal divine self-disclosure, are to be found in the theology of Israel's Wisdom Literature.[72]

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[69]Johnson Jr., 68.

[70]Wilhelm Michaelis, "οραω," *Theological Dictionary of the New Testament*, ed. Gerhard Friedrich (Grand Rapids: Eerdmans, 1967), 380.

[71]David M. Coffey, "Natural Knowledge of God: Reflections on Romans 1:18-32," *Theological Studies* 31, no. 4 (1970): 674.

[72]Walter C. Bouzard Jr., "The Theology of Wisdom in Romans 1 and 2: A Proposal," *Word and World* 7, no. 3 (1987): 281.

With regard to the wisdom of creation, Gerhard von Rad observes, "this 'wisdom,' this 'understanding,' must therefore signify something like the created 'meaning' implanted by God in creation, the divine mystery of creation."[73] The accuracy of this observation seems to be confirmed by the didactic poem of Proverbs 8: where personified Wisdom describes her mysterious origin and role in the creation of the world, her role in God's ordering of the chaos, establishing the heavens, setting the limits of the sea, and laying the foundations of the earth. She stood beside God, and God apportioned her as He poured her out upon all His works.[74] Bouzard writes, "This portrait of Wisdom is a cosmological one whereby God bestows something special on creation, and which now, in some mysterious way, inhabits the world and participates in the ongoing ordering process."[75] Bouzard Jr. continues:

> This description of Wisdom leads to the unmistakable conclusion that in the person of Dame Wisdom we encounter a being who is other than God but who nevertheless addresses humanity in the form of a divine self-revelation, a revelation which comes not from a personal encounter with God but rather in the depth dimension of the common human experience of the world and of life. . . such observations remain rooted in the realm of common human experience quite apart from an encounter with a personal God. They are revealed by Dame Wisdom in the observation of human behavior, society, and most especially, of nature . . . Wisdom, like the four rivers of Eden, flows across the whole world, filling the earth with her benefits. But in Sirach, a fifth river has tellingly been added to the list–the Jordan of Israel–where Wisdom has particularly revealed herself.[76]

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[73]Gerhard von Rad, *Wisdom in Israel* (Nashville: Abingdon, 1972), 144-145.

[74]Bouzard Jr., 284.

[75]Bouzard Jr., 284-285.

[76]Bouzard Jr., 285-286.

Although Paul does not refer to Dame Wisdom explicitly, the theological thought which gave definition to Dame Wisdom is evident in the apostle's assertion of God's revelation: "through the structures which define all created reality is a transcendent reason which points to and reveals God."[77] Paul warns against the disastrous consequences of ignoring Dame Wisdom, for in Paul's view:

> wisdom's quest for self-mastery and self-understanding reached its terminus in the cross of Christ. The cruciform shadow of Calvary obliterates any hope for a qualitative change in the human condition and any program of self-justification . . . Israel's sages, through Paul, have helped us see wisdom after all: "Behold, the fear of the Lord, that is wisdom." And in holy fear we are driven into the loving arms of Christ.[78]

Brevard S. Childs shares similar ideas in his classic text on Old Testament Theology:

> At the beginning of his creation–"when he established the heavens and drew a circle on the face of the deep"–God implanted in his work a divine stamp which continues to bear witness to the wisdom of its creator . . . This revelation of God in his creation in the form of wisdom actively seeks to engage his creatures . . . As an essential witness to God's purpose in his creation, wisdom is built into the very structure of reality, and in this role seeks to guide humanity to the way of truth. However, it cannot be found through reason nor by human cleverness. The way to wisdom is in the fear of the Lord.[79]

It is clear then, that God has engineered the creation with wisdom, and also to assist humans with the acquisition of personal wisdom, which leads to an abundant and eternal life with their Creator.

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[77]Bouzard Jr., 287.

[78]Bouzard Jr., 291.

[79]Brevard S. Childs, *Old Testament Theology in a Canonical Context* (Philadelphia: Fortress Press, 1985), 35.

Theologian Dennis William Cheek has recently engaged in an exploration of the interactions between theology and technology. His insights are also helpful in considering a model of God as Engineer. Along these lines, he writes:

> The concept of technology is not foreign to the Bible; in its canonical form, it is replete with references to ancient technologies of many types. God is sometimes presented in the Old Testament in a manner that we would today call a *systems engineer*. He creates (designs) a universe and world and places within it creatures, including human beings . . . The New Testament continues this theme of technologies . . . The sacrificial death of Jesus is presented as an act that was designed (in modern parlance "engineered") and sanctioned by God as a means to present a spotless "Lamb" who takes upon himself the sins of the world.[80]

A systems engineer is one who specializes in the skillful integration of multiple complex systems in order to accomplish an overarching purpose or solve a complicated problem.[81] The universe certainly qualifies as a collection of complex systems that all seem to work together somehow to facilitate the emergence and sustenance of life on this planet. And through this life, humans, who also practice systems engineering (albeit, on a much smaller scale), are confronted with fabulous systems engineering in nature that appears to emerge spontaneously. This causes wonder and amazement, but many attempt to suppress the idea of a transcendent engineer. The negatives of the human condition (i.e, evil and suffering) are often put forth as compelling evidence against the idea of a transcendent engineer. However, even these experiences hint at the potential for a deeper wisdom and a greater good that may be realized through humbly trusting God in the

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[80]Dennis William Cheek, "Is there Room for the Spirit in a World Dominated by Technology?: Pentecostals and the Technological World," in *Science and the Spirit: A Pentecostal Engagement with the Sciences*, ed. Amos Yong (Bloomington, IN: Indiana University, 2010), 194-195.

[81]Landis, 81.

midst of the struggles of this life.[82] In one of the most beloved devotional writings of all

time, *My Utmost for His Highest*, Oswald Chambers writes:

> God is the Master Engineer. He allows the difficulties to come in order to see if
> you can vault over them properly–"By my God have I leaped over a wall." God
> will never shield you from any of the requirements of a son or daughter of His.
> Peter says–"Think it not strange concerning the fiery trial which is to try you."
> Rise to the occasion; do the thing. It does not matter how it hurts as long as it
> gives God the chance to manifest Himself in your mortal flesh.[83]

Chambers goes on to use the term engineer, or some derivative of it, to describe God or

His actions twelve more times throughout his devotional.[84] It seems clear that both he and

his readers are comforted and encouraged by such a depiction of God. This depiction is

found throughout Scripture, although the actual term "engineer" is rarely seen. It is not

surprising that believers find it to be an appealing picture of their Creator. Such a

Masterful Engineer is quite capable of completing the work He has begun in the lives of

His people (Phil 1:6). This idea encourages increasing faith, hope, and anticipation of the

joy of an eternal loving relationship in that heavenly city whose architect and engineer is

God (Heb 11:10).[85]

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[82]Halsmer, Asper, Roman, and Todd, 47.

[83]Oswald Chambers, *My Utmost for His Highest* (Uhrichsville, OH: Barbour Publishing, 2000), 97.

[84]Chambers, 67, 81, 118, 122, 163, 184, 190, 210, 211, 212, 213, 258.

[85]Alan Richardson, "Whose Architect and Maker is God," *Theology Today* 8, no. 2 (1951): 155.

<u>Other Scripture Pertaining to a Model of God as Engineer</u>

This section explores additional biblical passages related to the motif of God, not only as the Creator and Sustainer of the universe, but also as the Architect and Engineer of life, and even humanity's very redemption. The use of the term "engineer" in this context simply denotes the deliberate plans and purposes that God is accomplishing through His creative energies and processes.[86] The role is closely related to the idea of architect (a person who is responsible for inventing or realizing a particular idea or project),[87] not only of matter, energy, space, time, and information, but also in the spiritual realm, of which humans are largely ignorant, but of which Scripture sheds light. A study through the Scriptures on this topic reveals a twofold emphasis. The first is the ingenious and diverse creation that God has brought into existence out of nothing (*ex nihilo*).[88] Scientists and theologians still have much to learn about how God engineered the universe and life on this planet, but an in-depth study of the natural realm reveals evidence of a master design engineer of unimaginable capabilities. The second emphasis speaks of the ongoing expertise of God in sustaining His creation and seeing it through some tough times, to a redemptive completion (e.g., 2 Sam 14:14). This is hinted at in Old Testament messianic references, and brought more fully into the light as seen in the New Testament focus on the daring rescue mission of God's Son, Jesus of Nazareth

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[86]Landis, 35-36, 335-337.

[87]Cone, 81.

[88]Achtemeier, "ex nihilo,"192-193.

(Rom 3:21). Before continuing in this vein, it will be helpful to revisit the concerns that some scholars have with a model of God as engineer.

<div align="center">Discomfort with the Idea of God as Engineer</div>

With the rise of the controversial Intelligent Design Movement, some theologians and scientists have expressed concern that viewing God as an engineer is largely inaccurate, and an unproductive throw-back to the days of William Paley's Watchmaker Argument.[89] As presented earlier, the esteemed John Polkinghorne even claimed recently that "God is never spoken of as a designer in the Bible."[90] Similarly, Catholic author Christoph Schonborn rebels against the idea of a "divine engineer" or "optimal technician," stressing instead that God is a creator of "natures."[91] In response to these criticisms, it should be made clear that this motif of God as Engineer is not an attempt to limit God to the category of human engineering, but rather to relate to God in a category in which He has clearly already revealed Himself in nature and Scripture. In addition, since humans are made in God's image (Gen 1:26), they appear to have been blessed with some small fraction of His genius and creative problem solving capabilities. Thus, it seems that God intends for human beings to relate to Him in this manner, while simultaneously marveling at His awesome and mysterious transcendence.

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[89]William Paley, *Natural Theology* (Oxford, England: Oxford University Press, 2006), 7.

[90]Polkinghorne and Beale, 57.

[91]Schonborn, 98.

However, other theologians are quite comfortable with thinking of God in this kind of role, recognizing its significant scriptural support. Dennis Cheek writes, "God is sometimes presented in the Old Testament in a manner that we would today call a *systems engineer*. He creates (designs) a universe and world and places within it creatures, including human beings."[92] Other theologians recognize His role as "Creator-Craftsman,"[93] "arch-technophile,"[94] and "artisan."[95] Even so, this does not preclude the possibility that God engineers the laws of nature and leaves much of His creation to "deploy automatically," at least from humanity's perspective. In this case, He would be considered more of an architect-engineer, rather than a builder-engineer. The proper balance in this regard (hence, the controversy over evolution) is one of the major questions that is still unanswered at the interface of science and theology. However, this question is ultimately answered: the Scripture is clear that "the Lord is fundamentally engaged in the design of patterns and the creation of systems. Yahweh engages in what we can only describe as technological activities combining human and nonhuman resources in various ways to accomplish his plans and purposes in the universe and

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[92] Cheek, 194.

[93] J. Newman, *Religion and Technology* (New York: Praeger Publishers, 1997), 117.

[94] D. Alexander, "Worshipping God with Technology," *Cambridge Papers* 12, no. 4 (2003): 2.

[95] M. Lodahl, *God of Nature and of Grace: Reading the World in a Wesleyan Way* (Nashville: Kingswood Books, 2003) 73.

principally among humankind."[96] This is clearly seen in many passages of Scripture as will become evident in the next section.

<div align="center">God as Creative Engineer in the Old Testament</div>

The Genesis account contains several passages that indicate God's creative genius and incredible power, especially in light of modern scientific discoveries concerning the complexity of living systems and the immensity and orderliness of the universe. Among these are the creation of the entire cosmos out of nothing (Gen 1:1), the creation of man (Gen 1:26; 2:8-17), and the creation of woman (Gen 2:18-24) in response to Adam's need for a suitable companion. God even engineered improved clothing (Gen 3:21) for Adam and Eve from animal skins, perhaps indicating the serious consequences of their sin (namely, death). Sin would soon become so pervasive as to threaten God's entire engineering project (Gen 4; 6:1-5).

One of the most difficult passages in the Bible is Genesis 6:5-7 where God realizes the nearly universal extent of human wickedness, and admits His sorrow that He ever engineered such creatures as humanity. The glimmer of hope flickered faintly in that there was still one man, Noah, who found favor in God's eyes (Gen 6:8). The difficulty here is that God seems to appear largely incompetent, perhaps having erred in making creatures with free will, and such a huge capacity for evil. But there are other possibilities as well. What lessons does one learn from the story of Noah? It indicates the extreme seriousness of rebellion against humanity's Maker, and the ultimate sovereignty of God

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[96]Dennis William Cheek, "Theology and Technology," (Ph.D. diss., University of Durham, 2007), 40-41.

to deal with His creatures as He sees fit. It also demonstrates that God will not compromise when it comes to sin. It may also be an indication of how valuable it is for even just a handful of people (Noah and his family) to develop a loving covenantal relationship with God (Gen 9:1-17). It is interesting to note that God saves these human, and thus his race, by instructing him on the development and completion of a huge maritime engineering project (Gen 6:14-22).

<div align="center">Beneversal: The Engineering of Good Out of Evil</div>

In a sense, all the subsequent peoples of the earth were blessed through Noah and his faith in, and obedience to, God (Gen 9:1-17). This plan of God to bless and rescue His people becomes even more explicit in his covenant with Abraham to bless all the families of the earth through him (Gen 12:3; 15; 17:1-14). Even so, it is soon apparent that Satan (the Adversary,[97] -Job 1-2) was still at work. God's people continue to succumb to the temptation to do evil against one another, as in the case of Joseph and his brothers (Gen 37). But, God shows His admirable character and brilliant ingenuity in taking what the brothers meant for evil, and somehow causing it to work for good (Gen 50:20)! This is actually a well-known and documented engineering principle for creative problem solving. It is even called "making the devil work for you," or sometimes "blessing in disguise."[98] Realizing that there appears to be no single word in the English language to convey this important phenomenon (although "redemption" and "restoration" come

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[97]Achtemeier, "Satan," 908.

[98]S. Savransky, *Engineering of Creativity: Introduction to TRIZ Methodology of Inventive Problem Solving* (Boca Raton, FL: CRC Press, 2000), 204.

close), it is proposed that the term "beneversal" be adopted. This new term combines "beneficial" and "reversal" into a single word that indicates that something good is engineered out of something that was originally seen as negative. This idea is also seen in God's purposes being accomplished through Pharaoh's hardened heart (Exod 7:1-5, 13, 22; 8:15, 19, 32; 9:7, 12, 16, 34; 10:1-2, 20, 27), and the way God turned Balaam's curse into a blessing (Num 24:10-13). God, the Engineer, is the master of the beneversal, since it seems that the creation and culmination of the entire universe is the quintessential beneversal (Gen 1; Rev 21).

In addition, this concept is well-illustrated in one of the most commonly used metaphors in the Bible: when God refers to the slavery in Egypt as a furnace used to refine His people (1 Kgs 8:51). Even at this ancient time in history, it was common knowledge that precious metals could be refined through extreme heat, so that the impurities, or dross, could be removed. The Psalmist sings of His people being tested by God and refined like silver: facing much adversity before being brought to a place of abundance (Ps 66:10-12); but the wicked, God discards like dross (Ps 119:119). Proverbs 17:3 warns, "The crucible for silver and the furnace for gold, but the Lord tests the heart," indicating that God may use adversity to test and refine people's hearts. Isaiah writes similarly regarding God's enemies, where God says, ". . . my enemies! I will turn my hand against you; I will thoroughly purge away your dross and remove all your impurities (Isa 1:24b-25)." And later God says, regarding His people, "See, I have refined you, though not as silver; I have tested you in the furnace of affliction (Isa 48:10)."

The message of Job also affirms this idea: "Man is born to trouble, as surely as sparks fly upward (Job 5:7)." But, Job also contains several references to redemption, such as, "For he [God] wounds, but he also binds up; he injures, but his hands also heal (Job 5:18)." The Psalmist also admits a positive aspect to adversity: "It was good for me to be afflicted, that I might learn your decrees (Ps 119:71)." King Hezekiah also recognized this principle: "Surely it was for my benefit that I suffered such anguish . . . (Isa 38:17)." Furthermore, this idea is confirmed in Isaiah 30:20: "Although the Lord gives you the bread of adversity and the water of affliction, your teachers will be hidden no more; with your own eyes you will see them . . . your ears will hear a voice behind you, saying, 'This is the way; walk in it.'" Thus, affliction appears to play a key role in the necessary education of humans.

Jeremiah appears to speak of Satan's role (though it could be Jeremiah himself) in this regard: "I have made you [the destroyer] a tester of metals, and my people the ore, that you may observe and test their ways (Jer 6:27)." One sees this idea again in Isaiah 54:16, where God admits that He created the destroyer to work havoc, a weapon fit for its work, although this reference may be to invading and destroying armies. God even hints at the constraints involved in dealing with sinful free-will beings: "See, I will refine and test them, for what else can I do because of the sin of my people (Jer 9:7)." All this would seem to provide a significant response to those who wonder why God would allow so much evil and suffering in the world. This approach to theodicy (the defense of God in light of evil and suffering)[99] may be particularly effective with skeptical scientists and

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[99]Craig and Moreland, 449.

engineers since they should be able to relate more easily to the metaphor of the crucible, a well-known technological artifact. Experience in missions work confirms the value of presenting the Good News in the language, culture, and metaphors of the target people group.[100] This idea will be discussed in more detail in the concluding chapter.

The Universe as God's Drawing Board

Another metaphor that engineers could easily relate to is that of the "drawing" or "drafting board," where plans or blueprints are typically drawn out before a three-dimensional prototype is produced.[101] Of course, in this day and age, the computer screen usually serves this purpose, but the idea is the same. An engineered system may be too complex to leap straight into construction of the final product. Thus, engineers find it helpful to work out the "bugs" by specifying the details in various two-dimensional views. This is something that humans seem to do instinctively. One of the author's earliest and fondest memories was playing football in the side yard with his brothers. When, in the huddle, they would often resort to drawing up plays with their fingers in the dirt (2-D space) before attempting, and usually failing at, the real thing (3-D space).

Is it possible that the universe is, in some sense, God's drawing board, where He is working out the engineering of human beings until there are ready to be "produced" in a higher dimensional space, in order to commune with their Maker? Actually, there is some scriptural precedent for this concept. Astronomer Hugh Ross advocates the idea

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[100]Don Richardson, *Eternity in their Hearts* (Ventura, CA: Regal Books, 1981), 59.

[101]Landis, 39.

that God dwells in a higher dimensional space since it seems to help reconcile multiple difficult theological doctrines, such as the Trinity and free will versus God's election of the saints.[102] In addition, recent experimental results in quantum mechanics suggest the existence of several extra space dimensions, even though humans cannot directly detect them.[103]

Job hints at this possibility: "Why is life given to a man whose way is hidden, whom God has hedged in? (Job 3:23)" A similar idea is expressed in Psalm 139:5, "You hem me in-behind and before, you have laid your hand upon me. Such knowledge is too wonderful for me, too lofty for me to attain." In other passages with significance for end times (2 Sam 22:20 and Ps 18:19), David sings, "He brought me out into a spacious place; he rescued me because he delighted in me." Psalm 31:8 expands on the same idea, "You have not handed me over to the enemy but have set my feet in a spacious place." Job 36:16 is even more explicit: "He [God] is wooing you from the jaws of distress to a spacious place free from restriction." This idea becomes even more tantalizing with the New Testament promise that God has good things in heaven for believers that are beyond their wildest imagination (Eph 3:20). However, this idea is also somewhat speculative, so one should hesitate to be dogmatic about it.

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[102]Hugh Ross, *Beyond the Cosmos*: *What Recent Discoveries in Astrophysics Reveal about the Glory and Love of God* (Colorado Springs: NavPress, 2010), 59.

[103]Ross, 23.

Many aspects of nature, such as the bacterial flagellum, a tiny motor that drives bacteria,[104] appear technological, almost like they came from a drawing board. Author Lee Strobel sets up and recounts the following story of a son presenting such design evidence to his skeptical father, who was an engineer:

> Drawings of the flagellum are, indeed, very impressive, since they look uncannily like a machine that human beings would construct. I remember a scientist telling me about his father, an accomplished engineer who was highly skeptical about claims of intelligent design. The dad could never understand why his son was so convinced that the world had been designed by an intelligent agent. One day the scientist put a drawing of the bacterial flagellum in front of him. Fascinated, the engineer studied it silently for a while, then looked up and said to his son with a sense of wonder: "Oh, now I get what you've been saying."[105]

This is another example of technologically oriented people being reached by presenting evidence in a form to which they can easily relate.

How Does God Do It?

Of course, one should not push the motif of God as Engineer too far. Does the self-existent, omniscient, and omnipotent Creator of the universe really need to make calculations, similar to the activities of human engineers? It seems unlikely, especially given the multiple passages asserting that His ways are not our ways (e.g., Isa 55:8). Even so, one is exhorted to learn what God has done by studying nature (Job 12:7-10). Passages like this suggest that one can know something significant of God through a kind of "reverse engineering" of nature. Cheek interprets Romans 1:20 to say that "God can be

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[104]Lee Strobel, *The Case for a Creator*: *A Journalist Investigates Scientific Evidence that Points Toward God* (Grand Rapids: Zondervan, 2004), 204.

[105]Strobel, 205-206.

known vicariously through tacit familiarity with his technological feats."[106] One knows that it was by wisdom and understanding that God made the earth and the heavens (Prov 3:19-20). Isaiah asserts that God measured the waters and weighed the mountains on scales (Isa 40:12). Several Old Testament passages refer specifically to God stretching out the heavens like a tent to live in (e.g., Isa 40:22). This is significant since modern science has confirmed an expanding universe from an initial singularity, in which the early expansion rate needed a very precise and specific value for life to be possible.[107] This is only one parameter, among many that appears to have been finely-tuned, or rather, engineered for life. Although the attempted resolution of these apparent coincidences is currently known as the "fine-tuning problem" in physics, this name implies a kind of trial and error process, reminiscent of the old fine-tuning knob that was often adjusted to "bring in" a better picture on early television sets. The author considers that the evidence instead suggests a well-engineered system that was "worked out" ahead of time, and implemented with intentionality, forethought, and exquisite engineering expertise.

A specific example of God's incredible engineering prowess concerns multiple references to how God counts (Job 38:37) and controls (Job 37:15) the clouds in order to bring needed rain and maintain a habitable space for humanity. This is significant since science has recently discovered the key role that clouds play in stabilizing the surface

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[106]Cheek, 42.

[107]Alister McGrath, *A Fine-Tuned Universe* (Louisville: Westminster John Knox Press, 2009), 111.

temperature of the earth.[108] Clouds not only provide rain for vegetation and animals, but also reflect the sun's rays (known as the albedo effect)[109] more effectively than most of the earth's surface. This blocking of sunlight then reduces the growth rate of ocean algae.[110] Consider the following scenario that illustrates the ingenuity of the cloud-algae albedo feedback mechanism. If it is clear over the ocean, the sunlight will be largely absorbed and the ocean temperature will rise. But this causes more algae to grow, which produces dimethyl sulfide, which in turn results in more Cloud Condensate Nuclei (CCN). These CCN are tiny airborne particles about which water droplets can form, resulting in more clouds; thus, reflecting more of the light and cooling the ocean back down. This causes less algae to grow, producing less dimethyl sulfide; and hence, less CCN, which tends to clear the daylight skies above the earth's oceans.[111] By following the above progression, one can perceive an ingenious "natural" automatic thermostat, based on a stable feedback control system. This system has kept the climate of the earth fairly constant and "life-friendly" for eons. Having studied complex feedback control systems in the author's undergraduate engineering curriculum at Purdue University,[112] he can quite confidently say that they are not easy to engineer, and they do not just happen by accident. Personally, the author sees the algae-cloud feedback mechanism as a

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[108]Strobel, 183-184.

[109]Strobel, 183.

[110]Strobel, 184.

[111]Strobel, 184.

[112]Robert Skelton, "Feedback Control Systems," class notes from A&AE 464 Linear Control Systems, Purdue University, August 1984.

glorious demonstration of God's incredible engineering expertise, and His faithfulness, care and loving-kindness toward His creatures. These biblical references to God in His Role as Transcendent Engineer continue in the New Testament, as will be discussed below.

<div align="center">New Testament Passages Relating to God as Engineer</div>

Some of the same themes relating to a model of God as Engineer in the Old Testament are also found in the New Testament. God appears to have engineered this world in order to reveal Himself to humanity, especially to those who search for answers to the mysteries hidden in the natural realm. The nobility and profitability of such activities is implied by one of Solomon's proverbs: "It is the glory of God to conceal a matter; to search out a matter is the glory of kings (Prov 25:2)." This theme is echoed in the words of Jesus: "Seek and you will find (Matt 7:7)." Indeed, Paul speaks in Athens of the universe as a specially engineered arena in which humankind might discover God: "From one man he made all the nations, that they should inhabit the whole earth; and he marked out their appointed times in history and the boundaries of their lands. God did this so that they would seek him and perhaps reach out for him and find him, though he is not far from any one of us" (Acts 17:26-27). But, God does not make it too difficult for humans. He provides various forms of testimony within nature, as Paul reasoned with another group of Gentiles, "In the past, he let all nations go their own way. Yet he has not left himself without testimony: He has shown kindness by giving you rain from heaven and crops in their seasons; he provides you with plenty of food and fills your hearts with

joy" (Acts 14:16-17). Thus, the universal recognition that life is generally good and

enjoyable speaks of the loving-kindness of the One who gives and sustains life.

Indeed, the Bible speaks of Jesus as the overarching reason for, and agent of,

Creation. All things were created for Him and through Him. He is before all things, and

in Him, all things hold together (Col 1:16-17). Through Him the universe was made, and

He has been appointed heir of all things, which He sustains by His powerful word (Heb

1:2-3). If Jesus is so involved in the creation, sustenance, and integrity of the universe,

then the study of Creation should reveal things about Christ, through whom salvation also

came into the world.[113] From this perspective, Jeffrey S. Lamp describes the significance

of these relationships for valuing not only human life, but all of Creation:

> In the midst of a discussion that highlights the anthropocentric focus of the Son's
> redemptive work, the writer of Hebrews, in all likelihood inadvertently, provides
> the means through which human beings might identify with Earth. When listened
> to with a discerning ear, the very essence of the Christology of Hebrews, at least
> to this point in the letter-sermon, not only affirms that all of creation–in its origins
> and sustenance–is within the purview of Christology, but also speaks to the unity
> of all aspects of that creation–human and other than human alike. To use language
> more at home in trinitarian theological reflection, both the pre-existence and
> incarnation of the Son provide the framework for envisioning the identification of
> human beings with the rest of the created order. The creative agency of the Son in
> His pre-existence brings forth Earth, from which in turn come human beings; the
> incarnation of the Son from the stuff of Earth serves as the bridge that identifies
> human beings with Earth, affirming the intrinsic worth of both in the process.[114]

The intrinsic value of the Earth leads naturally to the idea of stewardship. Humans have

been entrusted with the care of the earth, so that they might benefit from its design. The

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[113]Jeffrey S. Lamp (jlamp@oru.edu), Reply to Query Regarding MA Thesis, e-mail to Dominic Halsmer (dhalsmer@oru.edu) (3 April 2013).

[114]Jeffrey S. Lamp, *The Greening of Hebrews? Ecological Readings in the Letter to the Hebrews* (Eugene, OR: Wipf and Stock, 2012), 13.

Earth is a vital instrument in providing for people's physical needs, but it also plays a critical role in informing humans about spiritual realities.

Lamp suggests that if the Earth could speak, perhaps it might say, "I can assist human beings in their quest to know God's Son more fully."[115] Because the wisdom of God is implanted into the very structure of Creation, the study of nature leads to insight into the character of God, particularly in terms of His wisdom.[116] Lamp writes, "First, the earth might emphasize that it is itself an object of God's care and benevolence . . . based on our *common origins* in the creative agency of the Son, the other than human creation has a claim to the same divine benevolence as do human beings."[117] Second, the Earth reminds one that the incarnation of the Son embodies the *common experience* of human and other than human creation in the present. Creation suffers along with humans, due to sin (Rom 8:18-25), so the Earth points one to the suffering Son who binds humanity to it, and shows humanity that it has a vested interest in empathizing with a world that shares the pains of life with it.[118] Third, Earth claims its place in the redemptive work of the Son. The connection of humans to Earth strongly suggests that the matter from which humans are made is itself the object of redemption as well. The whole of creation came into being through the creative agency of the Son, and is likewise continually sustained

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[115]Lamp, 14.

[116]Lamp, 14.

[117]Lamp, 18.

[118]Lamp, 18-19.

by His power. Thus, the Son also provides a "common destiny" for human and other than human creation, which is redemption from death and decay (Rev 21-22).

Therefore, an appropriate means of honoring the Son is to honor the world He created and sustains.[119] But if Creation will be redeemed in the end, why bother about careful stewardship now? The Earth might respond, "If part of current Christian practice is to care for human beings as those for whom the Son died as they await the redemption of their bodies, then ought not human beings presently care for all that falls within the scope of His redemptive mission?"[120] Humans have a tendency to take their home planet for granted. Study in science and engineering, coupled with some biblical theology, can help to dispel this tendency by cultivating an appreciation for the beauty and elegance of natural systems. Upon rising every morning, human beings should take notice of the incredible provision in a myriad ways, and offer thanks to the Maker and Sustainer of this good Earth (as evident in many of the Scriptures mentioned above).

Furthermore, the universe serves as a laboratory full of demonstrations and examples for conveying, not only material truths, but also spiritual truths. Much of Jesus' teaching makes reference to aspects of nature that provide important lessons concerning the Kingdom of God and humanity's place in the world. These examples were especially important for Jesus' first-century audience since they were largely an agrarian society much closer to nature than humanity in modern times. Jesus points out the provision and

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[119]Lamp, 19.

[120]Lamp, 20.

beauty evident in nature; and, therefore, encourages his listeners to be at peace and trust

God:

> Look at the birds of the air; they do not sow or reap or store away in barns, and yet your heavenly Father feeds them. Are you not much more valuable than they? Can any one of you by worrying add a single hour to your life? And why do you worry about clothes? See how the flowers of the field grow. They do not labor or spin. Yet I tell you that not even Solomon in all his splendor was dressed like one of these. If that is how God clothes the grass of the field, which is here today and tomorrow is thrown into the fire, will he not much more clothe you–you of little faith (Matt 6:26-30)?

Jesus' reassurance that God will clothe those who trust in Him is reminiscent of when

God engineered the first clothing for Adam and Eve, after their sin left them naked and

ashamed (Gen 3:21). This communicates that one can trust God to engineer a solution to

any problem, even after one has done something really stupid that caused the problem.

Notice also that Jesus takes this opportunity to make a comparison between the value of

animals and the value of humans, placing the latter far above the former. He repeats this

on another occasion: "How much more valuable is a person than a sheep (Matt 12:12a)."

Thus, nature is engineered to help one see and appreciate the high value and sanctity of

human life.

In addition, the nature parables of Matthew 13 communicate important truths

about the Kingdom of God. In teaching the people, Jesus often referred to how plants

grow. This is reminiscent of Adam's initial training in the garden: "The LORD God took

the man and put him in the Garden of Eden to work it and take care of it" (Gen 2:15).

Agriculture seems to be engineered to teach important truths about how the world works,

especially humanity's dependence on the One who causes things to grow. Again in

reference to the Kingdom of God, Jesus said, "A man scatters seed on the ground. Night

and day, whether he sleeps or gets up, the seed sprouts and grows, though he does not know how. All by itself the soil produces grain—first the stalk, then the head, then the full kernel in the head" (Mark 4:26b-28). Indeed, Paul teaches that such material blessing should encourage the believer to expect spiritual growth as well: "Now he who supplies seed to the sower and bread for food will also supply and increase your store of seed and will enlarge the harvest of your righteousness" (2 Cor 9:10).

Perhaps even more importantly, the orderly reliability and clarity of natural law[121] provides an important backdrop for Jesus' miraculous signs and resurrection. It appears that God has engineered natural law to be so dependable and predictable that when He decides to break into the natural world with the miraculous, it has a huge undeniable impact on humanity. Nicodemus the Pharisee articulated this well when he approached Jesus: "He came to Jesus at night and said, 'Rabbi, we know that you are a teacher who has come from God. For no one could perform the signs you are doing if God were not with him' (John 3:2). Furthermore, when the Jews demanded a miraculous sign from Jesus to prove His authority: "Jesus answered them, 'Destroy this temple, and I will raise it again in three days'" (John 2:19). Jesus' prediction of His own resurrection later had a huge impact on the uncertain disciples: "After he was raised from the dead, his disciples recalled what he had said. Then they believed the Scripture and the words that Jesus had spoken" (John 2:22). It was the engineering of this super-miracle–this almost unbelievable breaking of the most fundamental of all natural laws, namely death–that sustained the fledgling church. It clearly demonstrates Jesus' victory over sin and death

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[121]Craig and Moreland, 12.

for everyone who believes (1 Cor 15:57), and is responsible for the tremendous growth of the Church, even to this day.

Finally, God has engineered human nature, even allowing the adversities associated with the human condition, so that people are gently directed back to their Creator. Romans 2:14-15 speaks of how the Gentiles sometimes practice the Law by nature, since it is written on their hearts. Even so, humanity is universally faced with the reality of its inability to attain righteousness on its own (Isa 64:6). This results in sin, suffering, and death (Rom 6:23). But once again, God is somehow able to engineer good out of evil. Paul writes to the Corinthians: "That is why, for Christ's sake, I delight in weaknesses, in insults, in hardships, in persecutions, in difficulties. For when I am weak, then I am strong" (2 Cor 12:10). He also writes to the Thessalonians:

> We ought always to thank God for you, brothers and sisters, and rightly so, because your faith is growing more and more, and the love all of you have for one another is increasing. Therefore, among God's churches we boast about your perseverance and faith in all the persecutions and trials you are enduring. All this is evidence that God's judgment is right, and as a result you will be counted worthy of the kingdom of God, for which you are suffering (2 Thess 1:3-5).

Thus, it is clear that the Thessalonians' faith and love was growing in the midst of severe adversity, which is evidence to all that God knows what He is doing, as He masterfully engineers those willing participants into a people for Himself. Peter agrees with Paul on this topic: "In all this you greatly rejoice, though now for a little while you may have had to suffer grief in all kinds of trials. These have come so that the proven genuineness of your faith—of greater worth than gold, which perishes even though refined by fire—may result in praise, glory and honor when Jesus Christ is revealed" (1 Pet 1:6-7). Here, Peter makes a distinction between the value of material wealth, and the kind of spiritual wealth

that God is engineering into all those who believe. Paul echoes this idea as he encourages the Corinthians: "Therefore we do not lose heart. Though outwardly we are wasting away, yet inwardly we are being renewed day by day. For our light and momentary troubles are achieving for us an eternal glory that far outweighs them all" (2 Cor 4:16-17). God is the master of engineering eternal glory out of "light and momentary troubles." This concept will be discussed in depth in the next chapter.

CHAPTER 3

THEOLOGICAL IMPLICATIONS

<u>Implications for the Nature and Character of God</u>

The previous chapters describe how Scripture supports a limited model of God as engineer, and suggest biblical support for how He has specially engineered the Creation to reveal something of Himself. As Romans 1:20 clearly states, nature presents itself as created by God, but the fields of science and engineering enable humanity to see deeper into the power, wisdom and beauty of God. While all theological models fall short, this model communicates God's great expertise in drawing good out of evil, and His great competency to complete the work He has begun in human hearts and minds (Phil 1:6). This theme will continue to be confirmed as the theological implications of this model are now investigated.

Various critiques of natural theology have risen to prominence over the years, and none more so than that of the highly esteemed theologian Karl Barth. He is famous for denouncing the very idea of a natural theology as more or less blasphemous.[122] This was made clear when Barth wrote, "All one can do is to turn one's back upon [natural theology] as upon a great temptation and source of error."[123] This sounds like the death knell for natural theology, coming from one of the greatest theologians of the twentieth

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[122]Wahlberg, 133.

[123]Emil Brunner and Karl Barth, *Natural Theology: Comprising 'Nature and Grace' by Dr. Emil Brunner and the Reply 'No!' by Dr. Karl Barth* (London: Centenary Press, 1946), 75.

century. However, upon deeper reflection, commentators have argued that "the natural theology against which Barth inveighed had little to do with nature or knowledge of God." Barth was mainly concerned with the kind of theology that regarded the only possible relation to God to be non-objective and non-cognitive.[124]

The main source of inspiration for this kind of theology was Immanuel Kant, who claimed that God cannot be an object of knowledge, but is rather conceived as a regulative idea. This resulted in the subordination of theology to anthropology, reducing talk about God to talk about religiosity. Barth resisted this by emphasizing that one's relation to God is indeed cognitive, but that such knowledge of God is grounded in God Himself rather than in human nature. God's self-revelation in Christ creates the conditions for the reception of the knowledge of God. It does not come about through the actualization of human religious capacities.[125] According to Barth, "God is known through God and through God alone." And, if it is allowed that humans have a natural capacity to inform themselves about God, then the unique status of God's revelation in Christ is compromised.[126] Barth saw the idea that humans can achieve a relationship to God "on their own steam" as an expression of one's self-affirmation and desire for self-sufficiency.[127]

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[124]Ned Wisnefske, *Our Natural Knowledge of God: A Prospect for Natural Theology After Kant and Barth* (New York: Peter Lang, 1990), 53.

[125]Wahlberg, 133.

[126]Karl Barth, *Church Dogmatics II.1: The Doctrine of God* (Edinburgh: T&T Clark International, 1957), 44.

[127]Wahlberg, 134.

In an insightful evaluation of Barth's position, Thomas F. Torrance writes, "the claim to a natural knowledge of God, as Barth understands it, cannot be separated out from a whole movement of man in which he seeks to justify himself over against the grace of God."[128] James Barr adds that "even among those who recognize [Barth] as the greatest theologian of the period, few today feel that his rejection of natural theology was his masterstroke, few accept that it was right to make this into the central and pivotal issue."[129] Likewise, Alister McGrath writes, "There is a growing feeling within the theological community that Barth's theology marks an over-correction of the Reformed theological position, and that an informed recovery of an older position is overdue."[130]

Although Barth never explicitly admitted to changing his mind about natural theology, evidence suggests that his position was not completely static over time.[131] His last volume of Church Dogmatics says that "God . . . is very well known in the world and world history, in the human, non-Christian world."[132] Even so, he is careful to qualify this statement by distinguishing between "objective" and "subjective" knowledge of God. He writes further, "We are referring to the objective knowledge of God as the Creator of

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[128]Thomas F. Torrance, *Transformation and Convergence in the Frame of Knowledge: Explorations in the Interrelations of Scientific and Theological Enterprise* (Eugene, OR: Wipf and Stock, 1998), 290.

[129]James Barr, *Biblical Faith and Natural Theology* (New York: Oxford University Press, 1993), 18.

[130]McGrath, 83.

[131]Wahlberg, 134.
[132]Karl Barth, *Church Dogmatics IV.4: The Christian Life* (London: T&T Clark International, 2004), 119.

human nature, not to man's corresponding knowledge of God. To know him, man must

recognize him, that is, to honour and love him."[133] But alas, humanity does not honor and

love God, and consequently does not know Him.[134]

However, Barth seems open to the idea that people outside the Christian tradition

avail themselves to the knowledge of God that is objectively available in the world:

> Should it not also be noted that the concealment in which [God] does it, which is
> due to man's blindness, is in fact broken and becomes transparent, if not
> everywhere, at least in places? . . . In spite of all the worldliness and
> unfaithfulness and ignorance of people, does not God in fact see to it that the
> knowledge of God is not ineffective, that people *must* . . . know about God and
> therefore know what they do not want to know or in fact seem to know? . . . Will
> not this objective knowledge be at least as strong in places as that mediated to the
> world through the witness of Christianity? These impressions should not be
> generalized and systematized along the lines of natural theology, but when they
> lay hold of us with serious force, they cannot be denied.[135]

Indeed in his later years, Barth appears to soften on this matter as evinced by this telling

remark in a letter to a friend: "I would gladly concede that *nature* does objectively offer a

proof of God, though man overlooks or misunderstands it."[136] In Wahlberg's opinion,

Torrance concludes that Barth's thinking does indeed leave room for a natural

theology.[137] According to Torrance, "What Barth objects to in natural theology is not its

rational structure as such but its independent character, i.e. the autonomous rational

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[133]Barth, *Church Dogmatics IV.4*, 120.

[134]Wahlberg, 134.

[135]Barth, *Church Dogmatics IV.4*, 121-122.

[136]Carl Zuckmayer and Karl Barth, *A Late Friendship: The Letters of Karl Barth and Carl Zuckmayer*, trans. G. W. Bromily (Grand Rapids: Eerdmans, 1982), 42.

[137]Wahlberg, 135.

structure which it develops on the ground of 'nature alone' in abstraction from the active self-disclosure of the living God."[138] The thesis of this paper is that God engineers the universe precisely in a way as to provide objective availability of knowledge of Himself through humankind's experience of nature. Thus, He reveals Himself to humankind as a Creator with exquisite engineering expertise. Nowhere is this more evident than in the field of biology.

<div align="center">Evidence of Exquisite Engineering Expertise from Science</div>

Several recent works document the ever-strengthening convergence between the fields of biology and engineering. Examples include: Mike Gene's *The Design Matrix: A Consilience of Clues*; Uri Alon's *An Introduction to Systems Biology: Design Principles of Biological Circuits*; and a recent (January 2008) *Special Joint Issue on Systems Biology of the IEEE* (Institute for Electrical and Electronics Engineers) *Transactions on Automatic Control and Circuits and Systems*. Patterns of engineering design found in biological structures are described in *The Cell's Design* by Fuzale Rana.[139] Recent articles in the *International Journal of Design and Nature* illustrate the highly-advanced engineering found in natural structures, such as the multi-functioning and multi-optimization of bird feathers.[140] Biologist E. O. Wilson admits the great utility of

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[138]Torrance, 293-294.

[139]Fuzale Rana, *The Cell's Design: How Chemistry Reveals the Creator's Artistry* (Grand Rapids: Baker, 2008), 25-283.

[140]S. C. Burgess, "Multi-Functioning and Multi-Optimization in Feathers," *International Journal of Design and Nature* 1, no. 1 (2007): 1-10.

engineering principles for elucidating complex biological structures, as well as the

amazing efficiency of such structures:

> The surest way to grasp complexity in the brain, as in any other biological system, is to think of it as an engineering problem. What are the broad principles needed to create a brain from scratch? Whether contrived by advance planning or by blind natural selection, the key features of architecture can be expected to be very broadly predictable. Researchers in biomechanics have discovered time and again that organic structures evolved by natural selection conform to high levels of efficiency when judged by engineering criteria.[141]

Wilson's confidence in only blind, unguided processes to execute feats of unparalleled

engineering skill is not shared by scientist Michael Polanyi, who, not long after the

discovery of DNA, asked the relevant question: "Can the control of morphogenesis by

DNA be likened to the designing and shaping of a machine by the engineer?" He

answered this question in the affirmative, stressing that life is not reducible to physics

and chemistry.[142]

The idea of a great cosmic engineer is certainly not a novel concept. Even a half

century before the time of Christ, Anaxagoras of Clazomenae posited that the obvious

order in the universe was due to the larger plan or design of a Mind. This was an early

form of the eutaxiological argument, which recognizes the beneficial harmony found in

natural systems. Socrates and Plato added the idea that this Mind also acts to sustain the

universe at all times. Aristotle made the jump to teleology (having a goal or purpose),[143]

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[141]E. O. Wilson, *Consilience: The Unity of Knowledge* (New York: Vintage Books, 1998), 112.

[142]Michael Polanyi, "Life's Irreducible Structure," *Science* 160 (June 21, 1968): 1310.

[143]Craig and Moreland, 285.

with detailed studies into causality and purpose.[144] Many famous scientists over the last

few centuries have made use of teleological concepts to further the understanding and use

of nature. Cosmologist Helge Kragh, in his book *Matter and Spirit in the Universe*,

describes the impact these ideas had on the great scientist James Clerk Maxwell:

> He [Maxwell] was impressed by the fact, as revealed by the spectroscope, that molecules of the same chemical species were all alike and had not changed the slightest "since the time when nature began." Uniformity in time as well as uniformity one-to-another strongly indicated that atoms and molecules were created . . . Borrowing an expression from John Herschel, he famously (and with an allusion to natural theology) referred to the molecule as a "manufactured article."[145]

In the last couple of decades, several researchers have attempted to better quantify

the ability to detect the presence of an engineering influence.[146] This often takes the form

of attempting to characterize various types of complexity. Michael Denton, in his book

Nature's Destiny: How the Laws of Biology Reveal Purpose in the Universe, uses the

term "integrative complexity," in referring to subsystems that are integrated together to

form a complex and functional unit that supports life.[147] In *Darwin's Black Box: The*

Biochemical Challenge to Evolution, Michael Behe introduces the idea of "irreducible

complexity," in which a functional system is made up of multiple interacting parts that

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[144]Michael A. Corey, *God and the New Cosmology* (Lanham, MD: Rowman and Littlefield, 1993), 12-14.

[145]Helge Kragh, *Matter and Spirit in the Universe: Scientific and Religious Preludes to Modern Cosmology* (London: Imperial College Press, 2004), 35.

[146]Del Ratzsch, *Nature, Design, and Science: The Status of Design in Natural Science* (Albany, NY: State University of New York Press, 2001), 27-60.

[147]Michael Denton, *Nature's Destiny: How the Laws of Biology Reveal Purpose in the Universe* (New York: The Free Press, 1998), 297.

are all necessary for functionality; and hence, not easily obtained through natural selection.[148] William Dembski and Jonathan Wells, using the mathematical theories of probability and information, have defined a more precise tool known as "specified complexity." An object, event, or structure exhibits specified complexity, if it is both complex (i.e., not easily reproducible by chance) and specified (i.e., displays an independently given pattern).[149] Finally, David A. J. Seargent asserts that one of the primary hallmarks of an engineering influence is a property he calls, "transitive complexity," in which the suspected design points to a larger state of affairs beyond itself.[150] An example of this would be a signal containing the prime number sequence emanating from a far-away planet. Such an engineered signal points beyond the mere complexity of the coded number sequence; in effect, communicating the existence of intelligent alien life, which would presumably be the purpose for such a signal. All of these researchers argue persuasively that the world is permeated with such incriminating forms of complexity. While it may be argued that natural processes will eventually be discovered to explain the origin of such complexity, even if this turns out to be true, it does nothing to explain the origin of those ingenious "natural" processes, and the exquisite engineering that results.

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[148]Michael Behe, *Darwin's Black Box: The Biochemical Challenge to Evolution* (New York: Free Press, 2006), 37.

[149]William Dembski and Jonathan Wells, *The Design of Life: Discovering Signs of Intelligence in Biological Systems* (Dallas: Foundation for Thought and Ethics, 2008), 165.

[150]David A. J. Seargent, *Planet Earth and the Design Hypothesis* (Lanham, MD: University Press of America, 2007), 39.

In *The Design Matrix: A Consilience of Clues*, Gene attempts to synthesize many of these ideas into a set of four criteria that can be scored and combined, to quantify an indication of design or non-design for any particular system. The four criteria are:

1. Analogy – Does the system resemble entities that are known to be engineered by humans, such as machines, codes, or other devices?

2. Discontinuity – Does the system exhibit irreducible complexity, or is it possible to evolve via a series of gradual intermediate functional states?

3. Rationality – Does the system have a function that can be structurally decomposed? Does the working hypothesis of a "purpose" explain the system? How well do engineering criteria for good design map to the system?

4. Foresight – Does the system demonstrate Original Mature Design (design that has remained unchanged over long time periods and is robust in the face of disturbances)? Does the present state explain something about the past?[151]

While it appears that Gene intends mainly for the above criteria to be applied to biological systems, his criteria are similar, in some respects, to the more universal set of criteria suggested by philosopher Michael A. Corey in his book, *The God Hypothesis: Discovering Design in Our "Just Right" Goldilocks Universe*. He asserts that the following criteria can be used to judge if any given artifact has been deliberately engineered:

1. The existence of a coherent object that is comprised of a complex concatenation of interconnected parts that all work together toward achieving some practical end.

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[151]Mike Gene, *The Design Matrix: A Consilience of Clues* (Los Angeles: Arbor Vitae Press, 2007), 268-291.

2. A complex degree of cooperative interaction between the various internal

   components toward a single functional end.

3. An Aristotelian "formal cause" or intelligible design that can be laid out in a

   logical coherent fashion.

4. The exploitation of well-known technological and engineering principles which are

   utilized for a common constructive end.

Corey continues with the following claims:

> By these criteria, it is evident that the universe has indeed been contrived in some fashion. For one thing, it is hard to question the assertion that the universe itself is a coherent mega-artifact which has the goal of supporting biological life as one of its "intended" functions. With the advent of modern physics, it has also become evident that there is a complex state of cooperation between the various structures of the universe and their resultant functions. The various cosmic "coincidences" themselves are perhaps the most exquisite illustration of this type of functional cooperation. Moreover, these "coincidences" are known to exploit a wide variety of technological and engineering principles in their mutual cooperation to produce a viable life-supporting universe.[152]

Walter Bradley, a Professor of Mechanical Engineering at Baylor University, has

produced several publications that provide insight into the idea of an engineered world.

He delineates the three essential factors that are necessary to achieve design outcomes in

engineering as:

1. The mathematical form that nature assumes

2. Values of the universal and local constants

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[152]Michael A. Corey, *The God Hypothesis: Discovering Design in our "Just Right" Goldilocks Universe* (Lanham, MD: Rowman and Littlefield, 2001), 167.

3. Specification of boundary conditions.[153]

Human engineering consists of specifying the boundary conditions under which the laws

of nature operate in order to produce a purposeful outcome. Cosmic engineering must

involve specification of not only the conditions under which the laws of nature operate,

but the very laws themselves. The universal constants that scale the "building blocks" of

matter and energy and the fundamental forces in nature provide the purposeful outcome

of a habitable universe for life, and life itself. Bradley contends that for someone to

choose to believe that there is a naturalistic explanation for the precise engineering of all

these factors is to "believe in a miracle by another name."[154]

Presumably, humans stand as the crowning achievement, but many resist the

notion of an engineered world because of the extent of pain and suffering associated with

the human condition. Admittedly, this is a major challenge. However, human experience

in general, and engineering research in particular, speak of the critical role that adversity

and failure play in the acquisition of wisdom, and the success of engineering design.

Henry Petroski, author and professor of civil engineering and history at Duke University,

investigates this concept in his most recent book, *Success through Failure: the Paradox

of Design*: "Failure is thus a unifying principle in the design of things large and small,

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[153]Walter Bradley, "Is There Scientific Evidence for an Intelligent Creator of the Universe?" in *Science: Christian Perspectives for the New Millennium*, ed. S. Luley, P. Copan, and S. Wallace (Woodstock, VA: Christian Leadership Ministries, 2003), 200.

[154]Bradley, 202.

hard and soft, real and imagined . . . Whatever is being designed, success is achieved by properly anticipating and obviating failure."[155]

Others may question why such a transcendent engineer would not be more visible to humans during this process. Why the clandestine approach? This is where the social sciences may lend some insight. Humans are thought to be a crowning achievement, not just because they possess the most complex and capable hardware in the universe (the human brain), but because they also possess the very powerful and transforming capacity to love (the human heart, figuratively speaking). It, therefore, seems likely that the purposes of such a transcendent engineer might have something to do with the endowed ability to enter into love relationships, possibly to enter into an eternal love relationship with the Maker. If this is the case, then, as is well-known the world over, potential love must be treated with the utmost care and sensitivity. Here, Soren Kierkegaard's parable of the king and the maiden[156] is very apropos. The king seeks to win the love of a humble maiden. But if he appears to her as the king, he might elicit her devotion for the wrong reason. So, he comes as a servant–not in disguise–for that would be deceptive, but really becomes a servant to win her love.[157] So, this transcendent engineer must keep an

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[155]Henry Petroski, *Success through Failure: The Paradox of Design* (Princeton, NJ: Princeton University Press, 2006), 5.

[156]Soren Kierkegaard, *Philosophical Fragments*, trans. D. F. Swanson (Princeton, NJ: Princeton University Press, 1962), 19-28.

[157]Richard Swinburne, *The Resurrection of God Incarnate* (Oxford, England: Oxford University Press, 2003), 45.

"epistemic distance" (a distance that initially affords limited knowledge)[158] in order to attain the desired outcome. Obviously, much remains to be investigated on this topic. But it is interesting to note that over the years, significant advances in science, engineering, and the humanities have not seemed to erode the coherence of an engineered world. On the contrary, the magnificent ingenuity displayed in nature continues to speak of a supreme competency and reliability that inspires curiosity and imitation (hence the exploding field of biomimetics–the copying of nature's designs) in human minds, and hope in human hearts.

<div align="center">Reverse Engineering of Natural Systems with Possible Corruption</div>

Being an engineer by training, and having several years of engineering experience in industry and academia, the author finds it easy to relate to God in His role as creative problem solver and engineer of the universe. So, it seems natural to him to investigate God's works of creation from a reverse engineering perspective. Reverse engineering is simply the dissection and analysis of any engineered system in an effort to uncover the secrets behind its original design.[159] This process can become more difficult if a system has been corrupted or damaged along the way. In Romans 1:20, Paul writes about how God's eternal power and divine nature are clearly seen "being understood through what has been made." It seems that he is writing here of a basic form of reverse engineering of which every person is capable. He goes on to write about the corruption that can occur in human beings if they reject this knowledge and pursue their own plans (Rom 1:21-32).

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[158]Swineburne, 45.

[159]Otto and Wood, 17.

Thus, any attempt to reverse engineer natural systems is complicated by this corruption. However, it is still possible, and results may be useful in sharing the Gospel, especially with skeptical scientists and engineers.

The process of reverse engineering has been used for many years with man-made systems. But recently, the application of reverse engineering to natural objects, such as biological systems, has met with unexpected success. Knowledge of the bacterial flagellum, for example, is due largely to the application of reverse engineering techniques to biological systems.[160] Analyzing the structure as that of a man-made motor sheds light on the affordances of the individual parts of this rotary motor that drives bacteria. As another example, at Stanford University, a biologist and an engineer teamed up to study the heat shock mechanism of E. coli bacteria,[161] using reverse engineering techniques such as "subtract and operate."[162] They found that system performance degraded only slightly when feedback or feed-forward information pathways were removed to simulate damage or corruption. They claimed that this robust system is remarkably similar to what a well-trained control systems engineer would devise. Thus, it seems clear that reverse engineering principles can be applied to analyze the effects of corruption on a system. How might corruption alter the perceived affordances of a system? In simple terms, an

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[160]P. Aldridge and K. T. Hughes, "Regulation of Flagellar Assembly," *Current Opinions in Microbiology* 5, no. 2 (2002):160-5.

[161]C. J. Tomlin and J. D. Axelrod, "Understanding Biology by Reverse Engineering the Control," *Proceedings of the National Academy of Sciences* 102 (2005): 4219-4220.

[162]Otto and Wood, 159.

affordance is what an engineered system provides to an end user.[163] Is it possible that

good can result from something that is originally viewed as a negative affordance?

To help answer the above questions, a systematic affordance-based approach is

applied to determine if the effects on the system cause the affordances of the system to

change.[164] An affordance-based approach helps to ascertain the positive and negative

effects produced by each part of the system and their interactions. This approach,

developed by Jonathan R. A. Maier and G. M. Fadel, illuminates the interconnections

between the parts of a system and the affordances that the system offers the end user, or

the affordances that one part of the system offers to another part. The ability to see both

when a part of the system helps and when it hinders another part is especially useful to

this analysis. Thus, identifying the affordances of the individual parts of the system

allows for a greater understanding of the purpose for which it was engineered. This

approach to unraveling the mysteries of natural systems was introduced in a paper, which

briefly analyzed the system of life on earth.[165]

Modifying the definition of "measurement" has also helped in this analysis. In his

book *How to Measure Anything: Finding the Value of "Intangibles" in Business*, D. W.

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[163]Jonathan R. A. Maier, *Affordance Based Design: Theoretical Foundations and Practical Applications* (Saarbrucken, Germany: VDM Verlag, 2011), 3.

[164]Jonathan R. A. Maier and G. M. Fadel, "Affordance Based Design Methods for Innovative Design, Redesign and Reverse Engineering," *Research in Engineering Design* 20, no. 4 (2009): 225-239.

[165]D. Halsmer, T. Todd, and N. Roman, "Integrating the Concept of Affordance into Function-based Reverse-engineering with Application to Complex Natural Systems," *Proceedings of the ASEE Annual Conference* (2009).

Hubbard displays a different approach to measurement that may help with understanding these concepts. His definition of measurement is "a quantitatively expressed reduction of uncertainty based on one or more observations," as opposed to the normal definition as a quantitative description of an object.[166] Viewing measurements can shift the focus from finding the exact purpose of a system to that of becoming more confident of its purpose. While it is still important to find the original purpose, and it is no doubt the end goal, understanding even a small amount allows for better comprehension of the whole. Hubbard also presents a process called "decompose it." This describes how "many measurements start by decomposing an uncertain variable into constituent parts to identify directly observable things that are easier to measure." The complex and uncertain parts of the system are dissected and the affordances are analyzed.[167] Taking these ideas from the business world is a prime example of using non-traditional fields of work that in practice fit cohesively together.

The field of theology also lends insight into the attempt to reverse engineer natural systems. Alister McGrath contends that a Christian Worldview offers a particularly illuminating framework for making sense of the natural world. In his book *Surprised by Meaning: Science, Faith and How We Make Sense of Things*, he explores two (among many) aspects of Christian doctrine that assist in this endeavor: (1) the idea that humanity bears the image of God (Genesis 1:26) and (2) the notion of an "economy

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[166]D. W. Hubbard, *How to Measure Anything: Finding the Value of Intangibles in Business* (Hoboken, NJ: Wiley, 2010), 23.

[167]Maier, 9.

of salvation."[168] One of the implications of the first theme that has been historically recognized by the Church, is that humanity was created with the capacity to make sense of God's creation. This helps to explain the intelligibility of the universe. Engineers know that for reverse engineering to be possible, there must be an appropriate match between the intelligence of the investigator and the complexity of the system under investigation. This is exactly what is seen with human beings studying the natural world.

The second theme sets out the idea that God's interaction with the world is described in terms of a narrative of creation, fall/corruption, redemption, and final consummation. McGrath reminds one that:

> there is a profoundly eschatological dimension to an authentically Christian natural theology, in that the natural order should be observed in the light of its goal [or purpose], not merely in the light of its origination . . . The Christian framework of the economy of salvation helps us to appreciate that we have to locate this problem [evil, corruption, and suffering] on a theological map. The world was created good; one day it will be restored to an even greater goodness.[169]

Perhaps God's allowance of evil, and hence human failure, into His creation results in certain positive affordances that enable the realization of this greater goodness. Engineering educators Matthew Green and Paul Leiffer point out that learning through experiencing failure, what they call "flearning," seems to be a crucial step in eventually arriving at the truth.[170] Engineer and author Henry Petroski appears to agree, as he

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[168]Alister McGrath, *Surprised by Meaning: Science, Faith and How We Make Sense of Things* (Louisville: Westminster John Knox Press, 2011), 54.

[169]McGrath, 55.

[170]Matthew G. Green and Paul R. Leiffer, "Enhancing International Humanitarian Design Projects: A Contextual Needs Assessment Case Study of Remote Power for Faith-based Organizations," *Proceedings of the Christian Engineering Education Conference*,

describes in his book, *Success through Failure: the Paradox of Design*."[171] In any case, it is not surprising that human investigators, as travelers in the midst of this journey, experience a self-referential entanglement with nature that results in insufficient information to answer these questions with certainty.

However, affordance-based analysis of man-made systems, along with an open mind as to the reduction of uncertainty, appears to have valid applications into natural systems. By making the assumption that a system could be corrupted, allowance is made for the possibility of changing affordances. Using this method offers new and exciting resolutions for some of the mysteries with which scientists and theologians are currently struggling. It allows for the possibility that new positive affordances may result from what originally appears to be corruption of, or damage to, the system. An example of this comes from the history of Radial Keratotomy, where eyesight is enhanced by making a series of incisions on the surface of the eye. This surgical procedure originated partly because of a bicycle accident in which a child fell and shattered his eye glasses. Unfortunately, pieces of glass became embedded in his eye. But actually, much good came from this accident because upon removal of the pieces of glass, it was discovered that the child's eyesight had improved! As a result, a surgical procedure was developed

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http://www.calvin.edu/academic/engineering/ces/ceec/2008/CEEC2008program.pdf (14 April 2013).

[171]Henry Petroski, *Success Through Failure: the Paradox of Design* (Princeton, NJ: Princeton University Press, 2006), 3.

which eventually contributed to the improved eyesight of millions of people.[172] This

example demonstrates that positive affordances can result from seemingly negative

occurrences.

One can also turn to Scripture and see the support for good coming from

seemingly desperate circumstances (e.g., Gen 45:5, Job 42:12, and Esther 10:3). Romans

8:28 states, "We know that in all things God works for the good of those who love him,

who have been called according to his purpose." Note that it says "in *all* [emphasis

added] things God works for the good of those who love him." Extrapolating this to the

current approach implies that even what appear to be negative affordances will turn out

for the good of those who love God. This optimistic approach lies in sharp contrast to

recent analyses that rule out the possibility of an intelligent designer because of the

negative aspects of the human condition.

Physicist and science writer Phillip Ball published a recent article in *Nature*

entitled, "What a Shoddy Piece of Work is Man." In this article he expounds on the idea

that "the human body is certainly no masterpiece of intelligent planning."[173] First of all,

for someone to be "certain" of such a conclusion, one would have to know much more

about the origin and destiny of living systems than humanity currently possesses, or is

ever likely to possess. This kind of "overstating the case" occurs on both sides of the

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[172]S. Fyodorov, *Svyatoslav Fyodorov: Just a Magician Who Gives Back Sight (Soviet Ophthalmologist)* (Moscow: Novosti Press, 1988), 13.

[173]Phillip Ball, "What a Shoddy Piece of Work is Man," *Nature News Online*, 3 May 2010, n.p., http://www.nature.com/news/2010/100503/full/news.2010.215.html (April 14, 2013).

science and theology debate. It is unproductive, often leading to emotional responses, and should be avoided, and quickly corrected when recognized. Even so, it is understandable how Ball might come to his conclusion when one considers all the negatives factors associated with not only the human body, but also the human condition.

Ball refers to the recent work of evolutionary biologist John Avise, who published a book entitled *Inside the Human Genome: A Case for Non-Intelligent Design*, and a *PNAS* article entitled, "Footprints of Nonsentient Design Inside the Human Genome." Avise makes his case by pointing out the deadly effects of malfunctioning aspects of the genome, seemingly wasteful elements, and baroque arrangements that no conscious engineer would conceivably produce, or even allow.[174] Once again, it should be pointed out that in order to properly judge the merits of such a hypothesized design, one needs more complete information concerning the engineering objectives, and other metaphysical factors that might bear on such a design.

Perhaps Ball and Avise might consider other possibilities, such as the idea that natural systems have undergone some kind of corruption throughout their history, or even that the design engineer allows seemingly negative factors to be introduced for the eventual good of his creatures. Instead, Avise closes his article by asserting that "evolution by natural causes emancipates religion from the shackles of theodicy," since God is no longer responsible for the "gross evil and suffering in the world."[175] Avise is

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[174]John Avise, "Footprints of Non-sentient Design Inside the Human Genome," *Proceedings of the National Academy of Sciences USA* 107, Supplement 2 (2010): 8971-8973.

[175]Avise, "Footprints," 8976.

corrected on this point in a reply to his article by M. J. Murray (philosopher) and J. P. Schloss (biologist). They point out that "positing that God delegated the task of generating life to insentient evolution merely ushers in an explanatory regress that serves to illuminate rather than ease the problem of the evils resulting from the operation of nature."[176] To Avise's credit, he appears to receive this correction, as made evident in his response to Murray and Schloss, and is humble enough to invite non-scientists into the dialogue. In reference to "molecular faults that cause vast human suffering," he writes, "It is now *time for theologians to step up to the plate* [emphasis added] and perhaps help us to understand the philosophical implications of this rather disturbing reality."[177]

This openness to cross-disciplinary dialogue is a welcome development that should be applauded by both sides of the dialogue. Engineers should also join the scientists and theologians at the plate since much of the discussion involves the reverse engineering of complex biological systems. In addition, this is the kind of dialogue that should be going on at Christian universities around the world. Students of science, engineering, and theology all benefit from interdisciplinary dialogue when wrestling with the worldview implications of new discoveries. Insights can also be gained through experience with the reverse engineering of corrupted man-made objects, as seen by the following example.

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[176]M. J. Murray and J. P. Schloss, "Evolution, Design, and Genomic Suboptimality: Does Science 'Save Theology?'" *Proceedings of the National Academy of Sciences USA* 107, no. 30, (2010): E121.

[177]John Avise, "Reply to Murray and Schloss: Designer Genes?" *Proceedings of the National Academy of Sciences USA* 107, no. 30, (2010): E122.

Around the beginning of the twentieth century, a major archeological find was made in the discovery of the contents of an undersea shipwreck off the coast of the Greek Island of Antikythera. Many valuable artifacts were recovered from the wreck, which was dated to about 100 BCE. In addition to beautiful marble statues and ancient artifacts, a curious, corroded and coral-encrusted block of an unknown nature was retrieved and placed in the basement of the Athens Museum. After some time, it dried out and cracked apart to reveal the edges of metal gear wheels. This caught the attention of researchers since complex gear trains were not thought to exist at any time near 100 BCE. This realization was the beginning of over one hundred years of the most fascinating reverse engineering work in the history of technology.

The specimen was incomplete, in several pieces, and was so badly corrupted that initial attempts at reverse engineering were very discouraging. However with painstaking effort over a period of about one hundred years, the corruption produced by two millennia of sea water was teased apart from the original engineering that went into the device. With the help of advanced measurement systems like x-rays and sonograms, functioning replicas were eventually produced by multiple investigators. They were able to identify the parts of the mechanism (including twenty-eight different gears) and how those parts interacted (providing part to part affordances in delivering affordances to an end user). Jo Marchant provides the following insight:

> Scrutinizing the details of the gearwheels and inscriptions, however, wasn't the only way to investigate the mechanism . . . archaeologists also studied the rest of the salvaged cargo [& culture of the time]. Their discoveries help to paint a vivid picture of when the ship sailed, where her load was being taken, and the sort of

world from which she came. From there, we can guess at the origins of the Antikythera Mechanism itself, and how it ended up on its final journey.[178]

Ultimately, it was recognized that the mechanism affords a mechanical simulation of the motion of the moon and planets, including the prediction of eclipses. In effect, it is believed to be one of the first analog computers, about a thousand years earlier than was ever thought possible.[179]

There are a few things to be gleaned from this classic example of reverse engineering of a man-made system, and perhaps applied to natural systems. The quality of engineering and workmanship reflects on the original engineer. Marchant records how carefully engraved letters in the outer casing of the mechanism indicate the work of a "highly trained craftsman," rather than a "laborer."[180] Information about origin and destiny may also be uncovered by expanding the investigation beyond dissection and measurement of the specimen. The history and culture of the time, in addition to the other artifacts with which it was found, helped to unravel the mystery of its origin and purpose. This is the nature of reverse engineering projects in general. All possible information that could be pertinent in recovering original design information should be considered.

It, therefore, seems clear that in reverse engineering natural systems, the standard approach of methodological naturalism may be inadequate. Certain phases of the scientific method, like experimentation, measurement, and testing necessarily require this

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[178]Jo Marchant, *Decoding the Heavens: A 2,000-Year-Old Computer and the Century-long Search to Discover Its Secrets* (Cambridge, MA: Da Capo Press, 2010), 61.

[179]Marchant, 40.

[180]Marchant, 55

constraint. But other phases, such as theory forming and model building, need not be so restrictive.[181] In addition, affordance-based reverse engineering emphasizes the relationships that exist within the "big picture" of design and reverse engineering. These are the relationships between the designer, the artifact, the end user, and the investigator (or reverse engineer).[182] In the context of a Christian Worldview, with a traditional understanding of humanity's Fall, these relationships provide a rich backdrop for explaining the origin and nature of corruption associated with the human condition.

Recent discoveries in the field of epigenetics (how biological maturation is affected by environment and behavior)[183] may also shed some light on these issues. Multiple current research efforts have now demonstrated that certain animal behaviors can have significant detrimental effects on the genome of that animal, and even on its offspring and descendents.[184] It seems reasonable that this may also be the case with human beings. Indeed, research into the long-term effects of child abuse on human epigenetics has discovered various changes in brain chemistry associated with the abnormal behavioral events that may also be correlated to an increased risk of suicide.[185]

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[181]Corey, *The God Hypothesis*, 193.

[182]Maier, 61.

[183]Craig and Moreland, 393.

[184]Wolff, G. L., et al., "Maternal Epigenetics and Methyl Supplements Affect *Agouti* Gene Expression in *Avy/a* Mice," *The Federation of American Societies for Experimental Biology Journal*, 12 (1998): 949.

[185]P. O. McGowan, et al., "Epigenetic Regulation of the Glucocorticoid Receptor in Human Brain Associates with Childhood Abuse," *Nature Neuroscience* 12, no. 3 (2009): 342.

In reverse engineering man-made systems that exhibit corruption or damage, it is often

discovered that the system was placed in an environment or used in a way in which it was

never intended.[186] The Antikythera Mechanism was never intended to sit at the bottom of

the sea, and the resulting corrosion and damage greatly prolonged the reverse engineering

process. Consider how a screwdriver is often wrongly used as a pry bar. Countless

engineered products are damaged every year, because they are used in a manner that

would make the original design engineer cringe. The human child certainly was not

designed to be treated abusively, but embedded into the design is the capacity to retain

information from the experience and other environmental exposures, including nutrition,

to potentially adapt to changing conditions.[187]

Maybe the corruption and damage perceived in human beings is largely a result of

the same kind of effect. If there is a Master Design Engineer for the human species, it is

reasonable to conclude that humans were engineered for a particular purpose, or purposes

(Prov 16:4; 19:21; Eccl 3:1; 17; Jer 29:11; Eph 2:10). Furthermore, if humans stray from

these purposes, it might be expected that they would experience corruption or damage.

Romans 1:27 says that the rebellious receive "in their own persons the due penalty of

their error." However, it is the mark of a good engineer to offer a redemptive solution:

taking what appears to be a negative development in the design process, and "turning it

around," causing it to work for good. This is a standard and documented part of creative

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[186]Marchant, 36.

[187]M. D. Niculescu and D. S. Lupu, "Nutritional Influence on Epigenetics and Effects on Longevity," *Current Opinion in Clinical Nutrition & Metabolic Care* 14, no. 1 (2011): 35.

problem solving methods such as TRIZ.[188] Such "failures" are also recognized as an

important, and perhaps necessary, part of creativity, and learning in general. In an

intriguing collision between epigenetic and stem cell research, continuing work with

induced pluripotent stem cells demonstrates that in the presence of proper chemical or

biological signals, cells can change their epigenetic profiles to return to a more

"embryonic" state, while continuing to retain memory of prior experiences.[189] It may be

possible that the human design contains the potential to experience corruption, and under

the proper circumstances to recover from the experience while gaining additional

affordances.

 Although the ways of a cosmic engineer would surely transcend human

understanding of how to conduct engineering, as considered earlier, another traditional

Judeo-Christian doctrine insists that humans are made in the image of God (Gen 1:26).

This implies that humanity may have some small measure of His creativity and problem-

solving capability. In addition, God appears to reveal Himself in categories that humans

can understand. Throughout Scripture, He seems to encourage humans to think of Him in

those terms—even in terms of an engineer, or a builder of a "spiritual house," as seen in 1

Peter 2:5.

 Perhaps unbelieving scientists and engineers might find this line of thinking

reasonable and suggestive of a preferable worldview. Missionary work is typically more

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[188]S. Savransky, *Engineering of Creativity: Introduction to TRIZ Methodology of Inventive Problem Solving* (Boca Raton, FL: CRC Press, 2000), 212.

[189]K. Kim, et al., "Epigenetic Memory in Induced Pluripotent Stem Cells," *Nature* 467 (2010): 285.

successful if the message is communicated in the "language" of the target audience.[190] In

a sense, this approach attempts to speak the language of scientists and engineers. It takes

the evidence with which they are largely familiar and weaves it into an explanatory

tapestry. In so doing, the evidence from science and engineering is found to play a key

role in the cumulative case for a Christian Worldview.[191] The picture is one of an

exceedingly competent and innovative transcendent engineer who is able to turn the

messes of free-will beings into something good and beautiful, if they will simply rely on

their Maker and His redemptive plan through Jesus Christ. In so doing, corruption and

death are consumed as all things are made new (2 Cor 5:17; Rev 21:5) and caused to

work together for good (Rom 8:28). As a result, many of the redeemed find that they are

now particularly well-suited to minister to others in areas where they were once

corrupted. This is just one example of how positive affordances appear to result from

human corruption, when placed in God's hands.

<div align="center">Engineering a Plan for Humanity's Redemption</div>

It was previously mentioned how God devises ways so that those who have been

banished from Him may not remain estranged from Him (2 Sam 14:14). This is quite

comforting when one considers the magnificence of the engineering that undergirds

nearly every aspect of the cosmos. If God is competent in engineering the universe and

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[190]Richardson, 59.

[191]R. D. Geivett, "David Hume and a Cumulative Case Argument," in *In Defense of Natural Theology,* ed. James F. Sennett and Douglas Groothuis (Downers Grove, IL: InterVarsity Press, 2006), 297-315.

life within it, then Christians should be confident that if they put their trust in Him, He will have no problem in engineering and executing a plan for their salvation. Job 11:13-20 says that there is hope for humanity, if sin can be "put away." This and many other messianic passages suggest that God was to actually come in the flesh, in the person of Jesus of Nazareth (the long-awaited Messiah), to rescue humans from the effects of sin and death (Ps 112; Isa 52:13-53:12). Isaiah 59:16 and 63:5 proclaim that God's own arm worked salvation for Him. Job 42:2 asserts that no purpose of God can be thwarted. And, it is clear from Scripture that God has purposed to redeem His people.

But the best news of all is that He has redeemed humankind in order to enjoy an eternal and intimate relationship with Himself (Rom 8:38-39). The characterizing features of this relationship are eternal love, peace and joy (Gal 5:22). Just as He has engineered human physical bodies to enjoy the physical relationships that humans have, so He also is in the midst of engineering the redemption of the total human being (1 Cor 15:50), including heavenly bodies (1 Cor 15; 54; 2 Cor 5:4-5), to be fit for an eternity with Him. His people are the Bride of the Messiah (Rev 19:7-9). Hence, the joys of the marriage relationship in this life are just a shadow of an even deeper and more satisfying relationship with Jesus when the time is right to meet Him face to face. Isaiah beautifully expresses this sentiment in the following passage, "As a young man marries a young woman, so will your Builder marry you; as a bridegroom rejoices over his bride, so will your God rejoice over you (Isa 62:5)."

<div align="center">Summary and Conclusions</div>

In laying out the basics of the Gospel for the church in Rome, Paul makes it clear from the very beginning that God has engineered this world to unmistakably reveal Himself to each human being. The wisdom displayed in exquisite engineering expertise in nature, and the goodness towards humanity that results, speaks loudly of God's great competence as Lord and Master of human lives. Discomfort with the idea of God as Engineer appears to stem largely from a misconception of engineering which limits its purview to that of a technician, or views it from merely a human perspective. Both Scripture and nature reveal that God combines knowledge and wisdom with creativity and resourcefulness in a powerful way to accomplish His purposes in this world. That is engineering, but of a divine nature. Even so, the giftings of God (Exod 31:5-7; Rom 12:4-8; 1 Cor 12, 14; Eph 4:7-13), and the Image of God (Gen 1:26) in humans, allow many people to relate to God on the level of creative problem solver. Relating to God on this level appears to be intended by God and pleasing to Him.

Rich portraits of God as Engineer appear throughout both the Old and New Testaments. However, many of the details pertaining to how God engineered His Creation, and why He engineered it the way He did (allowing vast amounts of evil and suffering) remain unclear. This is one area where science and engineering may be able to assist theology. As humanity continues to reverse engineer the Creation through pursuit of the various sciences, it learns more and more about the nature and intentions of the Master Design Engineer. It seems that God has sovereignly chosen to reveal Himself to Humanity in this way. Even so, from a human perspective, mystery is acknowledged to be a fundamental and ongoing aspect of God's nature. Allowing these truths to interact

with the truths of Scripture brings humans to a more complete picture of God and His Creation. Through the creation of the universe, God demonstrates His mastery of the beneversal, or beneficial reversal. He takes what His adversaries intend for evil, and somehow turns it around and causes it to work for good. This is evident in Scripture, nature and throughout history (as addressed above). Through this process, He appears to be teaching humanity important truths that may not be apprehended in any other way. As such, He is preparing those who put their trust in Him for an eternity in His loving presence. Thus, the believer finds new hope and strengthened faith in difficult times, knowing that God is working all things together for good (Rom 8:28) through His great engineering expertise.

Affordance-based reverse engineering of natural systems with possible corruption provides a novel and fruitful approach to explaining the negatives associated with the human condition. Human corruption can actually result in positive affordances if approached with humility and repentance. The above examples demonstrate how reverse engineering of artificial systems lend insight into reverse engineering of natural systems. Further work is needed to explore the fruitfulness of this approach. It is hoped that affordance-based reverse engineering of natural systems will lead to a better understanding of such systems and the underlying negative factors associated with the human condition. It is also hoped that this approach will have apologetic and evangelistic value among skeptical scientists and engineers.

BIBLIOGRAPHY

<u>Books</u>

Achtemeier, Paul J., ed. "Apostasy." *Harper's Bible Dictionary.* San Francisco: Harper and Row, 1985. 40.

_____. "Ex Nihilo." *Harper's Bible Dictionary.* San Francisco: Harper and Row, 1985. 192-193.

_____. "Satan." *Harper's Bible Dictionary.* San Francisco: Harper and Row, 1985. 908.

Aland, Barbara et al., eds. *The* UBS *Greek New Testament: A Reader's Edition*. Stuttgart: Deutsche Bibelgesellschaft, 2007.

Alon, Uri. *An Introduction to Systems Biology: Design Principles of Biological Circuits*. Boca Raton, FL: CRC Press, 2006.

Avise, John. *Inside the Human Genome: A Case for Non-Intelligent Design*. New York: Oxford University Press, 2010.

Barnhouse, Donald Grey. *Man's Ruin. Expository Messages on the Whole Bible, Taking the Epistle to the Romans as a Point of Departure*. Wheaton, IL: Eerdmans, 1952.

Barr, James. *Biblical Faith and Natural Theology.* New York: Oxford University Press, 1993.

Barth, Karl. *Church Dogmatics II.1: The Doctrine of God*. Edinburgh: T&T Clark International, 1957.

_____. *Church Dogmatics IV.4: The Christian Life.* London: T&T Clark International, 2004.

Behe, Michael. *Darwin's Black Box: The Biochemical Challenge to Evolution*. New York: Free Press, 2006.

Bradley, Walter. "Is There Scientific Evidence for an Intelligent Creator of the Universe?" In *Science: Christian Perspectives for the New Millennium*, ed. S. Luley, P. Copan, and S. Wallace, 159-204. Woodstock, VA: Christian Leadership Ministries, 2003.

Brunner, Emil and Karl Barth. *Natural Theology: Comprising 'Nature and Grace' by Dr. Emil Brunner and the Reply 'No!' by Dr. Karl Barth*. London: Centenary Press, 1946.

Bube, Richard H. "Natural Revelation." In *The Encounter between Christianity and Science*, ed. Richard H. Bube, 67-82. Grand Rapids: Eerdmans, 1968.

Calvin, John. *Commentaries on the Epistle of Paul the Apostle to the Romans*. Translated and edited by John Owen. Edinburgh: T&T Clark, 1849.

_____. *Institutes of the Christian Religion*. Grand Rapids: Eerdmans, 1989.

Chambers, Oswald. *My Utmost for His Highest*. Uhrichsville, OH: Barbour Publishing, 2000.

Cheek, Dennis William "Is there Room for the Spirit in a World Dominated by Technology? Pentecostals and the Technological World." In *Science and the Spirit: A Pentecostal Engagement with the Sciences*, ed. Amos Yong, 192-208. Bloomington, IN: Indiana University, 2010.

Childs, Brevard S. *Old Testament Theology in a Canonical Context*. Philadelphia: Fortress Press, 1985.

Cone, Marta, et al., eds. "Epistemology." *New Oxford American Dictionary*. New York: Oxford University Press, 2010. 572.

Corey, Michael A. *God and the New Cosmology*. Lanham, MD: Rowman and Littlefield, 1993.

_____. *The God Hypothesis: Discovering Design in our "Just Right" Goldilocks Universe*. Lanham, MD: Rowman and Littlefield, 2001.

Craig, William Lane and J. P. Moreland. *The Blackwell Companion to Natural Theology*. Malden, MA: Blackwell, 2009.

Cranfield, C. E. B. *Romans: A Shorter Commentary*. Grand Rapids: Eerdmans, 1985.

Davis, Jimmy H. and Harry L. Poe. *Chance or Dance? An Evaluation of Design*. West Conshohocken, PA: Templeton Foundation Press, 2008.

Dembski, William A. *Intelligent Design: The Bridge between Science and Theology*. Downers Grove, IL: InterVarsity Press, 1999.

_____, and Jonathan Wells. *The Design of Life: Discovering Signs of Intelligence in Biological Systems*. Dallas: Foundation for Thought and Ethics, 2008.

Denton, Michael. *Nature's Destiny: How the Laws of Biology Reveal Purpose in the Universe*. New York: The Free Press, 1998.

Dunn, James D. G. *Romans 1-8*. Dallas: Word Books, 1988.

Elwell, Walter A., ed. "Special Revelation." *Evangelical Dictionary of Theology*. Grand Rapids: Baker, 2001. 419.

_____. "Transcendence." *Evangelical Dictionary of Theology*. Grand Rapids: Baker, 2001. 1037.

Fitzmyer, Joseph A. *Romans*. New Haven, CT: Yale University Press, 1993.

Fyodorov, S. *Svyatoslav Fyodorov: Just a Magician Who Gives Back Sight (Soviet Ophthalmologist)*. Moscow: Novosti Press, 1988.

Geivett, R. D. "David Hume and a Cumulative Case Argument." In *In Defense of Natural Theology,* ed. James F. Sennett and Douglas Groothuis. 297-315. Downers Grove, IL: InterVarsity Press, 2006.

Gene, Mike. *The Design Matrix: A Consilience of Clues*. Los Angeles: Arbor Vitae Press, 2007.

Halsmer, Dominic M. "Why Engineers Make Good Apologists." In *Religion, Culture, Curriculum, and Diversity in 21st Century America*, ed. Mary Alice Trent, 85-94. Lanham, MD: University Press of America, 2007.

Hubbard, D.W. *How to Measure Anything: Finding the Value of Intangibles in Business*. Hoboken, NJ: Wiley, 2010.

Kierkegaard, Soren. *Philosophical Fragments*. Translated by D. F. Swanson. Princeton, NJ: Princeton University Press, 1962.

Kragh, Helge. *Matter and Spirit in the Universe: Scientific and Religious Preludes to Modern Cosmology*. London: Imperial College Press, 2004.

Lamp, Jeffrey S. *The Greening of Hebrews? Ecological Readings in the Letter to the Hebrews*. Eugene, OR: Wipf and Stock, 2012.

Landis, Raymond B. *Studying Engineering: A Road Map to a Rewarding Career*. Los Angeles: Discovery Press, 2007.

Lodahl, M. *God of Nature and of Grace: Reading the World in a Wesleyan Way*. Nashville: Kingswood Books, 2003.

Maier, Jonathan R. A. *Affordance Based Design: Theoretical Foundations and Practical Applications*. Saarbrucken, Germany: VDM Verlag, 2011.

Marchant, Jo. *Decoding the Heavens: A 2,000-Year-Old Computer and the Century-long Search to Discover Its Secrets*. Cambridge, MA: Da Capo Press, 2010.

McGrath, Alister E. *The Science of God: An Introduction to Scientific Theology*. London: T&T Clark International, 2004.

_____. *The Open Secret: A New Vision for Natural Theology*. Malden, MA: Blackwell, 2008.

_____. *A Fine-Tuned Universe*. Louisville: Westminster John Knox Press, 2009.

_____. *Surprised by Meaning: Science, Faith and How We Make Sense of Things*. Louisville: Westminster John Knox Press, 2011.

Michaelis, Wilhelm. "οραω." *Theological Dictionary of the New Testament*. Edited by Gerhard Friedrich. Grand Rapids: Eerdmans, 1967.

Moo, Douglas. *Romans*. NIV Application Commentary. Grand Rapids: Zondervan, 2000.

Newman, J. *Religion and Technology*. New York: Praeger Publishers, 1997.

Otto, K. and K. Wood. *Product Design: Techniques in Reverse Engineering*. Englewood Cliffs, NJ: Prentice-Hall, 2000.

Paley, William. *Natural Theology*. Oxford, England: Oxford University Press, 2006.

Petroski, Henry. *Success through Failure: The Paradox of Design*. Princeton, NJ: Princeton University Press, 2006.

Placher, William C. *The Domestication of Transcendence: How Modern Thinking About God Went Wrong*. Louisville: Westminster John Knox, 1996.

Polkinghorne, John and Nicholas Beale. *Questions of Truth: Fifty-one Responses to Questions About God, Science, and Belief*. Louisville: Westminster John Knox, 2009.

Ratzsch, Del. *Nature, Design, and Science: The Status of Design in Natural Science*. Albany, NY: State University of New York Press, 2001.

Rana, Fuzale. *The Cell's Design: How Chemistry Reveals the Creator's Artistry.* Grand Rapids: Baker, 2008.

Richardson, Don. *Eternity in their Hearts*. Ventura, CA: Regal Books, 1981.

Rogers Jr., Cleon L. and Cleon L. Rogers III, *The New Linguistic and Exegetical Key to the Greek New Testament*. Grand Rapids: Zondervan, 1998.

Ross, Hugh. *Beyond the Cosmos: What Recent Discoveries in Astrophysics Reveal about the Glory and Love of God.* Colorado Springs: NavPress, 2010.

Savransky, S. *Engineering of Creativity: Introduction to TRIZ Methodology of Inventive Problem Solving*. Boca Raton, FL: CRC Press, 2000.

Schonborn, Christoph. *Chance or Purpose? Creation, Evolution, and a Rational Faith*. San Francisco: Ignatius Press, 2007.

Schreiner, Thomas R. *Romans.* Baker Exegetical Commentary on the New Testament. Grand Rapids: Baker, 1998.

Seargent, David A. J. *Planet Earth and the Design Hypothesis*. Lanham, MD: University Press of America, 2007.

Sedley, David. *Creationism and Its Critics in Antiquity*. Berkeley, CA: University of California Press, 2007.

Strobel, Lee. *The Case for a Creator: A Journalist Investigates Scientific Evidence that Points Toward God*. Grand Rapids: Zondervan, 2004.

Swinburne, Richard. *The Resurrection of God Incarnate*. Oxford, England: Oxford University Press, 2003.

Torrance, Thomas F. *Transformation and Convergence in the Frame of Knowledge: Explorations in the Interrelations of Scientific and Theological Enterprise.* Eugene, OR: Wipf and Stock, 1998.

Von Rad, Gerhard. *Wisdom in Israel.* Nashville: Abingdon, 1972.

Wahlberg, Mats. *Reshaping Natural Theology: Seeing Nature as Creation*. New York: Palgrave Macmillan, 2012.

Wilson, E. O. *Consilience: The Unity of Knowledge*. New York: Vintage Books, 1998.

Wisnefske, Ned. *Our Natural Knowledge of God: A Prospect for Natural Theology After Kant and Barth.* New York: Peter Lang, 1990.

Zuckmayer, Carl and Karl Barth. *A Late Friendship: The Letters of Karl Barth and Carl Zuckmayer*. Translated by G. W. Bromily. Grand Rapids: Eerdmans, 1982.

Periodicals

Aldridge, P. and K. T. Hughes. "Regulation of Flagellar Assembly." *Current Opinions in Microbiology* 5, no. 2 (2002): 160-5.

Alexander, D. "Worshipping God with Technology." *Cambridge Papers* 12, no. 4 (2003): 2.

Avise, John. "Footprints of Non-sentient Design Inside the Human Genome." *Proceedings of the National Academy of Sciences USA* 107, Supplement 2 (2010): 8969-8976.

_____. "Reply to Murray and Schloss: Designer Genes?" *Proceedings of the National Academy of Sciences USA* 107, no. 30, (2010): E122.

Ball, Phillip. "What a Shoddy Piece of Work is Man." *Nature News Online*. 3 May 2010. N.p. http://www.nature.com/news/2010/100503/full/news.2010.215.html (14 April, 2013).

Bouzard Jr., Walter C, "The Theology of Wisdom in Romans 1 and 2: A Proposal." *Word and World* 7, no. 3 (1987): 281-291.

Burgess, S. C. "Multi-Functioning and Multi-Optimization in Feathers." *International Journal of Design and Nature* 1, no. 1 (2007): 1-10.

Coffey, David M. "Natural Knowledge of God: Reflections on Romans 1:18-32." *Theological Studies* 31, no. 4 (1970): 674-691.

Halsmer, Dominic, Jon Marc Asper, Nate Roman, and Tyler Todd. "The Coherence of an Engineered World." *International Journal of Design & Nature and Ecodynamics* 4, no. 1 (2009): 47-65.

IEEE. *Transactions on Automatic Control and Circuits and Systems: Joint Issue on Systems Biology*. January 2008.

Johnson Jr., S. Lewis. "Paul and the Knowledge of God." *Bibliotheca Sacra* 129, no. 513 (1972): 61-74.

Keck, Leander E. "Romans 1:18-23." *Interpretation* 40, no. 4 (1986): 402-406.

Kim, K., et al. "Epigenetic Memory in Induced Pluripotent Stem Cells." *Nature* 467 (2010): 285-290.

Maier, Jonathan R. A. and G. M. Fadel. "Affordance Based Design Methods for Innovative Design, Redesign and Reverse Engineering." *Research in Engineering Design* 20, no. 4 (2009): 225-239.

McGowan, P. O., et al. "Epigenetic Regulation of the Glucocorticoid Receptor in Human Brain Associates with Childhood Abuse." *Nature Neuroscience* 12, no. 3 (2009): 342-348.

Murray, M. J. and J. P. Schloss. "Evolution, Design, and Genomic Suboptimality: Does Science 'Save Theology?'" *Proceedings of the National Academy of Sciences USA* 107, no. 30, (2010): E121.

Niculescu, M. D. and D. S. Lupu. "Nutritional Influence on Epigenetics and Effects on Longevity." *Current Opinion in Clinical Nutrition & Metabolic Care* 14, no. 1 (2011): 35-40.

Ochsenmeier, Erwin. "Romans 1,20: Knowing God through His Acts in History." *Zeitschrift fur die Neutestamentliche Wissenschaft und die Kunde der Alteren Kirche* 100, no. 1 (2009): 45-58.

O'Rourke, John J. "Romans 1:20 and Natural Revelation." *Catholic Bible Quarterly* 23, no. 3 (1961): 301-306.

Polanyi, Michael. "Life's Irreducible Structure." *Science* 160 (June 21, 1968): 1308-1312.

Richardson, Alan. "Whose Architect and Maker is God." *Theology Today* 8, no. 2 (1951): 155-156.

Shields, Bruce E. "The Areopagus Sermon and Romans 1:18ff: A Study in Creation Theology." *Restoration Quarterly* 20, no. 1 (1977): 23-40.

Tomlin, C. J. and J. D. Axelrod. "Understanding Biology by Reverse Engineering the Control." *Proceedings of the National Academy of Sciences* 102 (2005): 4219-4220.

VanderMarck, William. "Natural Knowledge of God in Romans: Patristic and Medieval Interpretations." *Theological Studies* 34, no. 1 (1973): 36-52.

Wolff, G.L., et al. "Maternal Epigenetics and Methyl Supplements Affect *Agouti* Gene Expression in *Avy/a* Mice." *The Federation of American Societies for Experimental Biology Journal* 12 (1998): 949-957.

Young, Richard Alan. "The Knowledge of God in Romans 1:18-23: Exegetical and Theological Reflections." *Journal of the Evangelical Theological Society* 43, no. 4 (2000): 695-707.

Other Sources

Cheek, Dennis William. "Theology and Technology." Ph.D. diss., University of Durham, 2007.

Green, Matthew G. and Paul R. Leiffer. "Enhancing International Humanitarian Design Projects: A Contextual Needs Assessment Case Study of Remote Power for Faith-based Organizations." *Proceedings of the Christian Engineering Education Conference*. http://www.calvin.edu/academic/engineering/ces/ceec/2008/ CEEC2008program.pdf (14 April 2013).

Halsmer, D., T. Todd, and N. Roman. "Integrating the Concept of Affordance into Function-based Reverse-engineering with Application to Complex Natural Systems." *Proceedings of the ASEE Annual Conference* (2009).

Lamp, Jeffrey S. (jlamp@oru.edu). Reply to Query Regarding MA Thesis. E-mail to Dominic Halsmer (dhalsmer@oru.edu) (3 April 2013).

Skelton, Robert. "Feedback Control Systems." Class notes from A&AE 464 Linear Control Systems. Purdue University, August 1984.

VITA

Dominic Michael Halsmer was born in Lafayette, Indiana on February 28, 1962, the son of Josephine McCarthy Halsmer and Joseph Lawrence Halsmer. After completing his work at Central Catholic High School, Lafayette, Indiana in 1980, he entered Purdue University at West Lafayette, Indiana. He received Bachelor of Science and Master of Science Degrees in Aeronautical and Astronautical Engineering from Purdue University in 1985 and 1986, respectively, and a PhD in Mechanical Engineering from UCLA in 1992. He is the former Dean of the College of Science and Engineering at Oral Roberts University. He now serves as the Director of the Center for Faith and Learning at ORU. He has been teaching science and engineering courses at ORU for 20 years, and is a registered Professional Engineer in the State of Oklahoma. His current research interests involve contributions from the field of engineering to the current science/theology discussion, educating the Christian community on science and faith issues, reverse engineering of natural systems, and the preparation of scientists and engineers for missions work within technical communities. He and his wife Kate have been blessed with four children who are growing up way too fast. He enjoys playing intramural sports such as ultimate, volleyball, and basketball, and actually thinks that running the ORU Fun Run is fun. He also enjoys vegetable gardening, chess, cross-country, salsa-making, researching, speaking, and writing on science and faith issues, disc golf, reading, tossing a Frisbee back and forth, spending time with his wife, berry-picking, and running in small town races.

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